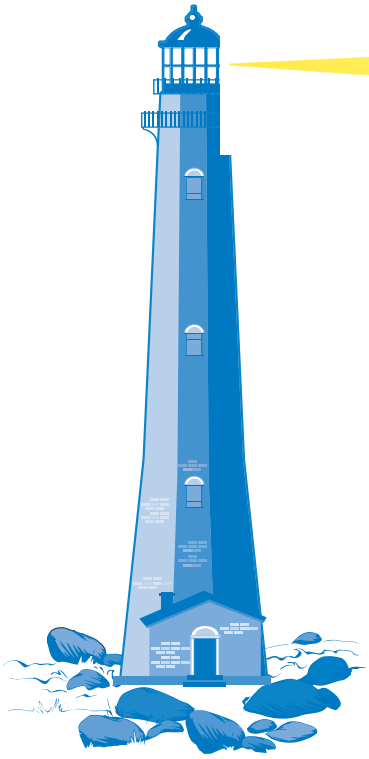

"Integrity is your destiny—it is the light that guides your way." - Plato

Ethics & Quality

Abstracts Volume

31 May - 3 June 2005
Hyatt Regency Cambridge
Boston, Massachusetts, USA

IAIA

IAIA'05 • 25th Annual Conference of the
International Association for Impact Assessment

Featuring Keynote Speakers

- **James Gustave Speth**
  Author of *Red Sky at Morning*
- **Edith Brown Weiss**
  Chair of the World Bank Inspection Panel
- **Taimalelagi Fagamalama Tuatagaloa-Matalavea**
  Anglican Observer at the United Nations

IAIA 1980-2005 • Celebrate the Spirit!

This document printed with funds from
the Government of Canada/CEAA and US EPA.

Notes

This document contains the abstracts for papers, posters, and theme forum presentations from IAIA'05, *Ethics and Quality in Impact Assessment*, the 25th annual conference of the International Association for Impact Assessment.

Abstracts and updates received by IAIA online per submission and updating guidelines and with the presenting author registered in full on or before 22 March 2005 are included.

Abstracts (as available) are arranged in the order in which presentations are listed in the program. An author index is included at the end of this volume. Abstracts have been formatted for style consistency; text and contact information are otherwise reproduced as submitted by the author(s).

Table of Contents

THEME FORUMS

• • •

• • •

• • •

• • •

• • •

• • •

• • •

• • •

• • •

• • •

• • •

• • •

• • •

• • •

Theme Forums

TF1. SUSTAINABILITY ETHIC

TF2. TRANSPARENCY IN DECISION-MAKING IN IMPACT ASSESSMENT

Public Participation: A Prerequisite for Sustainable Development

Gélinas, Johanne; Commissioner of the Environment & Sustainable Development Office of the Auditor General of Canada, 240 Sparks Street, 11th Floor, West Tower, Ottawa, Ontario K1A 0G6 Canada. (613) 995-3708. Fax (613) 941-8286. johanne.gelinas@oag-bvg.gc.ca.

Canada's Commissioner of the Environment and Sustainable Development, Johanne Gélinas, leads a specialized unit within the Office of the Auditor General of Canada and will bring to bear her experience in monitoring the Canadian government's approach to institutionalizing sustainability and auditing the results achieved. She will also discuss her efforts to provide a vehicle for public involvement in the form of the Environmental Petitions Process as well as address governance issues as they relate to sustainable development, notably in regard to the implementation of national and international commitments.

Transboundary EIA and Its Contribution to Participatory Management

Schang, Scott; Troell, Jessica; Environmental Law Institute, 200 L. Street NW, Suite 260, Washington, DC 20036 USA. 1 202 939 3800. Fax 1 202 939 3868. law@eli.org.

This presentation focuses on transboundary environmental impact assessment (TEIA), a planning tool that has the potential to implement the norms of participatory management in the context of international water resources. At both the regional and international levels, treaties and more informal mechanisms are emerging that include TEIA as a means for taking both a precautionary and participatory approach to planning activities with potential transboundary impacts. The presentation will discusses the range of instances in which TEIA has emerged as an accepted international legal tool for the management of transboundary environmental impacts, paying special attention to the mechanisms for public participation incorporated into these instruments and policies; and offer some observations on the potential strengths and weaknesses of TEIA as a practical tool for fostering public participation in the management of transboundary watercourses.

Quality Public Participation During An EIA

Greyling, Tisha; Golder Associates Africa (Pty) Ltd, Block A, Thandanani Park, Matuka Close Halfway Gardens, Johannesburg, Gauteng 1685 South Africa. (011) + 27 254-4954. Fax (001) + 27 315-0317. tgreyling@golder.co.za.

Quality Public Participation during an EIA begins with the end in mind—sustainable development. This requires a constructive process where the public participation practitioner facilitates a relationship of trust between the developer, government and civil society where they pool their collective wisdom to achieve better decisions than each would have been able to achieve independently.

First Nations and EIA: A Critical Tool for Cultural Preservation and Self Determination

Moses, Ted; Grand Council of the Crees, Cree Regional Authority, 277 Duke Street, Suite 100, Montreal, Quebec H3C 2M2 Canada. + 1 514 861 5837. Fax + 1 514 861 0760. CRA@GCC.CA.

Impact assessment is an important tool for Aboriginal Peoples in preserving their cultures and ways of life and also in defining a future for their communities. Perhaps we are so concerned about the future because we have a long association with the land that has served us well and any major changes to this create doubts about the future. It was our vision in 1975 to set up a regime of impact assessment and review that gave equal importance to the social and environmental aspects of project impacts. This remains our view today. The more that a project is designed around the details of the local environment and social context the greater the likelihood that it will minimize its negative impacts and maximize the positive ones. This is the basis of the 1975 treaty, and it is also the principle of the New Agreement that we have with Quebec known as the Paix des Braves. Social, economic and environmental elements must be dealt with in the review of any proposed project. The regime succeeds to the extent that it brings the local people into the development of the territory and also to the extent to which it preserves what the people see as the continuation and development of their culture and way of life. For this to happen, the environment must

maintain its diversity and potential to support future generations. For the regime to continue to function, it also must be modernized and evaluated to make sure that it continues to meet the needs of the territory.

TF3. IMPACT ASSESSMENT FOLLOW-UP: ACHIEVING SUSTAINABLE OUTCOMES

Impact Assessment (IA) Follow-up: Achieving Sustainable Outcomes- Opening Remarks by Chair

Baker, Jill; Environment Canada, 351 St. Joseph Blvd., Gatineau, Quebec K1A 0H4 Canada. 819-953-1695. Fax 819-953-4093. jill.baker@ec.gc.ca.

There are multiple aspects to Impact Assessment (IA) follow-up and throughout the past few years, various facets of this domain have been discussed at IAIA workshops. In 2005, the IA follow-up theme forum will provide further insight into a few issues, specifically in relation to the overall conference theme of quality in IA. The theme forum will focus on the role of follow-up in relation to: quality control in IA follow-up via the use of monitoring and indicators; quality control by follow-up; and, follow-up for strategic environmental assessment (SEA) or Sustainability Assessment. The forum will also provide insight into effective participation of local communities, specifically indigenous peoples, in IA follow-up. The Panel presentations promise to provide a basis for an engaging and informative discussion between the Panel members and the forum participants.

Impact assessment, follow-up, strategic environmental assessment (SEA)

Indicators and Monitoring as Tools in IA Follow-Up

Dulin, Paul; Consultant, PO Box 388, Hatch, New Mexico 87937 United States. 505 267-3130. Fax 505 267-1716. pdulin@aol.com.

How do we practitioners of impact assessment (IA) know when and if we have achieved the objectives of environmental and social mitigation measures and management plans stipulated as conditionalities to IA and project approvals, and when and if we achieve sustainable outcomes? Are our suppositions concerning environmental, social, cultural and economic impacts and their mitigation correct? What indicators should we be monitoring and what are the most effective and cost-efficient tools and instruments to do this monitoring? Indicators selected to gauge the effectiveness of environmental and social management systems do not always yield conclusive data concerning the actual impacts of project activities, nor are they necessarily responsive to real-time changes. And what about indicators of cumulative effects? Project managers and the public are always asking: What is happening?

Government agencies, universities and private companies have developed a broad array of tools and instruments used in monitoring environmental, social and economic changes. These range from remotely-sensed imagery, water and air quality testing and recording instruments, to geo-positioning satellite and geographic information systems. But they also include innovative field-level tools and methodologies such as rapid area assessments (biological, socioeconomic), household surveys and focus groups, and environmental health assessments. Environmental, social, cultural and economic characteristics and regulatory frameworks vary from country to country. Indicators selected for projects in Frankfurt or Kalamazoo are not necessarily appropriate in Cuzco or Katmandu.

This concurrent session is linked to the Theme Forum entitled "Impact Assessment Follow-up: Achieving Sustainable Outcomes." Papers presented in the session will include case studies, lessons learned and examples of best practices in the effective and efficient use of indicators for IA follow-up; and examples of state-of-the-art methods and tools in the monitoring of environmental, social, cultural and economic indicators useful in IA follow-up.

Indicators, environmental quality, monitoring, follow-up

Quality Control by EIA Follow-Up: Promoting Adaptive Environmental Management

Morrison-Saunders, Angus; Murdoch University, South Street, Murdoch, WA 6150 Australia. + 618 9360 6125. A.Morrison-Saunders@murdoch.edu.au.

Ultimately it is project management and environmental outcomes that matter most in impact assessment. EIA follow-up provides necessary learning from experience; it is a form of quality control for impact assessment. The uncertainties associated with impact predictions and changing states of the environment require an adaptive approach. Static mitigative measures are not always effective. Having a robust but flexible process for dealing with management issues throughout the life of a project provides quality control in impact assessment content (eg. quality of monitoring, evaluation, management and communication). It also promotes organisational learning. EIA

follow-up tools that can be employed for adaptive management include environmental management programs (EMPs) and contingency plans. These can be simply but effectively provided for in EIA regulations and procedures. Ultimately, the credibility and utility of impact assessment is enhanced through follow-up and adaptive environmental management.

EIA follow-up, adaptive environmental management, EMP, outcomes, contingency plans.

Going Beyond Projects: Follow-Up for SEA and Sustainability Assurance

Arts, Jos; EIA/Transportation Centre, Ministry of Transport, PO Box 5044, Delft, 2600 GA The Netherlands. + +31 15 2518461. Fax + +31 15 2518555. e.j.m.m.arts@dww.rws.minvenw.nl.

Increasing experience is being gained with follow-up of project EIA. Ultimately though, this is limited due to the narrow focus on single projects in isolation of other developments. The question is: How to move beyond project-oriented follow-up? SEA follow-up may provide a useful answer. It might deal better with such issues as the dynamic context of projects and long-term, large scale and cumulative effects on ecosystems.

However this raises a new question: How to do SEA follow-up? Especially, how to deal with the abstract, complex and dynamic nature of strategic planning and decision-making? An answer might be found in applying a multi-track approach to SEA follow-up using existing tools. One could think of: overall state of the environment monitoring for measuring goal-achievement, auditing conformance of decision-making at other tiers for adaptive planning and management, and in-depth evaluation of performance of actual impacts of strategic plans.

In this way SEA follow-up might be seen as a quality control mechanism at the strategic level. It safeguards adequate tiering of impact assessment throughout the planning process. And, it ensures that statements about goals, objectives and desired impacts are not just "paper tigers". Understood in this way, SEA follow-up might become a tool for ongoing learning about performance and for adaptive management of uncertainties throughout the planning process. Thus it will help to achieve the objective of sustainability assurance by impact assessment.

Follow-up, EIA, SEA, sustainability assurance, quality control, multi-track approach

Follow-Up Principles for Effective Inclusion of Indigenous Peoples: Openness, Respect, Communication and Independence

Ross, William A.; Environmental Design, University of Calgary, 2500 University Drive, Calgary, Alberta T2N 1N4 Canada. 1 403 220 6961. Fax 1 403 284 4399. ross@ucalgary.ca.

Public participation in EIA properly extends into follow-up. Doing this effectively when indigenous people are affected by projects imposes additional challenges, such as cross cultural communication, but can yield significant rewards through the application of local (traditional) knowledge. Based on Canadian experience, openness, respect, communication (with project proponents, governments and affected indigenous people) and especially independence are principles to follow. Independence from both the proponent and from government provides reassurance that the follow up results are sound and that the project's effects are well understood and well managed. Respect for community elders is extremely important. These features contribute significantly to credibility within the community, a benefit to the proponent and to governments as well as to the affected public. Effective involvement of indigenous communities in follow up programs can take advantage of superior expertise as well as building good will. Capacity building in the affected communities is a very valued by-product that should not be overlooked. Openness in reviewing and understanding the results of monitoring programs can lead to sound adaptive management for the project as well as building better understanding that can be applied to future projects, the two purposes of follow-up.

EIA follow-up, indigenous people, independence, openness, communication, capacity building

TF4(1). ASSESSMENT, VALUES AND NEW APPROACHES TO VALUATION METHODS

Beyond Pricing: Economics and Collaborative Decision-Making

Howarth, Richard; Dartmouth College, 6182 Steele Hall, Hanover, NH 03755 USA. 603-646-2752. Fax 603-646-1682. RBHowarth@Dartmouth.edu.

This talk will explore the links between cost-benefit analysis and participatory approaches to environmental decision-making. In cost-benefit analysis, the social benefits of environmental policies are calculated as the unweighted sum of the net benefits that accrue to each member of society. This approach is based on the

assumption that individuals have well-defined preferences that may be measured through nonmarket valuation. Participatory methods, in contrast, rest on the view that the values that pertain to policy decisions are socially constructed through a process of group deliberation. Drawing on concepts from democratic theory and the theory of cooperative games, the talk will argue that well-functioning groups may value environmental resources in a manner that departs systematically from the prescriptions of cost-benefit analysis. The talk presents a critical discussion of the normative principles that support each approach.

Environmental valuation, cost-benefit analysis, public participation

Values and Desired Future Conditions

Hull, R Bruce; Virginia Tech, College of Natural Resources, Blacksburg, VA 24061 USA. 540 231 7272. Fax 540 231 3698. hullrb@vt.edu.

Environmental planning efforts strive to identify desired future conditions (DFCs) that a majority of stakeholders agree describe ecologically sustainable, economically feasible, and socially acceptable environmental and social conditions. These DFCs serve as goals and accountability standards for environmental planning and management. DFCs are descriptive (facts). That is, they reflect objective and measurable qualities that are consistent with scientific method and theory. DFCs also are evaluative (value). That is, they reflect ethical positions, political agendas, and personal preferences. It is ill advised and probably impossible to separate the fact and value dimensions of DFCs. Instead, the integration of fact and value improves the utility of DFCs in assessments of environmental impact. DFCs from forest fire restoration projects will be used to illustrate these points and suggest means for understanding and capturing public values in environmental impact assessments.

Values, impact assessments, public participation

Identifying Ocean Values: a Case Study in the Application of Anthropological Methods

Lilley, Jonathan; University of Delaware, College of Marine Studies, Robinson Hall, Newark, DE 19716 USA. + 1 302 831 4665. jclilley@udel.edu.

With the publication of the U.S. Commission on Ocean Policy report in 2004 and the Pew Oceans Commission study in 2003, there is a growing realization of the need to develop better public awareness of ocean issues. Although a number of studies have investigated the knowledge that Americans possess of the marine environment, the values, beliefs and mental models (simplified representations of the world that allow individuals to understand more complex processes) that underpin such knowledge have not been explored. Anthropological methods have successfully been used in the past to identify such attributes with regard to broader environmental issues and are utilized here to identify specific ocean values. Drawing on data collected in two separate studies, this paper outlines the anthropological concepts that are identified, describes the methods used to obtain the data, and suggests a number of ocean values that exist in contemporary society.

TF5. BOSTON ARTERY/TUNNEL PROJECT: PANEL DISCUSSION

TF6. THE ROLE OF THE LEGAL SYSTEM IN SAFEGUARDING ETHICS AND QUALITY IN IMPACT ASSESSMENT

The Constitutional Right to an Environment and the Development of Environmental Assessment Law in South Africa

Glazewski, Jan; University of Cape Town, Faculty of Law, Kramer Law Building, Middle Campus, University of Cape Town, Cape Town, Western Cape 7700 South Africa. + 27-21-650 3075. Fax + 27-21-6505660. glaz@law.uct.ac.za.

The inclusion of a right to an environment which is conducive to health and well-being in South Africa's first democratic Constitution, adopted just over a decade ago, provided major impetus for the development of both environmental laws and an environmental jurisprudence in the country. This paper examines this phenomenon in the context of the development of environmental impact assessment laws in the country.

In the South African context environmental impact assessment must be seen against the backdrop of the internationally accepted norm of sustainable development, which has been defined in the National Environmental Management Act, 107 of 1998, as "the integration of social, economic and environmental factors into planning,

implementation, and decision-making so as to ensure that development serves present and future generations." (S. 1(1) (xxix)). The consideration of social factors, in particular poverty alleviation, in decision-making is particularly pertinent in the context of South Africa's first and third world character.

This paper examines progress made, and pitfalls encountered, in developing a cohesive environmental assessment jurisprudence in South Africa's nascent developing democracy. It does so by assessing and analyzing the plethora of environmental assessment laws and regulations which have proliferated the South African statute book in the last decade and a number of reported cases in this regard.

Environmental right, environmental impact assessment law, South Africa

The Challenges of Environmental Assessment in a Federal State

Lockwood, Andrea; Department of Justice (Canada), EMB 3rd Floor, 284 Wellington Street, Ottawa, Ontario K1A 0H8 Canada. 613-946-1945. Fax 613-941-1937. andrea.lockwood@justice.gc.ca.

Canada's Constitution allocates powers between two levels of government. The "environment" as such is not an enumerated head of power, and jurisprudence has clearly established that it is an area of shared jurisdiction.

This paper will outline the environmental assessment regime of the Canadian federal government against a backdrop of a landmark 1992 Supreme Court of Canada decision which found that environmental impact assessment guidelines were binding on the federal government. This paper will outline and analyze the Canadian Environmental Assessment Act which was the federal government's legislative response to the decision. The paper will describe the ongoing challenges of attempting to reconcile the holistic objectives of impact assessment with the principles of federalism in a state where powers over matters which have an impact upon the environment are divided. Consideration will be given to the ethical challenge of attempting to reconcile what may seem to be conflicting principles within a framework which seeks to achieve the objectives both of quality impact assessment and sustainable development.

This paper will outline some of the specific issues which have arisen with the implementation of the Canadian Environmental Assessment Act, and will describe changes made as a result of a recent five-year review. Jurisprudence, mostly at the level of the Canadian Supreme Court, will also be reviewed.

How Evolution of EIA Legislation Affects Practice in International Institutions

Di Leva, Charles E.; The World Bank Legal Department, Mail Stop MC 6-601, (Room MC6-449), 1818 H Street, N.W., Washington, DC 20433 USA. + 1 202 458 1745. Fax + 1 202 522 1573. cdileva@worldbank.org.

International instruments and international organizations have had a long and positive effect on the development of environmental impact assessment related legislation. Most scholars trace EIA-related legislation back to U. S. NEPA. While this had undoubtedly powerful influence, the United Nations Environment Program and multilateral financial institutions such as the World Bank have guidelines and policies that enabled them use their multilateral status to further national legislation to a great extent. In addition, these practices were duly influenced by international law, both "hard" and "soft" law. Today, recent developments in this field, as witnessed by the recent proposals of the International Finance Corporation (the private sector arm of the World Bank Group), may lead to an even more modern approach to environmental impact assessment. This paper will trace the history of EIA at the international level, reviewing some of the practices of international institutions, and discuss their impact at the national level.

TF7. ETHICS AND QUALITY IN TRADE IMPACT ASSESSMENT

Integrated Trade Assessment: Challenges and Progress

Kirkpatrick, Colin; The University of Manchester, U.K., Booth St. West, Harold Hankins Building, Manchester, Manchester M13 9QH U.K. + 44(0)161-275 2807 ex5280. Fax + 44-161-273-8829. colin.kirkpatrick@manchester.ac.uk. http://www.sed.manchester.

The ongoing debate over the impact of trade liberalisation has led to significant advances in the methodologies and practice of assessing the economic, social and environmental impacts of trade policy. Much less progress has been made, however, in integrating these separate approaches to provide a balanced assessment of the impact on sustainable development.

This presentation will consider the problems of integrating economic, environmental and social assessment, and will discuss the development and application of a sustainability impact assessment (SIA) methodology to the WTO global trade negotiations.

Integration, sustainability impact assessment, methodology, WTO

Building on Experience and Addressing Challenges

Shuttleworth, Jaye; Foreign Affairs Canada, 111 Sussex Dr., Ottawa, Ontario Canada. (613) 944-0428. jaye.shuttleworth@international.gc.ca.

Discussions related to impact assessment of trade began over a decade ago. Since then, national governments, non-governmental and multilateral organizations have completed assessments using a range of methods and processes. While it is widely accepted that impact assessment of trade can contribute to timely, strategic and coherent policymaking, several important challenges remain. The Government of Canada's Framework for Environmental Assessment of Trade Negotiations in 1999 and initial assessment reports have been issued for four negotiations. Experience has shown that the Canadian process will continue to evolve as practitioners deal with limited data and modelling capacity during analysis, determine how consultations can be more effective, and strengthen the connection between impact assessment findings and policy making processes. Key elements to the continual evolution of the Canadian process include review of existing sources to determine how these could address current problems, purposeful information sharing and capacity building based on identified needs, and ongoing relationship building.

Theme Forum on Trade Impact Assessment

Carpentier, Chantal Line; Commission for Environmental Cooperation, 393 St-Jacques O. Suite 200, Montreal, Quebec H2Y 1N9 Canada. 514 350-4336. Fax 514 350-4314. clcarpentier@cec.org. www.cec.org.

The panelists will address the ethics and quality issues that arose in the CEC's work on assessing the environmental impacts of trade, in particular how these issues arose and were dealt with in the process of developing its Analytical framework. This process took four years and was carried out in a transparent and participatory way.

CEC Environmental Assessment Framework

The Need for Public Participation

Vaughan, Scott; Organization of American States (OAS), 1889 F Street NW, Room 610, Washington, DC 20006 USA. 202 458 6248. Fax 202 458 3560. svaughan@oas.org. http://www.oas.org.usde.

Environmental assessments of trade are tools used by governments and decision makers for policy design and to inform the process of trade negotiations. Methodological concerns related to environmental assessments of trade have been widely discussed for over a decade. However, the relationship of these concerns with ethics and quality considerations, such as public participation in the process and its influence on the outcome of an assessment, has not been addressed.

While economic policy decisions and trade efficiency benefit substantially from the information related to the impacts of trade on the environment, the influence of this information can vary significantly based on the perceived legitimacy of the assessment process.

By engaging citizens and communities responsibly in environmental decisions, governments strengthen their democracies and promote sustainability. Assessment methodologies that include stakeholder consultations may result in better outcome and benefits for sustainable economic policies.

The experience of several organizations that have been analyzing the effects of trade on the environment indicates that engagement of citizens is as essential for legitimacy of both the process and the results, as is the recognition of methodology or scientific basis for an assessment. The process counts as much as the results and the outcomes; it should be open and transparent.

Environmental Assessment of Trade, public participation, ethics and quality

TF4(2). ASSESSMENT, VALUES AND NEW APPROACHES TO VALUATION METHODS

Improving Deliberations by Incorporating Alternative Knowledge Sources: Examples from Water Use Planning

Long, Graham; Compass Resource Management, Suite 200, 1260 Hamilton Street, Vancouver, BC V6B 258 Canada. + 1 604 641 2875. glong@compassrm.com.

Gregory, Robin.

Deliberative processes seek to combine meaningful consultation involving diverse stakeholders with strong technical analysis.

Although there is a general recognition that this requires input on the values side from community residents and other local knowledge holders as well as academics and government or industry representatives, most factual information about impacts still comes from technical studies conducted by trained scientists. We contend that a frequent result is that valuable information from local aboriginal or community residents is neglected as part of stakeholder consultations. In this paper we report on deliberative methods that have been developed, as part of several case studies in water use planning, to help level the playing field between scientific and alternative knowledge sources. This involves the critical evaluation of knowledge sources, including probes of the uncertainty and confidence underlying scientific assessment of impacts, and a re-evaluation of the conventional values elicitation methods that serve as the basis for hypothesis development and testing.

Implications for collaborative stakeholder consultations are discussed in the context of methods that highlight, rather than minimize, the different insights to be gained through the inclusion of these alternative perspectives.

From Environmental Ethics to a Philosophy of Participatory Resource Management

Norton, Bryan; School of Public Policy, Georgia Institute of Technology, 685 Cherry Street, Atlanta, GA 30332 USA. 404-894-6511. Fax 404-385-0504. bryan.norton@pubpolicy.gatech.edu.

While writings in environmental ethics have mostly debated theories of environmental value on the assumption that environmental values will be of one type--economic values or values intrinsic to nature itself--new opportunities to understand environmental values have emerged from more pluralistic approaches to environmental valuation. If, as seems empirically true, citizens value nature and natural places in quite different ways, it may be possible to represent these differing value conceptions as alternative criteria fit into a multi-criteria assessment package. Discussion and debate about environmental values would then be transformed from all-or-nothing ideological disagreements about the nature of environmental value into deliberations about the comparative weighting that should be given by the society to these multiple criteria.

Values, valuation, public participation, deliberation

Ethical Issues in the Nature and Structure of Technocratic Impact Assessment

Bryan, Hobson; Department of Geography, The University of Alabama, Box 870322, Tuscaloosa, Alabama 35487-0322 United States. 205-348-1950. hbryan@bama.ua.edu.

This paper explores ethical implications of technocratic approaches to impact assessment. The focus is on long-known weaknesses inherent to the nature and structure of the process. These include: the politics of public participation that still tends to be too technical, too late, and too little; assessments containing the weight of evidence that still tends to be too "heavy," too jargon-ridden, and too encyclopedic; and a process that still tends to be too segmented, too disciplinary, and too "environmental." The author offers alternatives to technocratic assessment that imply more effective public participation, more manageable and effective documentation, and more integrated processes--and more ethical processes of decision-making.

Environmental impact assessment, social impact assessment, public participation

TF8. QUALITY ENHANCEMENT THROUGH PEER REVIEW?

The Dilemma Facing Developing Countries. Do We Have The Capacity To Tell The Good From Bad

Allotey, Jonathan A.; Environmental Protection Agency

In developing countries most environment impact assessment (EIA) systems are young and evolving and have to deal with critical issues of handling undertakings that will create employment and improve the standard of living of communities and also protect the environment.

The managers of the system may not have any experience with such undertakings. To handle such tasks requires information and knowledge and experience and lessons of similar undertakings elsewhere in similar environments and contexts to make decisions in sometime.

This occurs against a highly expectant population with different perceptions of the possible impacts on their lives and environment, politicians desirous of ensuring project approval and environment, and officials ensuring environment damage is minimal. How does one handle these different pressures? The presentation brings out the issues and possible solutions.

TF9. CORPORATE SOCIAL AND ENVIRONMENTAL RESPONSIBILITY

The Final Frontier of |Corporate Responsibility: Measuring Social Performance

Clarke-Whistler, Karen; Golder Associates Europe, 78 Cannon Street, London, England EC4N 6Nq UK. + 44 207-618-6477. kwhistler@golder.com.

Companies routinely measure performance in core business areas such as finance, production, worker health and safety, and environment. However the measurement of social performance remains a challenge. Social issues are perceived as being 'soft' or 'intangible' and not amenable to quantitative measurement. This does not mean that social issues cannot be identifed, analysed, measured and reported on. This paper describes a frameowrk for measurement of social performance that can be applied at corporate, operations, or facility level. It describes key elements of social performance, covering areas of risk and opportunity. It then identifies indicators to measure performance in areas such as 1) the quality of stakeholder engagement; 2) social impact mitigation; 3) the effectiveness of social performance programme management and delivery; and 4) progress on philanthropy and social investment. Case studies are presented that illustrate the use of the framework.

Making Profits, Protecting our Planet: Corporate Responsibility for Environmental Performance in Asia and the Pacific

Annandale, David; School of Environmental Science, Murdoch University, Perth, Australia. annandal@essun1.murdoch.edu.au.

Rapid economic growth has swept through Asia and the Pacific in recent years - a trend that is drastically changing the nature and scale of humanity's impct on natural ecosystems and the carrying capacity of the planet. Clearly it would be foolish not to think about, and plan for, the strains that this economic activity will place on natural resources and the environment if current trends continue. In the Asia/Pacific region, public environmental policy has not worked a well as it could. Agencies responsible for environmental regulation tend not to have the political power of their counterparts, and they are often chronically understaffed and underfunded. There is, of course, another way of thinking about environmental protection that puts a much greater emphasis on a new role for the private sector, one in which it accepts a greater degree of responsibility and accountability for environmental performance.

This paper will comment on recent work that is being undertaken in Asia to encourage the development of corporate environmental management tools. It will concentrate specifically on recent work being undertaken by the Asian Development Bank as part of its Asian Environmental Outlook 2005 report.

TH10. THE OHIO RIVER MAINSTEM SYSTEMS STUDY (ORMSS)—A CASE STUDY ILLUSTRATING INNOVATIVE APPROACHES

Overview and Status of ORMSS

Rife, Veronica; U.S. Army Corps of Engineers, PO Box 59, Louisville, KY 40201-0059 USA. 502-315-6785. Veronica.L.Rife@lrl02.usace.army.mil.

Swor, Tom; U.S. Army Corps of Engineers, PO Box 1070 (PM-P), Nashville, TN USA. 615-736-7853. carl.swor@us.army.mil.

The economic, engineering, and environmental components of a comprehensive study of the waterway navigation system on the Ohio River, and its needs for maintenance, rehabilitation, and expansion to 2060 will be described. The current completion status of the ORMSS will be addressed along with integrated investment and environmental planning in the post-study period beginning in 2006.

Navigation Planning, the Use of Scenarios for Future Traffic, and the Ohio River Navigation Investment Model (ORNIM)

Walker, Wesley; U.S. Army Corps of Engineers, 502 8th Street, Huntington, WV 25701 USA. 304-399-6938. Wesley.W.Walker@lrh01.usace.army.mil.

Hammond, Mark.

The traditional approaches for evaluating economic benefits and costs for navigation projects will be summarized along with innovative approaches for addressing the limitations of current practices. Innovative approaches include the use of combinations of nonstructural measures along with potential lock expansions, considerations of multiple traffic forecasts (scenarios) based on continuous monitoring of navigation traffic and movement of goods, and the use of a time-sensitive investment model to facilitate the identification of least-cost investment options.

Cumulative Effects Assessment as the Integral Component of the Programmatic EIS

Canter, Larry; Environmental Impact Training, PO Box 9143, Horseshoe Bay, TX 78657-9143 USA. 830-596-8804. Fax 830-596-8804. envimptr@aol.com.

The appropriateness of cumulative effects assessment (CEA) as the integrating tool for an impact study at the programmatic level will be addressed. Further, innovative approaches for planning and conducting a CEA will be described, including the use of an Inter-agency Working Group to aid the scoping process, the use of reasonably foreseeable future action matrices for identifying impacts of multiple actions on specific valued environmental components (VECs) and their subcomponents, the use of indicators of environmental sustainability (ES) for the selected VECs and the approach used to relate effects to consequences on sustainability, and the structure of the written documentation for each selected VEC.

TF11. THE ROLE OF IMPACT ASSESSMENT IN BROKERING REVENUE TRANSPARENCY

Panel on Brokering Revenue Transparency, the role of Impact Assessment

Madec, Andre; Exxon Mobil Corporation, 5959 Las Colinas Boulevard, Irving, Texas 75038 USA. + 1 972 444 1196. andre.madec@exxonmobil.com.

Abstract of introductory remarks to the Q&A session:

Initiated in 2002 by UK Prime Minister Tony Blair, the Extractive Industry Transparency Initiative (EITI) arose from concerns that revenues created by natural resource projects in developing countries might not benefit the wider public and contribute to social advancement.

The EITI has attracted considerable international and private sector interest.

The EITI takes a country-by-country approach whereby governments voluntary agree to adhere to the principles, objectives and reporting guidelines of the initiative. All companies operating in such countries agree to report their payments to governments. Third parties, which include international financial institutions such as the World Bank, help countries build the technical and administrative capacity for collecting and publishing the information. ExxonMobil has long supported transparency. Even before the EITI was launched we participated to a pathbreaking initiative in Chad, where a new oil project will help meet growing world oil demand. In partnership with the World Bank and the Government of Chad, a formal Revenue Management Plan was agreed. Nearly 90 percent of the payments to government will be dedicated to high priority education, health and infrastructure programs.

The revenues are made public by the World Bank on a monthly basis, and are independently monitored and subject to annual audits.

First oil was produced in Chad in July 2003, nearly two years later projects funded by the oil revenues are coming off the ground, while local job opportunities, and contracts for the supply of local goods and services required for oil production provide another direct support to the local economy.

Working Towards 'Joined Up' Policy—Impact Assessment and Revenue Management

Shankleman, Jill; United States Institute of Peace, js@jshankleman.co.uk.

Managing the economic and political challenges of natural resource revenues is the key issue for developing countries seeking to avoid the 'curse of oil'. Impact assessment for individual projects is one of the few opportunities for any kind of public debate on this. In a few cases, discussed in the paper, natural resource companies have undertaken widely scoped project ESIAs that do discuss revenue management. This is to be welcomed. However the principal issues of revenue management cannot be resolved at the project level. The greater potential value of impact assessment is from strategic assessment at the country or producing region level. The paper reviews some steps in this direction and proposes a framework for more systematic use of strategic impact assessment in brokering revenue management.

TF12. IA PROFESSIONAL ACCREDITATION: IMPLICATIONS FOR ETHICS, QUALITY AND IAIA

TF10(2). THE OHIO RIVER MAINSTEM SYSTEMS STUDY (ORMSS)—A CASE STUDY ILUSTRATING INNOVATIVE APPROACHES

Analysis of Environmental Sustainability for the ORMSS

Swor, Tom; U.S. Army Corps of Engineers, PO Box 1070 (PM-P), Nashville, TN 37202-1070 USA. 615-736-7853. carl.swor@us.army.mil.

A conceptual qualitative model for relating the effects of multiple past, present, and future actions to changes in selected indicators of ES for the VECs will be described. Practical definitions of ES for water quality, freshwater mussels, and riparian resources will also be presented. Further, the use of the ES findings to delineate collaborative mitigation needs for specific VECs will be discussed, including the use of expert groups, interacting in a non-constrained mode, wherein the focus is on the scientific and policy needs related to the VEC and not tied to agency responsibilities or budgetary limitations.

Analyses of Cumulative Effects on and Sustainability of Freshwater Mussels

Harrell, Lorna; Woolpert, Inc., 4141 Rosslyn Drive, Cincinnati, OH 45209 USA. 513-272-8300. lornaharrell@email.com.

The importance of freshwater mussels as an aquatic resource in the Ohio River will be described for historical, current, and anticipated future conditions. The importance of the life cycle of mussels will also be noted in relation to the effects of multiple actions and the selection of ES indicators. Cumulative effects on freshwater mussels will be described relative to past, present, and future effects on the ES of this VEC. The approach used for this VEC was repeated for other VECs in the CEA study.

Monitoring and Adaptive Management—a Prospective Tool for Environmental Management

Canter, Larry; Environmental Impact Training, PO Box 9143, Horseshoe Bay, TX 78657-9143 USA. 830-596-8804. Fax 830-596-8804. envimptr@aol.com.

When related to programmatic impact studies and CEA, adaptive management typically incorporates designed monitoring of resources and management or project actions, and the periodic adaptation of such actions based on the monitoring results. Such adaptations are focused on reducing negative environmental consequences or enhancing positive trends. The key elements in planning an adaptive management program will be described, including management objectives, use of conceptual or quantitative models, targeted monitoring, management choices, multiple stakeholder involvement, and a decision process for adapting impact-causing actions.

Potential Applications of the Methods and Approaches Used in This Case Study

Swor, Tom; U.S. Army Corps of Engineers, PO Box 1070 (PM-P), Nashville, TN 37202-1070 USA. 615-736-7853. carl.swor@us.army.mil.

Canter, Larry; Environmental Impact Training, PO Box 9143, Horseshoe Bay, TX USA. 830-596-8804. Fax 830-596-8804. envimptr@aol.com.

A two-person panel will delineate potential applications of the innovative methods and approaches used in ORMSS. Such applications will be identified for both project-specific and programmatic studies, water resources and other types of impact studies, and localized to large-scale environmental consequences.

Concurrent Sessions

CS1. BIODIVERSITY: TREATED PROPERLY IN IMPACT ASSESSMENT? CONVENTION ON BIOLOGICAL DIVERSITY GUIDELINES

CBD Guidelines on Biodiversity in EIA & SEA

Slootweg, Roel; SevS natural and human environment consultants, Terweeweg 20, Oegstgeest, ZH 2341 CR The Netherlands. + 31-71-5283150. Fax + 31-71-5283149. sevs@sevs.nl. www.sevs.nl.

Kolhoff, Arend; Netherlands Commission for Impact Assessment, Utrecht, The Netherlands. akolhoff@eia.nl. www.sevs.nl.

Verheem, Rob; Netherlands Commission for Impact Assessment, Utrecht, The Netherlands. rverheem@eia.nl. www.eia.nl.

Hoft, Robert; Secretariat of the Convention on Biological Diversity, Montreal, Canada. robert.hoft@biodiv.org. www.biodiv.org.

The Convention on Biological Diversity (CBD) Secretariat has requested the Netherlands Commission for Impact Assessment to assist in preparing Guidelines for the Integration of Biodiversity Considerations in Environmental Impact Assessment and Strategic Environmental Assessment. Members of the Biodiversity and Ecology section of IAIA already have developed guidelines for screening and scoping for project EIA. These guidelines were adopted by the CBD, Ramsar Convention on Wetlands and the Convention on Migratory Species. Completion of the EIA guidelines and further development of guidelines for biodiversity in SEA was requested.

This new set of guidelines has been drafted in close consultation with the Biodiversity & Ecology and the SEA sections of IAIA. Inputs from the trade section are also being solicited. The guidelines are based on lessons learned from good quality cases in which biodiversity was an important issue. To ensure that the new guidelines fully reflect the experience of IA practitioners they will be introduced and opened for discussion and inputs at the annual IAIA conference in Boston. Further in-depth discussion on the SEA section of the guidelines is planned for the special SEA conference in Prague. The activity is part of IAIA's Action Programme for Biodiversity in Impact Assessment and will be organized in close collaboration with IAIA's Capacity Building on Biodiversity in Impact Assessment (CBBIA) project. It is hoped the document can be discussed at SBSTTA-11 in December 2005, in order to present the guidelines for adoption by the CBD Conference of Parties in 2006.

Biodiversity, EIA, SEA, guidelines

CS2. TRADE: BASIC AWARENESS BUILDING SESSION ON INTERNATIONAL TRADE

McCormick, Rachel; Foreign Affairs Canada, 111 Sussex Dr., Ottawa, Ontario Canada. (613) 741-8276. rachel.mccormick@international.gc.ca.

Carpentier, Chantal Line; North American Commission for Environmental Cooperation, 393 St-Jacques O, Bureau 200 Montreal, Quebec Canada. (514) 350-4336. clcarpentier@cec.org.

International trade is a prominent element of economic activity and policy in most regions of the world. However, many people remain unexposed to how the international trade regime functions. This interactive session will improve participant awareness regarding the basics of international trade agreements, governance, and negotiations. It will also introduce different methodologies for assessing the impacts of international trade. These assessments provide information that improves understanding of the effects of trade liberalization and often include public consultations. The findings can facilitate integrated decision making for international trade policy. Although the session will be of interest to anyone wanting to improve their basic awareness on the topic of international trade, it will provide a particularly useful foundation for individuals attending the IAIA '05 sessions on ethics and quality in trade impact assessment.

CS3. EMS: CASE STUDIES

Environmental Impact Assessment as a Tool in Health, Safety and Environmental Management Planning: the West Africa Gas Pipeline Project

Gibson, Will; ICF Consulting, Suite 1000, 1725 Eye Street, NW, Washington, DC 20006 USA. 202 862 1144. Fax 202 862 1144. WGibson@icfconsulting.com. www.icfconsulting.com.

Cornwell, John; ChevronTexaco, 4800 Fournace PlaceHouston, TX 02421 USA. 713 432 3562. corj@chevrontexaco. www.icfconsulting.com.

Thrun, Kathy; ICF Consulting Inc, 33 Hayden AvenueLexington, MA 02421 USA. 781 676 4090. KThrun@icfconsulting.com.

Palmer, Walter; ICF Consulting Inc, 9300 Lee Highway, Fairfax, VA 22031 USA. 703 934 3252. WPalmer@icfconsulting.com.

Health, safety and environmental systems (HSEMS) are an essential management tool for ensuring compliance with regulations pertaining to health, safety and the environment, for facilitating good management practice with HSE issues and for improving project performance. Private-sector companies from the developed world, such as energy companies, are using HSEMS in the projects they undertake in the developing world not only to attain those objectives but also to demonstrate the attainment of those objectives to stakeholders such as the local communities and NGOs, both local and external.

This paper relates how West African Gas Pipeline Company (WAPCo) proposes to construct the West African Gas pipeline (WAGP) to deliver natural gas from Nigeria to industrial customers in Benin, Ghana, and Togo. WAGP's objective to deliver a reliable source of energy to these three countries will enhance the regional environment, accelerate regional integration, economic growth, and stability, and reduce open flaring of natural gas in Nigeria.

This paper outlines the WAGP HSEMS and describes how one of its most important elements, the WAGP HSE Management Plan (HSEMP), relies upon the environmental and social impact assessments undertaken by ICF Consulting and its partners in West Africa, namely how, for each of the identified potential impacts, the HSEMP provides relevant regulatory requirements and WAPCo operational controls, and outlines the monitoring approach /schedule required to comply with those requirements and operational controls, and measures to mitigate those negative impacts.

Energy development operations can profit from a wide range of benefits that result from HSEMS implementation, such as operational savings, reduced occupational safety incidents and increased community confidence.

Environmental Impact Assessment, Environmental Management Plan, WAGP.

Estimate of Removal Capacity of Nutrients from the Buffer Strip in Daecheong Reservoir

Kim, Tae Geun; Department of Environmental Engineering, Cheongju University, 36 Naedok-Dong, Sangdang-Gu, Cheongju, Chungbuk 360-764 Republic of Korea. +82-43-229-8575. Fax +82-43-229-8432. ktkenv@cju.ac.kr.

Hong, Sang-Pyo; Department of Environmental Engineering, Cheongju University, 36 Naedok-Dong, Sangdang-Gu, Cheongju, Chungbuk 360-764 Republic of Korea. +82-43-229-8576. Fax +82-229-8432. sphong@cju.ac.kr.

Lee, Jong Ho; Department of Urban Planning, Cheongju University, 36 Naedok-Dong, Sangdang-Gu, Cheongju, Chungbuk 360-764 Republic of Korea. +82-43-229-8279. Fax +82-43-229-8233. jhlee1013@cju.ac.kr.

Shim, Sangbo; Department of Environmental Engineering, Cheongju University, 36 Naedok-Dong, Sangdang-Gu, Cheongju, Chungbuk 360-764 Republic of Korea. +82-11-9426-3716. Fax spec0815@hanmail.net.

The average of annual precipitation in Korea is 1,275mm, nearly 70% of which is concentrated in summer monsoon season(3 ~ 4months). This resulted in a large and rapid loss of rain water. However, since the various water demand has been increased progressively, many artificial reservoirs have been constructed to secure water resources in Korea.

Although most of artificial reservoirs in Korea are located at upstream and have little point sources, the water quality of these reservoirs has been degraded gradually. The main reason of the degraded water has been caused by the pollutant loads from nonpoint sources. Recently Korean government has planned to establish buffer strip for the management of nonpoint sources.

In this study, AnnAGNPS model was applied to simulate the T-N and T-P from nonpoint sources with and without the establishment of buffer strip in Daecheong reservoir as the 3rd largest reservoir in Korea. The buffer strip of Daecheong reservoir basin will be designated along both sides of riverside as wide as 300 ~ 1,000m according to mainstream and tributaries.

AnnAGNPS model was also applied to simulate the removal rate of nutrients from the buffer strip of Daecheong reservoir on the condition that the present landuse of buffer strip will be changed to grassland. As a result of simulation, the removal rates of nutrients from the buffer strip of Daecheong reservoir basin are 406 tons of T-N, 39 tons of T-P, which means reduction rates are T-N 17.9%, T-P 17.8% respectively.

Buffer strip, Daecheong Reservoir, Nonpoint Source, T-N, T-P

Dredged Material Management; An Aspect Often Ignored in Most Impact Assessment Studies in Nigeria

Ohimain, Elijah; Rohi Biotechnologies Ltd, Suite 227 NIPOST Headquarters Building, 10 Station Road,, Port Harcourt, Rivers Nigeria. 234-80-23166796. Fax 234-84-320622. eohimain@yahoo.com.

Oil exploitation in the Niger delta has brought much fortune to the Nigerian state, accounting for nearly 90% of the country's earnings. Oil exploration is often saddled with access difficulties because of the dendritic and anatomizing creeks that are highly silted up, hence dredging is often carried out to create navigable accesses for drilling, construction and operational activities. During dredging, the soil, vegetation and sediment along the right of way (ROW) are removed and typically dumped over bank upon fringing wetland vegetation and abandonment. Unfortunately, most operating companies are at loss on how to handle the accompanying dredged spoil, so are the IA practitioners. Hence in many EIA reports, dredged spoil management are either ignored or at best mainly recognized as a problem without any mitigation measures proffered. Abandoned spoils of mangrove origin typically contain pyrites that releases acidic leachates upon exposure, which contaminate the environment causing heavy impacts on wetland vegetation and fisheries. As a result of the altered topography, native wetland vegetation is no longer able to re-colonize such areas, hence invasive species tend to become dominant. Also, migrant fisher folk inhabit many of the spoil dumps and in most cases dangerously close to highly pressured oil and gas installations. Routine maintenance activities such as oil spill clean up along dredged canals often cause conflicts between the oil companies and the dredged spoils inhabitants. The inability of the EIAs to address dredged spoil management issues, which has led to environmental and social impacts reduces the value of the EIA as a pre-emptive measure against environmental impacts and therefore has some ethical implication. Notwithstanding, many of these projects have approved EIAs. The paper therefore highlights the environmental impacts of dredged spoil abandonment and provides options for the handling of dredged materials sustainably.

Wetlands, mangrove, dredging, dredged materials/spoils, Niger Delta

Making the ESMPs Operative in the Field: Proposed Best Practice for Transmission Lines in Latin America

Cardinale, Pablo; InterAmerica Development Bank, 1300 New York Ave, N.W., Washington, DC 20577 USA. 202.6233062. Fax 202.312.4124. pabloc@iadb.org. www.iadb.org.

Montgomery, Robert; InterAmerican Development Bank, 1300 New York Ave, N.W., Washington, DC USA. 202.6232384. Fax 202.312.4124. robertm@iadb.org. www.iadb.org.

Katz, Ricardo; Ecology and Environment, Inc., Padre Mariano 103 Of.307 Santiago, Chile. + 562.236.0886. Fax + 562.235.1100. RKatz@ene.com. www.ecolen.cm.

Sierralta, Leonel; Ecology and Environment, Inc., Padre Mariano 103 Of.307 Santiago, Chile. + 562.236.0886. Fax + 562.235.1100. lsierralta@gac.cl. www.ecolen.cm.

Environmental managers and practitioners often find difficulties in assuring effective implementation and appropriate monitoring of environmental and social prevention and mitigation measures by construction, supervision, and maintenance crews in the field. This is particularly relevant to large infrastructure projects. This paper presents an approach proposed by the Private Sector Department of the Inter-American Development Bank and Ecology and Environment Inc., for the construction of transmission lines in Latin American countries. Environmental and social information is incorporated into field instruments typically used in the industry to build transmission lines such as "Ho Chi Min" charts, weekly work orders, and location and access maps, thus helping to assure field crews are aware of the relevant applicable procedures of the Environmental and Social Management Plans (ESMPs) at each site. Sensitive habitats, archeological sites, and vulnerable communities are shown in location and access maps. Work orders and "Ho Chi Min" charts clearly identify the applicable environmental and social procedures for each section of the transmission line. This approach results in the integration of environmental and

social mitigation and control measures into daily construction activities. The development of this approach facilitates the training of construction crew workers on the ESMP procedures and the development of coherent environmental supervision and monitoring activities during construction. Additionally, the location and access maps for the construction phase are an integral part of the ESMPs for project operation phase, especially related to project monitoring and maintenance activities. The authors believe this efficient, effective, and innovative approach constitutes a best practice for the sector in Latin America.

ESMP, EMS, electric transmission, Bolivia, best practice

CS4. PUBLIC PARTICIPATION

"No Surprises" – A Practical Approach to Successful EIAs

Federico, Robert; Jacques Whitford, 3 Spectacle Lake Drive, Halifax, Nova Scotia B3B 1W8 Canada. 902-468-7777. Fax 902-468-9009. rfederic@jacqueswhitford.com.

Surprises may be good for birthday parties and movie endings, but are definitely unwelcome in the practical world of regulatory EIA. In general, EIA is an exercise in building predictability, confidence, and transparency among proponents, stakeholders and regulators. Predictability is desirable in terms of appropriate levels of scientific knowledge, understanding of the proposed project, as well as general public and regulatory expectations.

Unfulfilled expectations or misunderstanding (i.e., surprises) can have unwanted consequences ranging from stakeholder mistrust, reduced scientific credibility, project delays, or even application rejection. In general, surprised people will react by delaying a proposal rather than allowing it to move forward, even if they would otherwise be supportive.

EIA practitioners can play a key role in establishing mutual expectations for EIA process and outcomes, particularly in complex, multi-stakeholder environmental approval regimes.

Building shared expectations and understanding among participants takes a steady effort at all EIA stages. Building a collaborative approach to EIA – that is, the feeling that all (or most) participants are on the same "side" in promoting an environmentally acceptable project - creates a cushion of trust in the event that surprises do, in fact, occur. The author's experience has shown that the "no surprises" approach to EIA can expedite approvals and build trust in proposed developments, particularly in jurisdictions where informal interactions with regulators are just as crucial as the formal requirements and guidelines.

This paper will describe the EIA approach used by the author and colleagues at the environmental consulting firm Jacques Whitford. Some of the methods used to reduce surprises include: early, informal meetings with regulators; presentation of project descriptions; EIA scoping and related presentations; informal consultations with regulators and scientific authorities throughout the process; and special information sessions as required.

Environmental impact assessment

Does Behaviour of Public During Public Participation Reflect Public Responsibility?

Albayrak, Ali; Ministry of Environment and Forest, Eskisehir Yolu 8.km A Blok 1.kat, 1 nolu oda, Ankara, Ankara 06530 Turkey. +90 312 2879963/2206. Fax +90 312 2852910. albayrakali@yahoo.com. www.cevreorman.com.tr.

Cinar, Medet; Ministry of Environment and Forest, Eskisehir Yolu 8.km A Blok 2.katAnkara, Ankara 06530 Turkey. +90 312 2879963/2206. Fax +90 312 2852910. mcinar@cevreorman.gov.tr. www.cevreorman.com.tr.

Satilmis, M. Mustafa; Ministry of Environment and Forest, Eskisehir Yolu 8.km A Blok 1.kat, 2 Nolu Oda, Ankara, Ankara 06530 Turkey. +90 312 2879963/2206. Fax +90 312 2852910. mcinar@cevreorman.gov.tr. www.cevreorman.gov.tr.

EIA has been implemented in Turkey since 1993. Turkey is a large country and has almost all types of Annex I and Annex II projects. Public participation process is an obligatory process and for 950 Annex I Projects and 11400 Annex II Projects, Public Participation Meetings have been conducted. These figures are extremely high figures in the region and even in Europe, indicating that public opinion and public reaction is valuable for Ministry of Environment and Forest (MoEF) during EIA procedure. Local Environmental directorates conduct a public participation meeting and selected member(s) of EIA Committee attend this meeting together with project owner and EIA consultant. The general rules and principles followed for the meeting will be detailed including recent developments in MoEF, providing internet access for all EIA Reports. Public attending to these meetings have

different purposes and expectations. It is generally not easy to determine the real situation. The behavior of Public generally depends on their level of education, on their level of income and on their personal interest. In this paper, the characteristic behaviors will be detailed by using selected EIA projects, and it will be explained how the public reacts opposite for similar projects located in different cities. Public responsibility and ways of increasing the public awareness and providing the information on time is extremely important. Last improvements in MoEF, for this purpose, is the Establishment of EIA Training and Information Center that will provide extra opportunities for all stakeholders to access and share the information. Public responsibility can be achieved by means of common understanding of EIA procedure together with all stakeholders.

Public participation, Turkey, public responsibility, behavior of public

Public Participation as a Catalyst of Change in Environmental Governance

Lam, KC; Chinese University of Hong Kong , Advisory Council on the Environment of HK SAR, The Chinese University of Hong Kong, Shtain, N.T. Hong Kong SAR. + 852-26096458. kinchelam@cuhk.edu.hk.

The EIA process in Hong Kong allows the public to provide views on the scope of the EIA, the final report and the environmental outcome as revealed in EIA follow-up activities. At the same time, all EIA reports have to be scrutinized by an independent council which advises the government on the acceptability of the EIA findings. Through this institutional arrangement, the public and advisory council can not only access the EIA data and information but also influence government decision-making. While this may result in occasional environmental contentions and disputes, it also brings positive impacts on the ethics of practitioners and the quality of the EIA reports. With reference to the experience and actual cases in Hong Kong, this paper analyzes how discussions in the public domain have influenced major EIA decisions, how the disputes have been managed and resolved and how the public participation process has shaped, rather imperceptibly, environmental policies, mode of decision-making and dynamics between the government, public and private sectors. These changes have fostered a new mode of environmental governance that is becoming increasingly transparent, accountable and more conducive to the pursuit of sustainability. The paper argues that the effectiveness of EIA should not be gauged only by its influence on the project design and environmental outcomes but also by the extent it can foster sound policies and better governance practices. It is the change in environmental governance, rather than project design, which will have profound and longer-lasting impacts on the society.

Public participation, environmental governance, public decision-making, dispute resolution

Effectiveness and Efficiency: Principal Indicators of Quality Impact Assessment of Development Itervention

Karki, Lila; Institute of Project and Regional Planning, Justus Liebig University, Senckenberg Strasse-3Giessen, Hessen D-35390 Germany. 0049 641 99 37315. Fax 0049 641 99 37319. lila.karki@agrar.uni-giessen.de.

Bauer, Siegfried; Institute of Project and Regional Planning, Justus Liebig University, Senckenberg Strasse-3Giessen, Hessen Germany. 0049 641 99 37310. Fax 0049 641 99 37319. Siegfried.Bauer@agrar.uni-giessen.de.

In recent years, assessing impact of development intervention has been a key thematic issue. Methodological rigorousness for the effectiveness of the interventions has certainly been attributed to successful completions of projects in the past few years. This study was designed to assess the impact of a foreign aided livestock and natural resource management project implemented for smallholder peasants. Project intervention interacts multifaceted people's livelihood paradigm.

A with-without approach has been applied in the study. A randomized household survey was conducted to collect the primary data, applying a multi-stage random sampling procedure for 165 respondents in the mid hill region of Nepal. The collected cross sectional data has been analyzed using descriptive statistics, qualitative tools and techniques and econometric models to net out the anticipated impact at different levels of socio-economic and environmental implications. In addition, the effectiveness of the activities has been assessed using correlation matrices, points scaling, preference ranking and strengths, weaknesses, opportunities and limitation analyses.

The major factors that have influenced the farmstead and the local environment of the beneficiaries have been considered as major impact indicators. These factors include: technology application, physical production and productivity, natural resource paradigm, gender equity, local institutional arrangement, and beneficiaries' efficiency. Project intervention revealed a positive impact on the application of innovations, institutional development, degraded land improvement, equitable participation and production efficiency of the livestock enterprises. Notwithstanding, food security at the household level and women's involvement in decision-making process has been found not to have a significant influence.

The level of success, plausibility and sustainability of the impact could be enhanced by the beneficiaries' (particularly the women's) participation in project phases. Furthermore, a focus on capacity building opportunities would apparently surge the level of efficiency and transfer the ownership to the local users.

Project intervention, technology adoption, farm households, food security

CS5. QUALITY ASSURANCE, DATA QUALITY AND SCALE ISSUES

Data Quality Assurance Mechanisms for EIA and SEA

Joao, Elsa; Graduate School of Environmental Studies, University of Strathclyde, 50 Richmond Street, Level 6, Graham Hills Building, Glasgow, Glasgow G1 1XN Scotland. + 44 141 548 4056. elsa.joao@strath.ac.uk.

Previous research has found that data quality and scale choice can affect the outcomes of environmental assessment. This paper will propose different quality assurance mechanisms that can be put in place in order to ensure that the most appropriate data and scale is used in each case. The paper starts by reviewing current research on data quality and scale issues and how they affect the outcomes of impact assessment at both project and strategic level. Scale issues will be considered in relation to the choice of data that have more or less detail, and in relation to the choice of data that covers different (temporal or spatial) extent. The paper will contrast and compare scale and data issues between project EIA and SEA. The paper will initiate the discussion at the workshop "Quality assurance, data quality and scale issues".

Scale issues, data quality, quality assurance mechanisms

Data Presentation and Quality Assurance as Tools of Transparent and Objective Decision-Making

Thrun, Kathy; ICF Consulting, 33 Hayden Avenue, Lexington, MA 02421 USA. 781 676 4090. kthrun@icfconsulting.com. www.icfconsulting.com.

Gouveia, Dean; ICF Consulting, 33 Hayden Avenue, Lexington, MA USA. 781 676 4040. DGouveia@icfconsulting.com. www.icfconsulting.com.

Chemical, physical, biological, and socioeconomic data produced in the field and/or the laboratory provide the foundation for managing and addressing environmental and socioeconomic issues, just as medical diagnostics are critical to the health industry and product testing underlies the food and packaging industries.

Data are evaluated, presented, and transformed into information, which is then used as a basis for technical and economic decisions about the potential for or existence of environmental damage or socioeconomic vulnerability. The reliability of data is critical as these decisions are frequently made in the context of crucial permitting or litigation decisions. Available technologies and techniques allow the collection, quality assurance, storage, and presentation of that information to facilitate decision-making. Failure to incorporate these strategies can lead to collection of data that does not serve the final objectives or leaves data gaps obviating reliable decision-making.

Today, huge databases are produced, manipulated, and presented. Decision-makers are typically time constrained and ill equipped to grasp the entire database; thus authors distill the data to tables, graphics, and maps. Both the reliability and presentation of data fundamentally support whether information is transparently provided. This paper demonstrates a strategy of how a Quality Assurance program can provide some certainty that data are reliable and how presentation of data can bolster or hinder understanding and objective decision-making.

Data, quality assurance, transparent objective decision making

Qualtiy in Control? An Evaluation of the Quality, Costs and Time of Dutch EIA Studies for Road Projects

Kempenaar, Christa; EIA/Transportation Centre, Ministry of Transport, Public Works and Water Management, Postbus 5044Delft, -- 2600 GA Netherlands. + + 31 15 2518 483. Fax + + 31 15 2518 555. c.kempenaar@dww.rws.minvenw.nl.

Arts, Jos; EIA/Transportation Centre, Ministry of Transport, Public Works and Water Management, Postbus 5044Delft, 2600 GA Netherlands. + + 31 15 2518 483. Fax + + 31 15 2518 555. c.kempenaar@dww.rws.minvenw.nl.

Savanovic, Emilija; EIA/Transportation Centre, Ministry of Transport, Public Works and Water Management, Postbus 5044Delft, 2600 GA Netherlands. + + 31 15 2518 483. Fax + + 31 15 2518 555. c.kempenaar@dww.rws.minvenw.nl.

Paulussen, Astrid; EIA/Transportation Centre, Ministry of Transport, Public Works and Water Management, Postbus 5044, Delft, 2600 GA Netherlands. + +31 15 2518 483. Fax + +31 15 2518 555. c.kempenaar@dww.rws.minvenw.nl.

Wansink, Charlotte; EIA/Transportation Centre, Ministry of Transport, Public Works and Water Management, Postbus 5044Delft, 2600 GA Netherlands. + +31 15 2518 483. Fax + +31 15 2518 555. c.kempenaar@dww.rws.minvenw.nl.

A common complaint about Environmental Impact Assessment (EIA) is that EIA-studies are considered costly, lengthy, outdated and suffering from information overload. This issue is acknowledged by the Dutch Ministry of Transport – one of major players in the EIA field in the Netherlands being responsible for the development of the majority of EIA road projects. In order to keep EIA fit-for-purpose for the 21st century, the Ministry has carried out a research programme. The research addressed such questions as: What are the costs of EIA-studies? What time period is needed for preparing them? What is the quality of the resulting studies? How are these three dimensions related? And, how to control them better?

By the way, the research programme focused on the EIA-studies,not on the road development projects themselves. The research included the analysis of documents and management data, surveys and interviews. In order to get a balanced view from both inside and outside the Ministry of Transport, a variety of parties have been consulted in the research: project managers, political administrators of the Ministry as well as the independent EIA Commission and commercial consultancies.

This paper provides an overview of the main conclusions on quality, costs and time of EIAs for road projects. First, an analysis is given of the actual costs and time of the EIA studies and the factors that influence the quality, costs and time (efficiency and effectiveness). Subsequently, the relationships and trade-offs between these three dimensions are discussed. Then, the paper addresses ways for controlling the quality as well as the costs and time in future EIA-studies. One of the major conclusions is that a careful time management of projects provides the Ministry a useful control mechanism for managing the costs and quality of EIA-studies.

EIA, quality, time, costs, risks, efficiency/effectiveness, time management, road planning

CS6. AGRICULTURE, FORESTRY AND FISHERIES: WORKSHOP

Actioning EIA for Agriculture, Forestry and Fisheries

Duffy, Patrick; PJB Duffy and Associates Ltd., 5839 Eagle IslandWest Vancouver, British Columbia V7W 1V6 Canada. 604-921-6119. Fax 604-921-6664. pjbduffy@cs.com. ourworld.cs.com/pjbduffy/.

Russo, Laura; FAO Forestry Department, Viale delle Terme di Caracalla00100 Rome, Rome Italy. (39) 0657052044. Fax (39) 0657055137. Laura.Russo@fao.org. ourworld.cs.com/pjbduffy/.

In order to advance the work of the fledgling section on EIA in agriculture, forestry and fisheries, a session and workshop will be held to report on progress and to work on priority issues. This will be supported by a presentation by two practitioners active in the subject.

Building on the attention given to:

1. the status quo on EIA in these sectors,

2. useful lessons reported,

3. training at institutions,

4. to a current bibliography, and

5. to changing issues,

The section now needs to report on progress.

A focused workshop will concentrate on issues of interest to members and prepare action plans for individuals or teams to undertake.

An objective is to attract and engage members who are interested and/or active in the subject, and to move the program forward to confer benefits to the sectors.

Practitioners in relevant government and UN posts, multilaterals and bilaterals, academics and consultants, graduate students, and NGOs -- all are particularly welcome to participate.

Agriculture, forestry, fisheries, EIA, policy, UN agencies, regional banks

CS7. SEA: ADAPTING SEA TO DIFFERENT CONTEXTS AND SYSTEMS 1

Ethics in Political Decision-Making: Can an SEA Support a Politically Correct Choice ?

Van Dyck, Marc; Resource Analysis NV, Wilrijkstraat 37Antwerp, Antwerp B-2140 Belgium. + + 32 3 270 00 32. Fax + + 32 3 270 00 31. mvd@resource.be.

Impact assessment on a strategic level was designed to support sometimes controversial decisions on plans or programmes with a huge spatial, social and economical impact on the affected population. Politicians are well aware that SEA with its public inquiry supports the development of ideas. However, not all of these ideas fit into their political agenda.

A well-conducted study into environmental impacts meets practical problems that make them vulnerable to political influence:

- Institutional boundaries: Environmentally best solutions to a strategic problem do not always fit into the existing legislative framework or the level of competence. This forces the impact assessor to go upstream to a higher decision making level.
- Societal boundaries: The solutions are not always the most accepted by the population : politicians will not easily make unpopular decisions.
- Information boundaries: Social and economic consequences may be less investigated or known, and thus blown out of proportion, on the basis of rumours. Data may be incomplete, unavailable or not generally accepted and thus can be a questionable basis for impact assessment. Environmental impacts may be not well known.

Furthermore the strategic assessment should support the actual decision making process and should not be used to confirm a decision that already has been taken in the heads of politicians.

The paper will address several SEA cases in the Flemish and Dutch region:

- The Flemish port policy plan (2030)
- The mobility programme for Antwerp (2015)
- The integrated development scheme 2010 for the river Scheldt (Belgium/The Netherlands)
- The SIGMA-programme of flood risk reduction measures on the river Scheldt

The made-to-measure SEA approaches will be analysed. The supporting factors to overcome the difficulties in streamlining the SEA assessment with the ongoing political decision making process, as well as the pitfalls will be identified.

SEA, political decision-making

Applying SEA Effectively in Different Planning Contexts

Gazzola, Paola; University of Liverpool, Department of Civic Design, 74 Bedford Street SouthLiverpool, England L69 7ZQ UK. +44 (0)151 794 3453. Fax +44 (0)151 794 3125. gazzola@liv.ac.uk.

It is unlikely that SEA will develop into an effective decision support instrument globally if the knowledge that has contributed to the formulation of SEA theory and essential elements and criteria for good practice SEA, comes from a selected group of countries only. Furthermore, the understanding of how to apply SEA effectively in different planning systems cannot improve if the knowledge about those systems is limited.

This paper aims to bridge the gap and tailor elements and criteria for good practice SEA to different planning contexts. The aim is to assess the validity of those SEA good practice elements and SEA approaches portrayed in literature, and to identify system specific SEA elements and approaches for differing contexts, to achieve SEA effectiveness and to overcome the existing gap in literature. Furthermore, it's widely acknowledged that in order for

SEA to be successful a supportive culture is necessary. This implies a commitment to SEA by politicians and decision-makers and a positive attitude towards SEA by all those involved in the process. The purpose is to highlight the characteristics and degree of effectiveness of different existing institutional and legal frameworks, in which SEA is/will be applied, and to also acknowledge and identify differing value frames and expectations respecting the culture of different decision-making contexts. Once recognised, it will then be possible to identify more suitable (or valid) SEA elements and apply SEA effectively in different contexts.

Finally, it is suggested that recognising and understanding existing societal value frames, can tailor SEA to a specific policy making context. Only then, will SEA be able to have a positive impact on the environment and be applied as an effective decision support instrument globally.

This paper is a continuation from last year's paper and presents the progress on this PhD research.

SEA, effectiveness, planning systems, cultural values

Dynamics of a Decision Support System in Strategic Environmental Assessment Implementation

Gonzalez, Ainhoa; Dublin Institute of Technology, Department of Planning & Development, Dublin Institute of Technology, Bolton St., Dublin, Dublin D1 Ireland. 00353876624879. girobi@telefonica.net.

Gilmer, Alan; Dublin Institute of Technology, Department of Planning & Development, Dublin Institute of Technology, Bolton St., Dublin, Dublin Ireland. 0035314023806. alan.gilmer@dit.ie.

Foley, Ronan; National University of Ireland, Maynooth, National Centre for Geo-computation, National University of Ireland, Maynooth, Kildare Ireland. 0035317086024. ronan.foley@may.ie.

Sweeney, John; Department of Geography, Department of Geography National University of Ireland, Maynooth, Kildare Ireland. 0035317083684. john.sweeney@may.ie.

Fry, John; University College Dublin, Faculty of Agri-Food & Environment, University College Dublin, Belfield, Dublin, Dublin D4 Ireland. 0035317167730. john.fry@ucd.ie.

The adoption and implementation of the Strategic Environmental Assessment (SEA) Directive in EU Member States presents an opportunity to incorporate environmental concerns at early stages of plan and/or programme formulating processes, contributing to high-level conflict resolution and/or avoidance. However, SEA faces the challenge of identifying and defining a standardised, transparent and replicable assessment method. This work seeks to examine the fundamental characteristics of developing an appropriate mechanism that provides for timely and adequate stakeholder and public consultation, as well as monitoring/auditing, and that is applicable throughout the range of socio-political systems within European Member States. Similarly, current SEA approaches require further definition of plan/programme-specific evaluation criteria in addition to the designation of adequate and flexible sustainability goals.

This ongoing research study aims to develop a holistic approach that incorporates a Geographic Information Systems (GIS) software solution to ensure a more transparent, iterative and replicable methodology that enhances quality in the SEA process. This will require, among other things:

- Full and timely integration of public/stakeholder concerns/issues, by formulating standard and replicable stakeholder/public consultation map-based questionnaires and weighting criteria;
- Definition of environmental spatial indicators that will help in the monitoring/auditing stages.

The output of this approach will be the development of a user-oriented decision support system adapting current environmental assessment methods and adjusting GIS technology to suit SEA. Some preliminary outputs of the process are presented. The potential for the development of Geographical Information Systems as a tool for Strategic Environmental Assessment (GISEA) and its potential contribution to better decision-making are reviewed.

SEA, GIS, analysis tools, public consultation, decision-making, transparent methods, EU

SEA and Ramsar Convention in a Developing Nation Context: A Case Study in Colombia

Balfors, Berit; Royal Institute of Technology, Brinellvägen 28Stockholm, Stockholm 100 44 Sweden. + 46 8 790 63 52. Fax + 46 8 411 07 75. balfors@kth.se.

Azcárate, Juan; Royal Institute of Technology, Brinellvägen 28Stockholm, Stockholm 100 44 Sweden. + 46 8 790 86 08. Fax + 46 8 411 07 75. jfazca@hotmail.com.

Andersson, Kim; Royal Institute of Technology, Brinellvägen 28Stockholm, Stockholm 100 44 Sweden. +46 8 790 86 08. Fax +46 8 411 07 75. kim.j.andersson@spray.se.

Since the beginning of the 1990s, a discussion has been going on in most Western countries on the introduction of SEA in planning systems. As a result, SEA has been incorporated in national legislation for the assessment of government plans and programs. Due to the stimulus that has been given by international environmental conventions like the Ramsar Convention on Wetlands, developing nations have started to consider strategic environmental issues and SEA. However, until now, few investigations have been carried out to assess how the SEA framework suits developing nations. This paper attempts to give an account of both the positive and negative experiences that resulted when applying the current SEA framework together with Ramsar specifications in a case study for the Sonso Lagoon in Colombia. In this case study, SEA deals with development plans that positively affect the lagoon's environment to the detriment of its socioeconomic aspects. Additionally, this paper stresses the importance of stakeholder participation throughout the SEA process, and discusses the consequences of stakeholder inequalities created by social differences in developing nations. Finally, the paper highlights the need and benefits of an interdisciplinary working approach in the SEA process.

SEA, Ramsar, wetlands, case study, stakeholder participation, developing countries

CS8. IMPACT ASSESSMENT OF OIL AND GAS PIPELINES

Sasol Natural Gas Project–Ensuring Environmental Quality during Project Execution

Steinhardt, Bianca; Sasol Technology (Pty) Ltd, At Stander Building, Synfuels Road, Secunda, Mpumalanga 2302 South Africa. +27 (0)17 6192618. Fax +27 (0)11 5221970. bianca.steinhardt@sasol.com.

The Sasol Natural Gas Project consisted of eight individual projects and extended over two countries (Mozambique and South Africa). In general the Natural Gas Project consisted of drilling and exploring the natural gas fields in Mozambique, processing the natural gas in Mozambique, transporting the natural gas via a pipeline from Mozambique to South Africa and upgrading and converting the South African facilities.

Each of these projects underwent an Environmental Impact Assessment (EIA) which was conducted in accordance with the specific county's EIA requirements. Once the studies were completed, the challenge was in ensuring that during construction the contractor adheres to the Environmental Management Plans drawn up during the EIA. This paper focuses on the lessons learnt on the Sasol Natural Gas Project during the execution phase.

Organisational structures were put in place to ensure high quality outcomes during the construction of the project. The organisational structures included the environmental team, the project team and the authorities. The interaction of these critical stakeholders is also discussed.

Over and above the EIA, a Regional Environmental and Social Assessment (RESA) was conducted in order to comply with the World Bank commitments. The integration of this assessment with the authorities and the business owners is discussed.

Sasol, Natural Gas Project, pipeline, environmental management, plan, construction

Mozambique SASOL & Tanzania Songo Songo Pipelines

Robelus, Robert; World Bank.

Four new African pipelines (Chad-Cameroon Oil, Tanzania's Songo Songo Gas, Mozambique to S. Africa Sasol Gas, and Nigeria, Benin, Togo, Ghana's West African Gas) are compared with respect to the application of the World Bank's Social and Environmental Safeguard Policies.

Peru: Camisea Gas Pipeline

Goldzimer, Aaron; Environmental Defense.

Since August 2004, this 715 km underground pipeline carries natural gas (and gas liquids in a parallel pipe) from the Amazon forest in Peru's Urubamba valley, over the Andes to the coast in the buffer zone of Paracas Marine Reserve, thence to Lima. The wells and the ROW bisect Indigenous (eg: Nahua-Kugapakori Indigenous Reserve, Communal Reserve of Nikitine) and other reserves. The proponents are Transportadora de Gas del Peru and PlusPetrol/Techint of Argentina, Hunt Oil of Texas, supported by the Inter American Development Bank and others. The impacts on the

Indigenous Peoples, unplanned access along the ROW into the forest, and severe erosion along the ROW have been criticized.

CS9. HIA: KALEIDOSCOPE

Health Impact of Income-Generating Schemes on Grass-Roots Workers: A Local Public Policy and Planning Initiative in Remote Thailand

Inmuong, Uraiwan; Faculty of Public Health Khon Kaen University Thailand, Mittraphab RoadKhon Kaen, Khon Kaen 40002 Thailand. 66-43-362-076. Fax 66-43-347-058. uraiwan@kku.ac.th.

Inmuong, Yanyong; 3. Postgraduate Program in Environmental Science Graduate School, Mahasarakham, Mahasarakham 40002 Thailand. 66-43-754-305. Fax 66-43-754-305. yanyong.i@msu.ac.th.

Ritmak, Panee; Faculty of Public Health Khon Kaen University Thailand, Mittraphab RoadKhon Kaen, Khon Kaen 40002 Thailand. 66-43-362-076. Fax 66-43-347-058. panrit@kku.ac.th.

Aryuwat, Dusadee; Faculty of Humanities and Social Science Khonkaen University Thailand, Mittraphab Road , Khon Kaen, Khon Kaen 40002 Thailand. 66-43-348-500. Fax 66-43-237-605. dusayu@yahoo.com.

This study aimed to explore the health impact of income-generating schemes on informal-sector workers in remote areas of North East Thailand. The studied workers live in rural agricultural areas where they receive orders from small and medium enterprises (SMEs) to produce various types of hand-made goods in their homes. Health impact studies showed that most of the workers suffered certain physical and mental consequences of this work. Many of the workplaces had inappropriate lighting, excess dust and were not ergonomically appropriate, which was causing long-term pain for some of the workers. The workers were generally satisfied that they could work at home and thus be close to their families, but most felt pressurised and became stressed at times close to the order due date, since they were afraid that if their products were considered to be of low quality, then they would be unable to trade with the SMEs. These workers are not currently protected by National Labor Laws.

The study team further discussed with the local government (LG) about the feasibility of helping these workers locally. Eventually, the LG agreed with the proposed concept of a participatory policy and planning development initiative. Local groups such as the LG Council, health officials, teachers, villager leaders and worker's representatives, came together to discuss and learn how to change and develop local policy and planning to improve the health and well-being of grass-root workers. Finally, a local policy and plan were developed to improve workers' health and welfare, through improved communication between, and follow-up action by, workers'groups, LG and provincial government officials.

Health impact, informal-sector worker, local public policy

Shell's HIA Improvement Project

Birley, Martin; Shell International Health Services, Carel van Bylandtlaan 30Den Haag, Den Haag 2501AN Netherlands. + 31 (0)65 252 1813. Fax martin.birley@shell.com.

In 2003, Shell launched an HIA improvement project with a 2-year timeframe. In 2004, Shell published new internal guidance on integrated impact assessment and a competence framework, and a training course on HIA for internal staff and external consultants. These actions, among others, have provided the groundwork for the improvement project. However, there are still a series of challenges to be resolved. One of these concerns external consultants: what are the constraints that they face in order to acquire sufficient competence in HIA to be able to offer the service that Shell is seeking? This paper will suggest some answers and seek other answers from the audience.

Health impact assessment, Shell, constraints, improvement

Health Impact Assessment Methodology for Community Decision Making

Kwiatkowski, Roy; Health Canada, 6604M, Jeanne Mance, Tunney's Pasture, Ottawa, Ontario K1A 0K9 Canada. 1 613 952 2828. Fax 1 613 954 0692. roy_kwiatkowski@hc-sc.gc.ca.

Gosselin, Pierre; INSPQ-CHUQ-DSP Quebec, 945 rue Wolfe Sainte-Foy, Quebec Canada. 1 418 650 5115 ext 5205#. Fax 1 418 654 3134. Pierre-L.Gosselin@crchul.ulaval.ca.

The accelerating industialization of developing countries, particularly throughout Asia, is likely to compound the increasing demand for raw materials and the greater energy needed to fuel the global economy. Canada's wealth of

natural resources positions it as a likely supplier for domestic and global industrial demands. The challenge facing the federal, provincial and territorial governments is to find ways to support economic development that enhances health and well-being without adversely impacting the environment. EIA is a legislated process used by over 100 countries to predict, assess and mitigate any signficant adverse effects associated with a proposed project, program or policy. The Canadian Handbook on Health Impact Assessment is a world class resource outlining the integration of health, social, economic, cultural and psyshological factors with key characteristics of the physical, biological and geochemical environments, providing a holistic understanding of the complex interrelationships between the human and natural environments that are key to human health within an EIA.

Health Canada (HC), together with the Canadian WHO/PAHO Collaborating Centre and WHO, will develop a self-administered web based course in HIA based on the Canadian Handbook, with hyperlinks to other environmental health data sources. The web course will be low cost, self supporting and not require any tutors; thereby making it internationally available. The course will be designed to be interactive, interesting and stimulating with consideration of the multicultural makeup of the potential clientele.

Health impact assessment, environmental impact assessment, web-based training

Health Impact Assessment of Waste in Campania, Southern Italy

Martuzzi, Marco; World Health Organization, Via F Crispi 10Rome, RM 00187 Italy. + 39064877520. mam@ecr.euro.who.int.

Bianchi, Fabrizio; CNR, Via Moruzzi,1Pisa, PI Italy. + 39-(0)50-3152100. Fax fabriepi@ifc.cnr.it.

Comba, Pietro; Istituto Superiore di Sanita', Vle Regina Elena 299Rome, RM Italy. + 390649902249. comba@iss.it.

Pizzuti, Renato; Osservatorio Epidemiologico Regione Campania, Isola Direzionale, Naples, NA Italy. + 39817969351. r.pizzuti@regione.campania.it.

Mitis, Francesco; World Health Organization, Via F Crispi 10Rome, RM Italy. + 39064877521. mit@ecr.euro.who.int.

For more than a decade, waste management in the region of Campania, in southern Italy, has been problematic. The area has been described as the "Triangle of death", and repeated episodes of social unrest take place on an almost regular basis. Indeed, waste in the region is poorly managed, existing facilities are insufficient and illegal waste dumping and burning is routinely done. The health impact is largely unknown, although claims are often made that large excess in mortality and morbidity observed in the region are attributable to waste exposure. The national authority recently charged with the problem requested that the health dimension be fully addressed.

First, an epidemiological evaluation of the health of the region was conducted. In parallel, a dialogue was initiated on whether and how a health impact assessment of the available policy options can be launched. The region was described with regards to cancer mortality and congenital malformation profile, for the period of time 1994-2002. 20 causes of deaths and 11 types of congenital malformation were studied across 196 municipalities. Consistent and significant excess risks for cancer of the stomach, kidney, liver and lung and for urogenital and cardiovascular congenital malformations where found where most of the illegal waste treatment activities are known to take place. However, the link with the exposures due to waste disposal is unclear, as many other risk factors are at play.

A network of representatives of local health authorities and citizens' interest groups was established. HIA was proposed, and accepted in principle, as a means to incorporate health considerations in the process. However limited flexibility in the concrete options for waste management creates some difficulties. Clearer identification of specific objectives and methods of work seems to be needed before embarking in a full-fledged HIA.

HIA, waste, Italy

Incorporating Health Indicators into Environmental Impact Assessment

Dunn, Carolyn; Health Canada, 2720 Riverside Drive, 4th floor, Tupper Bldg. AL 6604M, Ottawa, Ontario K1A 0K9 Canada. (613) 948-2875. Fax (613) 941-8921. carolyn_dunn@hc-sc.gc.ca. http://www.hc-sc.gc.ca/he.

It is important that health be integrated into environmental impact assessment (EIA) to address public concern, minimize negative effects on health and maximize positive effects, and to support sustainable development. A health impact assessment (HIA) within an EIA can determine how a project will affect the health of the communities in question. HIA enhances the quality and relevance of an EIA.

Methods and data for undertaking health impact assessment need further development. Therefore, this paper will outline a way to assess the health of communities, using a determinants of health approach. This involves examining how a development project could affect quantitative indicators of the determinants of health. Nine determinants of health are defined: social support networks, employment and working conditions, physical environments, education, healthy child development, biology and genetic development, health services, personal health practices and coping skills, income and social status.

This paper will outline indicators of health which can give quantitative descriptions of many of these determinants of health. The examples of these indicators, and data used, are from a Statistics Canada online database, and are typical of data available from national censuses and population health surveys. The paper will then demonstrate how health indicators can be used in environmental impact assessments, providing case study examples from the baseline data collection done for certain Canadian EIAs.

Health Impact Assessment, baseline socio-economic studies, determinants of health

CS10. HIA: POLiCY AND PLANNING

Health Impact Assessments of the European Employment Strategy at Member State and Pan-European levels

Scott-Samuel, Alex; IMPACT, University of Liverpool, Whelan Building, Brownlow Hill, Liverpool, Merseyside L69 3GB UK. + 44 (0) 151 794 5569. Fax + 44 (0) 151 794 5588. alexss@liv.ac.uk.

Abrahams, Debbie; Pennington, Andrew; IMPACT, University of Liverpool, UK

Den Broeder, Lea; RIVM, National Institute for Public Health & the Environment, Bilthoven, Netherlands

Doyle, Cathal; Metcalfe, Owen; Institute of Public Health in Ireland, Ireland

Haigh, Fiona; Mekel, Odile; Fehr, Rainer; loegd, Insitute of Public Health, Bielefeld, Germany.

Background

This was a two-year investigation funded under the EC Health Monitoring Programme. The project commenced in December 2001.

Aim

To assess the potential health effects of the European Employment Strategy.

Methods

HIAs piloted the draft EU Policy HIA methodology - 'EPHIA' in Ireland, Germany, the Netherlands, the United Kingdom and across the EU.

Project Findings

The EES is an example of an 'open method of communication' EU policy. Application of the EES Guidelines in member states varies and is driven by local employment and policy context. Potential health effects relate to national employment policy. However the EES provides a focus on the social agenda and employment inequalities, which gives the EES an 'added value'.

Key potential impacts on population health from 'active' employment policy: Increase in employment/income, increase in parents' well being, increase in cognitive, social and emotional development of children.

Groups who benefit least: Disabled, people with poor health, ethnic minority groups, not 'job ready'

Potential health inequalities: employment without increase in income, maternal depression, anti-social behaviour/poor school performance of children, increased hospitalisation from unsupported groups.

Key potential impacts on population health from increased labour market 'flexibility': increased job insecurity, job strain, mental health problems, increased sickness absence, exposure to various work hazards, risk of accidental injuries, BUT increased job satisfaction, reduced sickness absence with part-time working.

Policy Health Impact Assessment, Europe, employment strategy

Introducing Policy-Level HIA to New Zealand.

Quigley, Robert; Q-Research & Assessment, 2 Te Anau Avenue, Roseneath, Wellington, Wellington New Zealand. 0064 4 386 3557. Fax 0064 4 386 3558. rob.quigley@qra.co.nz. www.qra.co.nz.

Langford, Barbara; Public Health Advisory Committee, PO Box 5013, Wellington, New Zealand. 0064 4 496 2000. Barbara_Langford@nhc.govt.nz. www.qra.co.nz.

Signal, Louise; University of Otago, 23 A Mein Street, Newtown, Wellington, New Zealand. 0064 4 385 5541. louise@wnmeds.ac.nz.

Thornley, Louise; Public Health Advisory Committee, PO Box 5013, Wellington, New Zealand. 0064 4 496 2000. Louise_Thornley@nhc.govt.nz.

In 1995 New Zealand released guidance on how to integrate HIA principles into environmental assessments. These guidelines were not backed up with any support and their uptake and effect on practice was negligible. A new set of HIA guidance has now been released, this time on policy level HIA.

This paper will discuss the attempts by individuals, organisations and government to make policy-level HIA happen within NZ. The processes being undertaken, the support mechanisms in place and the barriers to implementation will be discussed.

Previous NZ experience shows that guidance-alone does not lead to action, but how much better are we doing this time?

The audience will be asked to provide further suggestions for taking forward HIA in New Zealand and to comment on a rapid review of the international experience of policy-level HIA.

Policy, HIA, government, health

The Process of Health Impact Assessment Capacity Building and Policy Reform in Lao PDR

Furu, Peter; DBL-Institute for Health Research and Development, Jaegersborg Allé 1 DCharlottenlund, N/A 2920 Denmark. +45 77 32 77 82. Fax +45 77 32 77 33. pfuru@dblnet.dk. www.dblnet.dk.

Bos, Robert; World Health Organization, Avenue Appia 201211Geneva 27, N/A Switzerland. +41 22 791 35 55. Fax +41 22 791 41 59. bosr@who.int. www.dblnet.dk.

Phommasack, Bounlay; Ministry of Health, Simeuang RoadVientiane, N/A Lao PDR. +856 21 24 32 61. Fax +856 21 24 32 61. onyvanh@laotel.com.

Inmuong, Yanyong; Mahasarakham University, N/A , Mahasarakham, Mahasarakham Province Thailand. +66 43 75 43 21. Fax +66 43 75 43 05. yanyong.i@msu.ac.th.

In Lao Peoples Democratic Republic new development programmes and projects are constantly on the drawing board or under construction acting in response to the constant need for housing, food security, jobs, better health and strengthened local economies.

Even with the good intentions there are, however, unforeseen, unintended and indirect adverse effects of such developments. These may be first order effects directly on the environment and subsequent derivative effects on the health status of individuals and target communities.

Although many countries have well established structures and procedures for Environmental Impact Assessment (EIA), most countries lack the capacity and capability to manage a Health Impact Assessment (HIA) process effectively.

The present paper describes the efforts made by the Government of Lao PDR to adopt the principles of HIA in development planning through 1) initiation of a comprehensive, intersectoral capacity building programme for HIA with a view to improve managerial skills for HIA necessary for proper decision making and risk management, and 2) engaging policy makers in setting in motion a process of policy formulation and adjustment in harmony with existing legislation and regulatory framework for EIA in the country.

Lessons learned may prove valuable in the scaling up of HIA capacity building and HIA mainstreaming in other countries of the Mekong Region of East Asia.

Intersectoral HIA capacity building, HIA policy reform, EIA/HIA harmonization, Lao PDR

HIA Implication for Future Water Policy Reform in Thailand

Inmuong, Yanyong; Postgraduate Program in Environmental Science-Mahasarakham University, 41/20 Tambol KamriangKantarawichai, Mahasarakham 44150 Thailand. +66-43-754305. Fax +66-43-754305. yanyong.i@msu.ac.th.

Wanjararat, Sarunya; Sakolnakorn, Sakolnakorn Public Health Office, Sakolnakorn Thailand. sarunya_pk@hotmail.com.

This paper attempts to explore health and well-being impacts emerging from water policy development in Thailand. The Thai government has established "water supply policy for all" since the beginning of the millennium, while to date it has been publicly widely known as the so-called "adequate water to all farms and households" policy. Key strategy set forth by the Thai government to achieve the policy goal so far was to build the water supply network - the water grid-while several water reservoirs over the region were spatially interconnected using the pumping and piping system. During 2001-2004, the government invested ten pilot water grid projects over the country, so as to see whether that new tool was going to work. At present, the ten pilot projects were completed, and we conducted retrospective HIA studies on those projects. The study results showed many farmers were considerably affected by the water grid pilot scheme, while most could not pay for the high tariff due to the project. The pilot project also led to some critical issues, which have never been occurred within community before, particularly on changes of social and environmental determinants of health. The HIA result also indicated the project had significant impact on community discrimination, while the rich would have a far greater opportunity to access to water than the poor. Many community groups thus tried to appraise the national water policy, while many asked the government to seek for other options rather than the water grid. The government responded to that by setting the committee to review the national water policy.

Health impact, well being impact, water policy impact

Embedding Assessment: An Applied Approach to Health Impact Assessment

Harris-Roxas, Ben; CHETRE, University of New South Wales, SPHCM-CHETRE, University of New South Wales, Sydney, NSW 2052 Australia. +61 2 9385 0134. Fax +61 2 9385 0140. b.harris-roxas@unsw.edu.au. chetre.med.unsw.edu.au.

Simpson, Sarah; CHETRE, University of New South Wales, SPHCM-CHETRE, University of New South Wales, Sydney, NSW 2052 Australia. +61 2 9385 0420. Fax +61 2 9385 0140. sarah.simpson@unsw.edu.au. chetre.med.unsw.edu.au.

Harris, Elizabeth; CHETRE, University of New South Wales, SPHCM-CHETRE, University of New South Wales, Sydney, NSW 2052 Australia. +61 2 9385 0102. Fax +61 2 9385 0140. e.harris@unsw.edu.au. chetre.med.unsw.edu.au.

New South Wales Health, an Australian state health system, has sought to develop processes for health impact assessment (HIA) as one of a range of strategies to ensure that proposed government initiatives improve health and address health inequalities. The NSW HIA Project seeks to build NSW Health's capacity to undertake HIA though a "learning by doing" approach. As a first step towards increasing capacity, five sites from across the NSW health system were trained whilst simultaneously undertaking HIAs in their field of work, which ranged from health promotion to health related transport.

"Learning by doing" proved to be a useful way to develop capacity for HIA whilst simultaneously identifying contextual barriers and facilitators. For example, the sites have found that HIA requires a range of disparate skills, the need for which cannot solely be developed through HIA itself. Another challenge has been developing a shared understanding of the relevance of HIA with non-health stakeholders. The NSW HIA Project is currently being expanded to incorporate these lessons and to undertake further capacity building work.

Expecting other sectors to undertake impact assessment without support may not be realistic, particularly in contexts where a government-wide mandate for HIA does not exist. Capacity needs to be built within health first to support other sectors to undertake HIA. There are meaningful benefits arising from this approach for health systems themselves by using HIA methodologies to examine their own proposals.

Health impact assessment, health systems, capacity building

CS11. INNOVATION AND UPDATES OF ENVIRONMENTAL AND SOCIAL POLICIES—RECENT EXPERIENCES FROM INTERNATIONAL DEVELOPMENT ASSISTANCE AGENCIES

Milewski, Joseph Christofer; Inter-American Development Bank, 1300 New York Avenue, NW, Washington, DC 20577 USA. Josephm@iadb.org.

Aizawa, Motoko; International Finance Corporation, 00, 0 22209 0. maizawa@ifc.org.

Kuhlow, Margaret L.; Millennium Challenge Corporation, 1000 Wilson Blvd., Ste 1400, Arlington, VA 22209 USA. 202-521-3600. kuhlowml@mcc.gov.

Three international development agencies—the Inter-American Development Bank (IADB), the International Finance Corporation(IFC), and the new Millennium Challenge Corporation (MCC)—have recently adopted, are drafting, or are in the process of reformulating their safeguard policies. The Panel Discussion is intended to describe and highlight issues and lessons learned from the dynamic process of policy adjustment.

Background—Several development assistance agencies adopted frameworks for environmental assessment, monitoring and compliance in the past two decades. These followed norms and standards prevalent at the time that safeguard policies were adopted. Policy adjustments over time were often enabled through changes in implementation guidelines. Adjustments were ad hoc, based on practical experiences, and were often not subject to formal review. Some changes since adoption:

- Recognition and expansion in the roles of civil society institutions within development agencies;
- Emphasis on disclosure of information and transparency of environmental assessment processes;
- Emphasis on consultation and participatory processes;
- Changes in risk and vulnerability due to demographics, environmental and natural forces, development decisions and economic growth; and
- Institutional responsibilities—for both donor and recipient—have expanded to cover new areas and issues.

As a consequence of the several changes, there is a perceived need for significant reformulation and adjustment of existing safeguard policies and compliance guidelines.

Objective—The Special Panel—sponsored by the Inter-American Development Bank—brings together distinguished practitioners to discuss the process of change and response. Issues bearing on policy change of environmental safeguards might include:

- What are sources bringing pressure to bear for changes in policy? Are pressures top down? Bottom up? Generated by those responsible for compliance? Or are there other drivers for policy change?
- What are the issues and concerns of stakeholders regarding policy change?
- What new or innovative components of policy change for international development assistance have been introduced?
- Are these components relevant to domestic or national safeguard policies?
- What are some of the consequences of policy change in terms of reduced risk, lowered vulnerability, or more comprehensive coverage?
- What are the institutional and resource implications associated with policy changes?

The panelists—each at different stages of the policy adjustment process—should provide an interesting foundation for open discussion among IAIA participants.

CS12. MEET THE EDITORS: A PANEL SESSION WITH THE EDITORS OF KEY IMPACT ASSESSMENT JOURNALS

Ever wonder how decisions get made on what is published in scholarly journals? Would you like to know how reviewers are selected? What do editors and reviewers look for in an acceptable and publishable paper? What can I do to get my paper ready for publication? Why are some papers returned without review? What are the benefits of

scholarly publications for a practitioner dominated organization such as IAIA? Why are library subscriptions to scholarly journals so expensive?

The panel of editors and a publisher of scholarly journals will discuss these and other issues. Most of the research on impact assessment is published in the five journals represented below. Following five-minute individual presentations, both the panel and the audience will have time to raise questions and quiz the panel. All Editors will be available throughout the conference to discuss how you can get your paper published.

CS13. INTRODUCTION TO IAIA

CS14. THE ROLE OF COMMUNICATION IN IMPACT ASSESSMENT: THE CASE OF HYDROPOWER DEVELOPMENT AND THE COST OF COMMUNICATION

CS15. EIA AND ITS CONTRIBUTION TO SUSTAINABLE DEVELOPMENT

Environmental impact assessment: retrospect and prospect

Wood, Christopher; EIA Centre, School of Environment and Development, University of Manchester, Oxford Road, Manchester - M13 9PL UK. 44 161 275 6902. Fax 44 161 275 6893. chris.wood@manchester.ac.uk.

There is no doubt that environmental impact assessment (EIA), which is now 36 years old, has successfully changed the way decisions are made by amending the behaviour of proponents, consultants, consultees, the public and the decision-making authorities. Examples of such changes in behaviour include an increase in public participation in decision making, increased coordination between the authorities responsible for environmental protection and rising environmental awareness amongst proponents. It is generally accepted that such changes take time but that they have taken place in the more mature EIA systems. The quality of decisions involving EIA has improved as a result of the increased use of modification or mitigation, the use of more stringent conditions upon permissions and the refusal of potentially environmentally damaging proposals which might previously have been approved.

However, there is also no doubt that EIA has not been as successful as many hoped. Despite the establishment and refinement of EIA systems, and the emergence of strategic environmental assessment (SEA), the achievement of sustainable development goals remains elusive. There remains a need to strengthen EIA and SEA practice through:

- diffusion of EIA and SEA lessons learned in one country (and by one agency) to others;
- expanding investment in additional personnel and locally provided training to increase the human resource capacity to undertake and review EIA and SEA reports;
- undertaking research on both substantive (methodological) and procedural (including effectiveness) issues of EIA and SEA;
- emphasising the achievement of environmentally sustainable development in EIA and SEA by making 'no net environmental deterioration' their bottom line goal;
- increasing political will by widespread popular demand for environmental improvement to ensure that effective EIA and SEA systems are introduced.

EIA, SEA, evaluation, procedures

The Contribution of EIA to Sustainable Development: Towards a Richer Conceptual Understanding

Cashmore, Matthew; University of East Anglia, School of Environmental Sciences, Norwich, Norfolk NR4 7TJ UK. 00441603 593797. Fax 00441603591327. m.cashmore@uea.ac.uk. www.uea.ac.uk/env.

Neislony, Cordula; www.uea.ac.uk/env.

EIA has been portrayed as a 'frontline' tool in facilitating the transition to sustainability, but there is a widespread perception that it is failing to achieve its potential in practice (Sadler, 1996; Benson, 2003; Nieslony, 2003). Rather than focusing on the more tangible limitations of EIA practices, we argue that the underlying reason it is failing is because the relationship between EIA and sustainable development is inadequately conceptualised. This article, therefore, aims to advance scientific understanding of their relationship by 'unpacking' what sustainable

development means for the theory and practice of EIA. The lack of a consensual definition of sustainable development has been interpreted as a significant, if not intractable, barrier to EIA making an effective contribution (George, 1999). We suggest, however, that a richer conception of their relationship can still be achieved, through the development of a detailed understanding of causation in EIA. It is argued that the breadth of ways in which EIA contributes to sustainable has been inadequately appreciated, the importance of certain forms of causation has been significantly underestimated, and that some expectations of what EIA can achieve in practice have been entirely unrealistic. It is postulated that, when such factors are taken into account, EIA can be considered to be operating as a 'frontline' tool in operationalising sustainable development, but in a markedly differ manner to conventional expectations.

Environmental Impact Assessment, Sustainable Development, Causation

SUSTAINABILITY PLANNING AND IMPACT ASSESSMENT: AN UPDATE

Edelstein, Michael R.; Ramapo College of New Jersey, 505 Ramapo Valley Road, Mahwah, NJ 07430, NJ 07430 USA. 201-684-7745. tabriz@magiccarpet.com.

As the linkage between impact assessment and sustainability becomes a more explored topic, it may be fruitful to revisit the author's process for using impact assessment as a tool for sustainability planning. Efforts to implement SPIA, or Sustainability Planning and Impact Assessment, a process using generic environmental impact assessment as a context for sustainability planning, will be described. Application to the sustainable management of bioregions has received recent attention.

Sustainability planning

Using Sustainability Indices in Cumulative Effects Assessment

Senner, Robert; URS Corporation, P.O. Box 84400, Fairbanks, Alaska 99708 USA. 907 830 6019. Fax 907 455 7170. robin_senner@urscorp.com.

The United States government recently completed a comprehensive evaluation of future policy alternatives for managing the Bering Sea/Aleutian Islands and Gulf of Alaska groundfish fisheries, the world's largest commercial fisheries.

A major supplemental programmatic environmental impact statement (PSEIS), now in its final stages, has been the documentary vehicle for this evaluation, which focuses on the questions of how best to achieve sustainable fisheries and avoid harm to marine mammals.

An important lesson learned from the five years of work on this PSEIS is that through the incorporation of appropriate indices, cumulative effects assessment (CEA) can be a tool for predicting sustainability and can provide a basis for evaluating and differentiating policy alternatives with respect to their potential for sustainability.

Also significant is the conclusion that history matters. A key aspect of CEA is the need to look backward to discern any past actions or events that may still exert a residual effect in the present and future. This backward look can identify trends to be extrapolated cautiously into reasonably foreseeable future actions. It can also lead to theories, and the modeling of theories, to explain how past occurrences have led to the baseline conditions we see today and may shape the impacts of future policies and management actions.

This programmatic analysis of the Bering Sea and Gulf of Alaska fisheries has provided what may be one of the closest approaches to Strategic Environmental Assessment (SEA) conducted in the United States. It illustrates the common advantages of both CEA and SEA for evaluating the potential sustainability of alternative policy measures.

Sustainability, cumulative effects, NEPA, fisheries, CEA, SEA

CS16. TRADE: JOINT WORKSHOP: ASSESSING THE BIODIVERSITY IMPACTS OF TRADE: PRINCIPLES AND PRACTICE

The workshop will work towards producing an IAIA Guidelines and Principles document on the Biodiversity Impact Assessment of Trade. It will build on the results of the IAIA'04 workshop on Principles and Practice of Assessing the Biodiversity Impacts of Trade.

A discussion paper will be prepared which addresses the fundamental questions of the Conference theme, in relation to the impact assessment of trade policy and agreements:

- What is ethical conduct in the impact assessment of trade? What principles can limit the extent to which political forces and business pressures challenge our independence and integrity?
- What are the standards of quality for trade impact assessment? Should there be a global standard? What variations are needed?
- What principles may apply to the quality of the document, the process and the outcome?
- What principles can reconcile the competing demands of quality, deadlines and budgets?
- What principles guarantee appropriate treatment of issues related to conservation and sustainable use of biological diversity, including the need for equitable sharing of benefits derived from it?
- How to guarantee transparency of the process and participation of stakeholders (including those with limited resources and/or access to information).
- What principles can avoid conflicts of interest when assessing impacts in countries on both sides of a trading relationship?

Principles, biodiversity, trade impact assessment, assessing

CS17. EMS: PRACTICAL APPROACHES

A Compliance Assurance Approach to Environmental Management System Implementation for Offshore Exploration Projects

Burch, Kathryn; Environmental Resources Management, 15810 Park Ten Place, Suite 300, Houston, Texas 77084 USA. 281 600 1038. Fax 281 600 1001. kathryn.burch@erm.com.

Saretsky, Michael; Devon Energy Corporation, 1200 Smith, Suite 3300, Houston, Texas 77084 USA. 713-265-6627. Fax 713-265-8165. Mike.Saretsky@dvn.com.

Hall, Todd; Environmental Resources Management, 15810 Park Ten Place, Suite 300, Houston, Texas 77084 USA. 281 600 1079. Fax 281 600 1001. todd.hall@erm.com.

Compliance assurance is an aspect of Environmental Management Systems (EMS) that has been applied to a variety of projects striving to comply with environmental, health and safety regulations. A key outcome of an Environmental Impact Assessment (EIA) is the set of measures recommended to ensure that appropriate mitigation measures are identified. The Environmental Management Plan (EMP) is a tool used to capture the mitigation measures and to outline the procedures by which they will be implemented. The same concepts can be used to assure compliance with the procedures described in the EMP. In the standard 'plan-do-check-review' cycle of an EMS, EIAs and EMPs typically represent the 'plan' and 'do' parts of the cycle, but few mechanisms are typically in place to satisfy the 'check' and 'review' steps. Tools that mirror traditional regulatory compliance assurance practices can be used to close this gap in the EMS cycle. Examples of these types of tools include user-friendly compilations of checklists, task-tracking calendars, and concise implementation procedures that were developed for offshore oil and gas exploration projects in Nigeria. These tools are aimed at not only ensuring that activities necessary to comply with the EMP are defined and completed, but also that they are meeting the requirements of an EMS.

Screen Before You Dig: Using EMS to Integrate Information into the EIA Process

Sutherland, Lisa; City of Calgary, P.O. Box 2100 Station M, Mailcode 8020, Calgary, AB T2P 2M5 Canada. 403-268-1083. Fax 403-268-1529. Lisa.Sutherland@calgary.ca.

Van Velzen, Kevan; City of Calgary, P.O. Box 2100 Station M, Mailcode 8020, Calgary, AB Canada. 403-268-6448. Fax 403-268-1529. Kevan.vanvelzen@calgary.ca.

The City of Calgary has pledged to provide the leadership to conserve, protect, improve, and sustain Calgary's environment. As a result of this commitment, it became evident business units such as Wastewater and Waterworks had a direct effect on natural resources and a need existed to evaluate this impact. A pre-screening system was developed with Environmental Management that incorporates circulation of proposed work to identify any potential or existing contamination prior to construction. Concerns identified are those which may have the ability to impact the health and safety of workers, businesses, surrounding residences or the environment by such methods as site dewatering, vapour exposure, soil storage or disposal. A spreadsheet is produced for each project, which is then

used as a tool to inform City project managers of potential environmental issues. The City does not currently require environmental assessments of all infrastructure projects; however, this tool could be incorporated into an EA process in addition to acting as a stand alone information and communication tool for project managers and contractors.

Infrastructure work in the City of Calgary has identified industry-related contamination in the utility corridors. These corridors often serve as preferential pathways for the migration of contamination from an offsite source. The process reviews environmental reports within a 100m radius of the project area along with existing databases for information on:

- current and historical business and land use.
- surficial geology, groundwater flow and depth if available
- foreign pipe locations
- existing monitoring well locations

This approach allows the project manager to develop effective engineering and environmental controls along with incorporating specific obligations into tendered projects. If contamination is expected to be encountered, the pre-screening process ensures third parties are notified prior to construction, thereby decreasing costly project delay and potentially incorporating a cost allocation to the polluter.

Utility corridor, screening, contamination

Cornerstone Elements of an EMS at the Project Planning Stage: An IFI Perspective

Berger, Deborah; Export Development Canada, 151 O'Connor, Ottawa, ON K1A 1K3 Canada. 613-597-8987. dberger@edc.ca.

There is a growing consensus among EIA practitioners, supported by the literature, that environmental management plans should be given more weight and consideration within an EIA in order to contribute to improved EIA quality and ultimately to improved project performance. While environmental management plans have typically included mitigation and monitoring measures that are to be undertaken during project implementation, planning effectiveness could benefit from the incorporation of such measures into more integrated environmental management system elements. From the perspective of an International Financial Institution (IFI) reviewing an EIA, of particular importance is the presence of clear commitments made by project proponents to follow through on monitoring and mitigation measures. In this paper, internationally recognized standards relevant to IFIs, such as the ISO 14001 Environmental Management System (EMS) standard and World Bank Operational Policy 4.01, will be used as benchmarks to discuss common observed weaknesses in EIAs and to suggest cornerstone elements of an EMS that should be developed at the project planning stage and included in an EIA.

Environmental Management Systems, International Financial Institutions, ISO 1400.

Identification of Environmental Aspects in Maintenance and Operation of the Swedish National Rail Administration

Lundberg, Kristina; Royal Institute of Technology, KTH, Brinellvägen 28, Department of Land and Water Resources Engineering, Stockholm, SE-100 44 Sweden. +4687906141. krilun@kth.se.

Environmental aspect is a basic element in an Environmental Management System (EMS). From a list of all environmental aspects, significant environmental aspects are selected to aid the establishment of environmental objectives against which environmental performance is to be followed up. The identification of environmental aspects is recognized as one of the most complicated parts in establishing an EMS. ISO 14001 and most other EMS standards lack a documented method or guiding principle for how to perform the identification. In addition, the definition of the term environmental aspects is difficult, and many organizations have problems with its interpretation. Consequently, the identification process has been subject to criticism concerning, e.g., lack of transparency and reproducibility.

The Swedish National Rail Administration (Banverket) implemented EMS in 1998 following a governmental decision. The aim was to support the achievement of an environmentally sustainable development of the rail sector and the improvement of the sector's performance in relation to the national environmental objectives and the new environmental legislation.

This paper describes a study examining Banverket's EMS. The study aims at evaluating Banverket's current practice for identification of environmental aspects and at increasing the knowledge of environmental impacts of rail operation and maintenance. The contribution reports an analysis of the interpretation of the term environmental aspects by different departments of Banverket, their methodological approach for aspect identification and their models for aspect presentation. The analysis is based on a questionnaire, interviews, document analysis and participating observations. Further, an improved system for the identification of environmental aspects is proposed. These achievements form the initial steps of a research project of which the purpose is to develop a system for following up Banverket's operation and maintenance activities. The overall goal is to improve the environmental performance of Swedish rail operation and maintenance.

Environmental aspects, identification, railways, EMS

Assessment, Adaptive Management and EMS Integration with Land Management Planning: New Approaches in the USDA Forest Service

Friedman, Sharon; NEPA and Project Planning, USDA Forest Service, Washington, DC 0 USA. + 1 202 205 0939. Fax + 1 202 205 1012. sfriedman@fs.fed.us.

Traditionally, environmental assessments for federal land management agencies have occurred at many levels, depending on the issue. These levels could be at a scale broader than an administrative unit (for example, species conservation strategies), at the land unit level (for example, travel management planning) and at a project level (for example, a trail or a fuels treatment on a particular site). The challenge is to decide when and where to apply general kinds of environmental analysis, and where to apply specific environmental impact assessment under the NEPA statute.

A further difficulty is that the broader the scale of analysis, and more integrated across disciplines (for example, an ecoregion scale analysis), the more effort it takes and the less likely it is that it can or will be changed when new scientific information, or information on condition change (e.g., large fires) is available. The challenge for planning of specific land areas is to link effects and actions so that a constantly updated analysis of cumulative effects is possible. This linkage is best provided both through a combination of predictive models, monitoring, and validation of the assumptions of the model which feed back to changes in the model. This requires a support structure for the model that often does not fit the current institutional structure for the development and use of models.

One approach to these problems is to conduct a strategic environmental analysis and then focus specific environmental effects analysis where the when, what and how of a given activity is known. Key environmental issues are identified, effects minimized, and actions continually improved through the use of an Environmental Management System. This provides a structure for adaptive management that links the broader strategic desired conditions and objectives with on-the-ground implementation of projects and activities.

CS18. PUBLIC PARTICIPATION 3

Good Governance and Capacity Building for Public Participation in EIA in Southern Africa - The Calabash Project

Croal, Peter; Southern African Institute for Environmental Assessment, P.O. Box 6322,Windhoek, Ausspannplatz Namibia. 264 61 220 579. Fax 264 61 253 189. peter.croal@saiea.com.

The Johannesburg Plan of Implementation describes "good" governance as being essential for sustainable development. Coupled with this is NEPAD which views good governance as an essential element of the peer review process. Most consider good governance to mean: transparent decision making, access to information and justice, public participation, coherence, subsidiarity (decisions taken at the appropriate level), respect for human rights and accountability.

A well planned and implemented EIA or SEA respects all these conditions for good "environmental" governance. However, in Africa, one of the elements of the EIA process which is quite weak is public participation. This insufficiency creates large opportunity costs which adversely affect community empowerment, environmental performance and support of true democratic reform through the NEPAD peer review process.

The Southern African Institute of Environmental Assessment is undertaking a 2 year capacity development project to address the EIA and public participation process in the SADC region. The program is supported by the World Bank and the Canadian International Development Agency. Outputs for this programme include PP research, PP tools, workshops, handbooks, network building, training and database development. The IAIA 05 presentation will be as

interactive as possible so that the participants can contribute their knowledge, advice and opinions to help guide the project's outputs. Direct involvement in the project by IAIA 05 participants will be invited.

Public participation, southern africa, EIA, capacity building

Public Participation in Project Supervision and Monitoring: The Case of the Camisea Project

Brito, Elizabeth; Inter-American Development Bank, 1300 New York Avenue N.W., Washington, Dc 20577 United States of America. (202) 6023 2693. Fax (202) 312-4124. ebrito@iadb.org.

In August 2003, following a two-and-a-half-year environmental and social due-diligence the Board of Directors of the Inter-American Development Bank (IDB) approved a U$75 million loan to the Transportation component of the Camisea Project, in Peru (natural gas and liquids of natural gas pipelines). Although the Government of Peru (GOP) reviewed the Project in separate segments (Exploration, Transportation and Distribution, including the public consultation process related to the Project's government approval), the Bank developed a Public Consultation and Participation Plan (PCPP) to ensure that all directly and indirectly affected people as well as the Bank were fully and adequately informed of the potential direct and indirect, short-term and long-term cumulative, positive and negative impacts of the Camisea Project as a whole. Specific consultation activities additional to those implemented by the Project and the GOP were designed for the environmental and social due-diligence, including a total of 13 IDB public consultations: 7 in indigenous and rural communities located in the rainforest and highlands and 6 in the urban centers. Following the Project's approval for financing by the IDB, additional mechanisms were designed to ensure adequate public involvement throughout the life of the loan. These mechanisms include (1) a participatory environmental and social project supervision and follow-up system; and (2) semi-annual public meetings with local and international stakeholders to provide information and receive input regarding the Project's environmental and social performance. This paper discusses the strengths and shortcomings of this approach in the context of a private sector project and proposes a discussion on the adequacy and effectiveness of the mechanisms adopted to provide a participatory project supervision and follow-up system, which is unique in the history of the IDB's Private Sector Department operations.

Project monitoring and follow-up, public participation, Camisea project

Innovative Public Engagement - Utilizing Interactive Community Participation Techniques for Impact Assessment Projects in the United States

Harwood, Alan; EDAW, Inc., 601 Prince StreetAlexandria, VA 22314 USA. 703-836-1414. Fax 703-549-5869. harwooda@edaw.com. www.edaw.com.

New proactive and inclusive civic-involvement techniques – many borrowed from other professional disciplines – are successfully redefining the public participation component of impact assessment projects. "Real-world" applications of these innovative techniques involve some of the most critical and ethical challenges related to environmental impact planning today.

This presentation will use specific case studies and "lessons learned" to explore the successful techniques that are increasingly being utilized in the environmental decision-making process to ensure that overlooked stakeholders and 'silent' constituents become actively engaged and heard. These include:

a) new methods of community notification and outreach efforts, including existing "grass-roots" community organizations, various media, and the internet;

b) proven measures for encouraging increased attendance, including child supervision, refreshments, and alternative schedules; and, most importantly,

c) creative formats and approaches for organizing and conducting public meetings to facilitate interactive public engagement, including stakeholder interviews, focus group sessions, and facilitator-led larger meetings with break-out groups.

The overall intent of the session is to: share methods for increasing the level and quality of public meeting attendance and participation; discuss the application of new consensus-building techniques and tools to diverse projects, locations, and audiences; and address public reluctance to new meeting formats, particularly with respect to controversial projects. The session will also include an examination of how environmental justice concerns can be a catalyst to greater public engagement.

Public participation, case studies, facilitation, outreach, engagement techniques

EIA: Towards a New Era through Continuous Public Involvement

Hui, Simon Y.M.; anthonyho@epd.gov.hk.

Lau, Stanley.

Ho, Anthony Y.K.

Hong Kong has been practicing an open EIA system administratively as early as 1992. With the EIA Ordinance (EIAO) coming into operation in April 1998, a major step forward was taken in providing opportunities for the public to participate in the EIA process under a statutory framework, so that their views could be considered at critical stages before important decisions are made.

Experience in operating the EIA system has demonstrated that public participation is an essential part towards the success of the system, and projects with active public participation are less likely to meet with objections. To further improve engaging the public in the EIA Process, a new concept of "Continuous Public Involvement (CPI)" was adopted by the Hong Kong Special Administrative Region (HKSAR) Government in 2003. This CPI concept aims at making the EIA Process as transparent as possible, and it represents "a continuous, dynamic, interactive, multi-stakeholder and inclusive process in which the public is truly informed and involved at all stages of development planning and implementation, with a view to facilitating informed decision making, enhancing public understanding and consensus, and deriving better solutions to problems".

The core philosophies of CPI require the authorities and proponents to play a more active facilitating role rather than an authoritative role, and to provide the EIA knowledge and assessment broadly, precisely and continuously in a user-friendly mode in order to enable the public to assume a more active role in the EIA process. To achieve this purpose, the Environmental Protection Department of the HKSAR Government has developed 3D visualization techniques to facilitate the public to understand and visualize the complex proposals or projects and their environmental impacts, and also to facilitate public to better communicate their views and comments on these projects and proposals.

Environmental Impact Assessment (EIA); Information & Communication Technology (ICT)

CS19. QUALITY ASSURANCE IN MONITORING AND FOLLOW-UP

Impact Assessment Follow-up: Findings and Lessons Learned from a Field Study of 20 Projects in Latin America and the Caribbean

Perazza, Maria Claudia; Inter-American Development Bank, 1300 New York Ave., Washington, DC 20577 USA. (202) 623-2888. Fax (202) 623-1417. mariacp@iadb.org.

Dulin, Paul; Consultant to the Inter-American Development Bank, PO Box 388, 27000 Hwy. 185, Hatch, New Mexico USA. (505) 267-3130. Fax (505) 267-3130. pdulin@aol.com.

The Inter-American Development Bank (IADB) has financed hundreds of infrastructure and social development projects throughout Latin America and the Caribbean Region. The Bank performs environmental and social impact assessments (ESIA) of proposed projects in coordination with its borrowers during the design phase and incorporates necessary impact mitigation and/or enhancements in the form of an Environmental Management Plan (EMP). In its efforts to ensure timely implementation and improve the overall quality of its EMPs and projects, the Bank carried out environmental supervisory assessments of 20 active projects financed with its loans in 12 member countries. Representative projects in the following sectors were studied: i) large-scale urban water and sanitation; ii) upgrading existing or construction of new highways, secondary or rural roads; iii) diverse small and medium-scale public infrastructure projects (housing, hospitals, schools, water and sanitation, roads) in smaller urban and rural areas; iv) agricultural development assistance and land improvement (food security, irrigation, land tenure registry, soil and water conservation); and v) thermal and hydroelectricity generation and transmission.

Each project was evaluated at the field level over a five-day period by an independent environmental specialist using 15 technical and operational parameters of analysis related to EMP targets and objectives included in their respective designs and loan conditions. Results were immediately presented to the respective IADB Country Offices and execution agencies, along with recommendations to improve any deficiencies detected. Results for all projects were then synthesized in order to rank performance and determine trends in quality for each of the 15 parameters of analysis. Several recommendations drawn from the studies have been incorporated into the Bank's project cycle. Furthermore, the results of these field studies have been used by the IADB as a resource in preparation of the Bank's new Environment and Safeguard Compliance Policy.

IA Follow-up, environmental supervision, Latin America, Caribbean

Mitigating Unavoidable Impacts Identified in Environmental Impact Statements: Measuring the Success EPA's Environmental Review Program

Hargrove, Robert; U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW. Washington, DC, 20460 USA. 202-564-7157. Fax 202-564-0072. hargrove.robert@epa.gov.

Hessert, Aimee; U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC, USA. 202-564-0993. Fax 202-564-0072. hessert.aimee@epa.gov.

In the United States, the National Environmental Policy Act (NEPA) requires the preparation of environmental impact statement (EIS) for all major federal actions that have a significant affect on the environment. Under NEPA, as well as Section 309 of the Clean Air Act, the Environmental Protection Agency (EPA) reviews and comments on all EISs. Ultimately, EPA seeks to have other agencies reduce the unavoidable adverse effects of their actions by the incorporation of appropriate mitigation measures in the actions they sponsor.

For the last several years, EPA has been tracking the comments it makes on other federal agencies' EISs; over 70% of the comments made have received proper responses. In an effort to track actual environmental improvements that result from EPA's reviews, EPA began tracking whether impacts identified during its reviews have been reduced through the inclusion of appropriate mitigation in the scope of the proposed project in October 2004. This new approach required a revamping of the measurements as well as our reporting system. However, the new system will give a much better picture of the success of EPA's EIS review program.

Mitigation, environmental results

A Project Lifecycle Approach to Risk and Impact Management.

Witchalls, Ben; BP, Maddox Farm, Little Bookham Street, Leatherhead, Surrey KT23 3BU UK. + +44 1932 739 409. ben.witchalls@uk.bp.com.

Finney, Rob; BP, BP Plc, Chertsey Road, Sunbury on Thames, Middlesex UK. + +44 1932 763742. Finneyrw@bp.com.

Integrated environmental and social assessment is increasingly becoming part of national regulatory approval processes, to estimate and manage the impacts of oilfield developments upon the natural and human environment. Even at pre-project stages, the Environmental and Social Impact Assessment (ESIA) can form part of the company decision-making process for country entry. The ESIA should not be viewed however simply as a regulatory 'tick-in-the-box' but form part of a larger Environmental and Social Management Process. Effective integration of the ESIA findings, into the engineering design process can deliver benefits in impact mitigation and environmental management across all stages of the development.

The international community is demanding increasingly rigorous environmental and social performance of planned developments by international operators, and reputation can be strongly influenced by the extent to which ESIA commitments are delivered. It is recognised by the International Association of Oil & Gas Producers (OGP) that sharing of experience through 'lessons-learned' would provide a means to achieve consistency in delivery of high quality environmental and social impact management processes.

The OGP ESIA in Projects Taskforce has been formed to develop industry guidance, which is applicable to development projects in any geographical area, thus facilitating the attainment of a consistently high standard by all operators, which is aligned with international expectations. The aim is both to add technical value and to facilitate interactions with stakeholders and third parties. Given the diversity of project specifics, company internal processes, local environmental sensitivities, etc., the approach must offer a high degree of flexibility in its application. A 'Toolbox' based on agreed 'good practice' is being assembled that maps key environmental and social management activities with E&P project activities, defining deliverables and checklists at each stage. This is seen to offer greater potential than a more rigid process.

ESIA, Impact management, Oil and Gas

CS20. AGRICULTURE, FORESTRY AND FISHERIES 2

Environmental Impacts of Tea Growing and Processing -The Case Study of Kenya

Koech, Michael; AMI Development Services, Langata Rd., Box 30943, Nairobi, Nairobi 00100 Kenya. 254-020-600520. Fax 254-020-811906. amiacfed@yahoo.com.

Kinoti, Mary; AMI Development Services, Langata Rd., Box 30943, Nairobi, Nairobi Kenya. 254-020-600520. Fax 254-020-2724639. mkinoti@comhlth.ac.ke.

Agriculture, which is the backbone of Kenya's economy, has had significant impact on the environment. It has contributed to loss of biodiversity, pollution of water, soil and air. Tea growing, for example, has significantly impacted on soils, water, health, economic opportunities as well as social and cultural activities. A major player in tea production in Kenya is the Kenya Tea Zones and Conservation Corporation (KTZCC), which was established to protect forests by establishing continuous rings of tea plantations.

This paper examines the potential impacts of the tea plantations and the proposed tea-processing factory of the KTZCC. The environmental impact assessment (EIA) study collected information through literature review, visual observations, interviews, public hearings, administration of questionnaires, and impact identification using matrices and expert/professional assessment. The EIA study took into consideration relevant laws, including those of Agriculture, Water, Public Health and Places of Work.

The significant potential positive impacts observed during the study include economic empowerment of parents to meet the cost of education for their children, and improved standards of living of households. Significant potential negative impacts include promotion of child labour, generation of waste, and discharge of effluents into water bodies. Education and public awareness creation are noted as important in managing the significant impacts associated with expanded tea growing and processing in the community.

Biodiversity, agriculture, pollution, EIA, economy, tea, forests, soil

Integrated Management and Sustainable Development of Rocca MonteVarmine (Ascoli Piceno Province, Italy)

Bettini, Virginio; University IUAV of Venice, Santa Croce, 1957, Venice, Venice 30135 Italy. +390412572224. Fax +390415240434. bettini@iuav.it. www.iuav.it.

Stevanin, Marco; TERRA Ltd. Co., Via V. Veneto, 114, San Donà di Piave, Venice 6600 Italy. +390421332784. Fax +390421456040. m.stevanin@terrasrl.com. www.iuav.it.

Gianoni, Guiseppe Maria; DIONEA SA / Universiti of Venice, Lungolago Motta, 8 c.p. 36, Locarno, Ticino 6600 Switzerland. +41917515120. Fax +41917519346. gianoni@dionea.ch. www.terrasrl.com.

Abordi, Marco; TERRA Ltd. Co., Via V. Veneto 114, San Donà di Piave, Venice 30027 Italy. +390421332784. Fax +390421456040. m.abordi@terrasrl.com. www.terrasrl.com.

Torresi, Fabrizio; Studio Torresi, Via Augusto Murri, 35, Fermo, Ascoli Piceno 63023 Italy. +390734622950. Fax arch.fabriziotorresi@studiotorresi.it. www.terrasrl.com.

The project "Rocca Montevarmine" concerns the integrated management and the enhancement of an area of 760 hectares – that belongs to the Municipality of Fermo – in Marche Region, central-eastern Italy. The area is situated half-way between the Adriatic Sea and an important natural protected place, the "Monti Sibillini" National Park.

The planning principle is the comprehensive development of Rocca Montevarmine area, in accordance with a concept of territorial unity and homogeneity.

The customer is Fermo Municipality, Province of Ascoli Piceno, Marche Region.

PRELIMINARY STUDIES

The project has been developed from an analysis of the existing conditions of the area, concerning the different fields of action.

- Agriculture

In spite of the strong industrialization process of the Region, in the area of Rocca Montevarmine farming has an economic prevalent role. In the last years the management guidance has led to a banalization of the agricultural texture.

The rationalization of existing farming could bring to the recovery of the concrete productive potentiality of this area.

- Ecosystems and natural areas

The drafting of the "chart of the ecological value" has pointed out the environmental value of this area; the agricultural-forest complex has fairly high values.

- Buildings

Several neglected rural and historical buildings and a stronghold of the XV century have been filed; they present interesting typological characteristics, and they could be restored for residential or tourist uses.

THE PROJECT

The project includes specific actions for the considered different fields; the aim is the enhancement of Rocca Montevarmine area through a non-speculative general development, in accordance with the principles of environmental compatibility and sustainable development (biological agriculture, use of renewable energies, sustainable tourism, etc.).

The goal is to develop an integrated project for the territory, marked by, above all, the development of the quality of farming, both for environmental and cultural aspects.

Integrated management and sustainable development

Carbon Sequestration in Spring Wheat Producing Regions of the Northern Great Plains

Leistritz, F. Larry; North Dakota State University, Morrill Hall 217, Fargo, ND 58105 USA. 701-231-7455. Fax 701-231-7400. lleistri@ndsuext.nodak.edu.

Bangsund, Dean; North Dakota State University, Morrill Hall 217, Fargo, ND USA. 701-231-7471. Fax 701-231-7400. bangsund@ndsuext.nodak.edu.

Carbon sequestration in crop land is currently viewed as a low-cost option to mitigate the increase in greenhouse gas emissions. Existing research suggests that at low carbon prices the primary carbon sequestration activities would be changes in tillage practices and as carbon prices increase some changes in land use are likely to occur in various regions of the United States. This study evaluated land management and land use alternatives that are likely to occur with carbon incentives in the northern Great Plains. Historically, the region has relied heavily on the use of summer fallow; however, producers are finding economic advantages in adopting conservation and no-till systems in continuous cropping practices in the absence of external incentives. Further, producers in the region have consistently demonstrated a willingness to enroll crop land in long-term conservation programs. The conversion of crop land to perennial grasses is an alternative land use that has high carbon sequestration potential in the northern Great Plains. Producers within the region were differentiated by three levels of profitability and by three types of current tillage practices. The highest expected net present value of a future stream of carbon payments and net returns associated with tillage and land use alternatives was determined for each combination of profitability and tillage practice. Results suggest that by including modest revenues from co-products, perennial grass is not only an economically viable alternative to crop production in the region, but may be economically viable at carbon prices lower than have been previously suggested. In addition, just as soil type, crop rotations, and tillage practices have been used to differentiate carbon sequestration potential within a given area, this study indicates that profitability measures also should be used to further differentiate the response of producers to carbon incentives.

Greenhouse gas emissions (GHGE) mitigation, carbon sequestration, economics, crop land

The Conifer Challenge - Making IAIA-04 a Carbon Neutral Event

Vancea, Liviu; Natural Resources Canada, 580 Booth Street, Ottawa, Ontario K1A 0E4 Canada. 613-995-3866. Fax 613-996-0478. lvancea@nrcan.gc.ca. httf://www.nrcan.gc.ca.

The paper will describe the Conifer Challenge Initiative, a program designed to offset conference-related carbon dioxide emissions by planting trees. The goal was to be able to declare IAIA '04 a carbon-neutral event by the final plenary.

Natural Resources Canada has provided calculations estimating the carbon dioxide emissions produced by conference participants attending IAIA '04. The total figure of 2170 tonnes of carbon dioxide included emissions resulting from travel to and from the conference, accommodation, and participation in conference events such as the technical tours.

It was shown that planting 1475 trees would offset these emissions over the lifetime of the trees. The funds raised through this initiative (individual contributions of $10 Can. were sought) were used to purchase trees for planting in the University of British Columbia Malcolm Knapp Research Forest, in Maple Ridge, British Columbia, Canada.

The paper will also provide an update on this initiative.

Conifer Challenge, carbon neutral event

CS21. SEA: ADAPTING SEA TO DIFFERENT CONTECTS AND SYSTEMS 2

Early Experiences of Implementing the SEA Directive in Europe – Examples from the UK and Slovenia

Leben, Jure; Green Mountain College, 3 College Circle, Poultney, Vermont 05764 USA. 8022878161. lebenj@greenmtn.edu.

Fry, Chris; Centre for Sustainability at TRL, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire England. + 44 (0) 1344 770815. Fax + 44 (0) 1344 770356. cfry@trl.co.uk.

The Environmental Assessment of Plans and Programmes Directive (the SEA Directive) came into force across the 25 countries of the European Union in July 2004. To many EIA and environmental planning practitioners, SEA was already long overdue.

It can be argued that, to be effective, SEA must be carefully embedded into the specific circumstances of plan/programme making. However, under the Directive, a common SEA instrument is being required to respond to different needs across countries which have a variety of plan making traditions and different institutional arrangements for environmental protection. In addition, the environmental and social sustainability priorities vary as well.

This paper examines early signs of how flexible SEA (under the Directive) is in adapting to these demands. The paper draws on experiences of the implementation of the SEA Directive in the UK and Slovenia. Lying geographically at the north west and south east extremes of Europe, the UK and Slovenia have different demographic, environmental and economic situations which illustrate the flexibility required of SEA. Various aspects of SEA implementation are discussed, including:

- Different contexts for the introduction of SEA;
- Characteristics of the national legislation to implement SEA;
- The development of general and sector-specific guidance for SEA;
- Training and support for plan making authorities during the transitional year;
- How the quality of SEA will be maintained and improved.

Strategic Environmental Assessment (SEA), environmental assessment of plans and programmes

Stumbling Blocks on the Use of SEA to Improve the Strategic Action

Joao, Elsa; Graduate School of Environmental Studies, University of Strathclyde, Level 6, Graham Hills Building, 50 Richmond Street, Glasgow, Glasgow G1 1XN Scotland. + 44 141 548 4056. Fax + 44 141 548 3489. elsa.joao@strath.ac.uk.

One of the key principles of SEA, and a possible way to evaluate the effectiveness of the SEA process, is that SEA should improve rather than just analyse the strategic action. This paper will present the results of a large survey to evaluate what might prevent this to happen in practice. More than 80 people that are (or are about to be)directly involved in the implementation of SEA in the UK answered a questionnaire on this topic. All the respondents filled the questionnaire after they attended a 1-day, 2-day or 3-day intensive SEA short course in 2004, therefore all people had a good basic knowledge of SEA before answering the questionnaire. For all respondents the motivation for the attendance of a SEA short course in 2004 was the implementation of the European SEA Directive in July 2004. The analyses of the questionnaires found that four main types of constraints may prevent SEA from improving strategic actions: organisational constraints, political constraints, information constraints and training constraints. The paper concludes with suggestions of ways to overcome these stumbling blocks on the use of SEA to improve strategic actions. These include good leadership from key bodies, good national guidance, and availability of information about best practice.

Introducing Strategic Environmental Assessment in Turkey

Schijf, Bobbi; Ameco Environmental Services, Koningslaan 60, Utrecht, Utrecht 3583GN The Netherlands. +31(0)302545840. Fax +31(0)302545376. bobbischijf@wanadoo.nl.

Turkey has recently commenced membership negotiations with the European Union. In order for Turkey to become an EU member, it will have to adapt its legislation to meet EU standards, including those on impact assessment. The EU requirements for project level EIA can be met by making adaptations to the Turkish EIA system, which has been in place since 1997. However, the EU also requires that Strategic Environmental Assessment (SEA) be undertaken for plans and programmes, and this instrument is new to Turkey.

The Dutch government has funded a project aimed at assisting the Turkish with the implementation of SEA. This project has been carried out by a consortium of Dutch and Turkish consultants, in close co-operation with the Turkish Ministry of Environment and Forestry. The Dutch EIA commission was involved in an advisory role. The project activities included:

- Development of an SEA regulation, adapted to the Turkish legal context, and supported by guidance material.
- Institutional strengthening, including an analysis of existing structures and capacities for strategic assessment, training of ministerial staff and the provision of information to all stakeholders in SEA.
- A pilot SEA for a tourism development plan.

The experience in Turkey offers useful lessons for SEA implementation elsewhere. This paper will touch on the necessity of facing political realities when introducing SEA, and present some observations on capacity building for scoping and public participation. In addition, the importance of embedding SEA in the planning culture will be discussed, as well as the contribution that SEA pilots can make to this process.

SEA, Turkey, EU Directive, capacity building

Implementation of SEA in Relation to Different Modes of Planning. Snapshots from Three Nordic Countries: Sweden, Denmark and Iceland

Bjarnadottir, Holmfridur; Nordregio, Nordic Centre for Spatial Development, Box 1658, Stockholm, - SE-111 86 Sweden. 46 8 463 5419. Fax 46 8 463 5401. holmfridur.bjarnadottir@nordregio.se.

Emmelin, Lars; Blekinge Institute of Technology, Karlskrona, - Sweden. 46 455 385310. Fax 46 455 38 50 57. lars.emmelin@bth.se.

This paper discusses the approaches chosen for the implementation of the EU directive "On the assessment of the effects of certain plans and programmes on the environment" (so-called SEA directive) in three Nordic countries: Sweden, Denmark and Iceland.

The paper is based on a comparative research project "SEA as an intervention – effects of the EU directive 2001/42/EC on the integration of environmental aspects in planning ". The project forms a part of an interdisciplinary research programme "Tools for Environmental Assessment in Strategic Decision Making" (MiSt), funded by the Swedish Environmental Protection Agency.

The countries included in the project have introduced SEA requirements to their national legislation, but given the countries' autonomy in implementation of the directive, the experience so far has shown substantial differences in the modes chosen.

The paper explores the relation between the introduction of SEA and the existing spatial planning systems. In particular, whether the implementation of the directive will change existing planning structure and practice, or whether the directive can be used to facilitate, or even legitimate, existing planning practices. The different modes of implementation will be examined in the light of significant characteristics of the planning system, such as; the levels of planning, tiering, legal requirements on the contents of the plans, environmental policy and public participation.

The interaction between implementation modes and salient characteristics of the planning system will be analysed and discussed on the basis on categories of implementation discussed by Emmelin:

- Minimalist (with the objective of implementing the directive in the specific national context with minimum of disruption)
- Intentionalist (aligning national legislation with the intention of the directive)

- Environmentalist (use the directive as a lever to change national policy)

SEA directive, spatial planning, Nordic countries, comparative study

New Style of SEA by a Meeting Based Way -Application to Waste Management in Nagano Prefecture, Japan

Harashina, Sachihiko; Tokyo Institute of Technology, G5-9, 4259 Nagatsuta, Midori-ku, Yokohama, Kanagawa 226-8502 Japan. +81 45 924 5550. Fax +81 45 924 5551. sahara@depe.titech.ac.jp.

The role of EIA is to conduct discussions in a public space to ensure that decision makers take mitigation measures against environmental impacts. One of the characteristics of EIA is a way for exchanging information between proponents and stakeholders based on various kinds of papers. This is because of transaction problems in public participation. There are usually many affected groups on the project EIA process.

But on the strategic level of decision making, the situation is slightly different. The information exchange could be conducted through meetings by representatives of stakeholders and experts related to the topic. It, therefore, is possible to conduct the process based on meetings in the case of SEA. This is a new style of SEA.

The new SEA was applied in consensus building process of waste management problem in the Chusin area of Nagano Prefecture, Japan. The prefecture is very mountainous area with natural beauty. Though it conducted project EIA, the local residents claimed that the site location process was not transparent. A dispute was arisen there, and it became impasse in the end of 2000. The new governor tried to have a consensus building process of it in 2001. The SEA process based on highly transparent meetings was conducted.

The governor understood that true public involvement process was necessary. The dispute was arisen at the final stage of the series of decision making from policy making to project implementation. For public involvement, public should be involved from the policy making stage. The author has a theory of good public involvement. It has three requirements of setting the consensus building arena, high level openness of the arena, and supply of sufficient information. It was realized in the case. They could build step-wise consensus until finding possible areas for the site location.

SEA, public participation, waste management, consensus building

CS22. IMPACT ASSESSMENT OF OIL AND GAS PIPELINES

The West African Gas Pipeline: A Critical Assessment

Wolf, C. P.; Social Impact Assessment Center, 423 Broome Street, New York, NY 10013 USA. (212) 966-2708. Fax (212) 219-1963. cpwolf@igc.org.

First proposed by the Economic Community of West African States (ECOWAS) in 1983, the West African Gas Pipeline (WAGP) is planned to extend 678 km from Alagbado, north of Lagos, to Takoradi, Ghana. It is sized18 to 20 inches in diameter to transport natural gas originating in the Niger Delta, an area of chronic environmental degradation and social unrest.

The pipeline is to be laid mostly offshore on the seabed in 26 to 70 meter water depths at an approximate distance of 15 to 20 kilometers from the coasts of Nigeria, Benin, Togo, and Ghana at a cost exceeding USD$1 billion for construction and energy infrastructure development in the four countries. The projected schedule for operational start-up is the first quarter of 2006.

The proponents are the West African Gas Pipeline Company (WAPCo), an industry consortium led by ChevronTexaco with the support of the World Bank and other funders. The purpose is to strengthen economic integration in the region by meeting common energy needs and creating markets to absorb this abundant resource and curtail the wasteful and harmful practice of flaring associated gas.

The purpose of this paper is to review the assessment of pipeline impacts, both in the ECOWAS region and the Niger Delta. While upstream (construction and operation) impacts are the primary focus, attention will also be given to downstream (distribution and marketing) impacts. The paper will address issues of security of supply, regional economic and political integration, resource control, the implementation and effectiveness of mitigation measures, and alternatives for the reduction of flaring, among others. The role of international review panels—including participation by the International Association for Impact Assessment—will be considered in regard to this and similar projects.

Niger Delta, pipelines, West Africa

Chad-Cameroon Oil Pipeline

Orellana, Rosa; World Bank Group.

Since July 2003, this 1070km underground pipeline carries 250,000bpd of crude oil from up to 250 wells around Doba, Southern Chad, to Kribi on the Atlantic coast of Cameroon. Most of the $4.2bn financing is from the consortium led by ExxonMobil, with Petronas and Chevron, supported by IFC & IBRD, US EximBank, Coface, AfEx-Im Bank ABN-Amro and others. The transparent Revenue Management arrangements are innovative, as are the two National Parks to offset the environmental impacts.

Bolivia-Brazil Gas Pipeline

Ledec, George; Quintero, Juan David; World Bank.

This 3000 Km pipeline's overall footprint is minimal. Because of its length, the route had to traverse sensitive areas, but avoids sensitive ecosystems, reduces the width of the right of way, removes trees manually, crosses wetlands and 13 rivers drilling underneath, and avoids steep slopes by tunneling. Extensive ROW revegetation, and comprehensive compensation supports 13 protected areas. The project set high social standards for negotiations with indigenous communities and served as the single most important archeological survey in recent years both in Bolivia and Brazil. Completed in 1999, it was built in 18 mo. For $2,1bn the project's EA was exemplary, and earned several international awards.

Pipeline Risk Assessment and Risk Acceptance Criteria in the State of Sao Paulo, Brazil

Kirchhoff, Denis; University of Waterloo - Department of Geography, 200 University Avenue, Waterloo, Ontario N2L 3G1 Canada. (519) 342 7696. Fax (519) 746-0658. dkirchho@fes.uwaterloo.ca.

Doberstein, Brent; University of Waterloo - Department of Geography, 200 University Avenue, Waterloo, Ontario Canada. (519) 888-4567 x.3384. Fax (519) 746-0658. bdoberst@fes.uwaterloo.ca.

Since the year 2000, the State of Sao Paulo has adopted a set of risk acceptance criteria in order to assess risks related to new development projects that need to be licensed before full project implementation begins. In this perspective, Risk Assessment (RA) is directly associated with the State's Environmental Licensing process. This article discusses the utility of RA for the process of analyzing the environmental suitability of natural gas pipelines. Sao Paulo State's process, and a case study of a high-pressure natural gas pipeline between the cities of Sao Carlos and Porto Ferreira, are presented to illustrate this issue. The main conclusion is that RA is an essential tool when assessing the suitability of pipelines, and risks associated with the proposed activity should be used as fundamental criteria at the licensing and route selection stages of assessment. In this manner, fatality risks related to pipeline failures can be reduced. It was also concluded that the risk acceptance criteria adopted by the State of Sao Paulo are extremely permissive when compared to others used around the world. Therefore, a revision of the adopted criteria should be initiated in order to make them compatible with up-to-date acceptance criteria.

Risk, risk assessment, risk acceptance criteria, environmental suitability, pipelines

CS23. HIA: HIA EVALUATED

Using Health Impact Assessment for Improved Policy Development: An Insight into the Assessment, Negotiation and Recommendation-Making Steps

Neville, Leonie; CHETRE, University of NSW, SPHCM/CHETRE, University of New South Wales, Sydney, NSW 2052 Australia. +61 2 9391 9000. lnevi@doh.health.nsw.gov.au.

Simpson, Sarah; CHETRE, University of NSW, SPHCM/CHETRE, University of New South Wales, Sydney, NSW 2052 Australia. +61 2 9385 0420. sarah.simpson@unsw.edu.au.

Harris, Liz; CHETRE, University of NSW, CHETRE, Liverpool Hospital LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. e.harris@unsw.edu.au.

Harris-Roxas, Ben; CHETRE, University of NSW, SPHCM/CHETRE, University of New South Wales, Sydney, NSW 2052 Australia. +61 2 9385 0134. Fax +61 9385 0140. b.harris-roxas@unsw.edu.au.

Health impact assessment (HIA) is gaining increasing recognition as a tool for improved policy development and as part of healthy public policy. The aim of HIA is to identify potential health impacts and develop solution-focused

recommendations to improve the proposal before implementation: thereby contributing to improved decision-making and policy development.

The value of HIA, as opposed to community consultation, is that it provides a structured process for engaging all stakeholders (such as the community and decision makers) in valuing a range of "evidence" and identifying the action(s) required to enhance the proposal. This occurs at the assessment, negotiation and recommendation-making steps of HIA. While HIA offers potential as a process for improved decision-making, the assessment, negotiation and recommendation-making steps may be quite contentious, and there is limited guidance on how to undertake these steps of HIA effectively.

This project sought to better understand these steps within HIA by examining the experiences of practitioners who undertook HIAs in Australia and New Zealand during 2003 and 2004. This paper will present lessons learned about the assessment, negotiation and recommendation-making steps of HIA.

It is expected that this work will result in the development of guidance for policy developers and planners on how to actually realise the benefits of HIA for improved decision-making and/or improved consideration of equity issues – thereby contributing to healthy public policy.

Case Study on Site-Specific Health Risk Assessment in Developing Nations

Garcia, Marcus; ENSR International, 2 Technology Park Drive, Westford, MA 01886 USA. (978) 589-3062. Fax (978) 589-3100. mgarcia@ensr.com. www.ensr.com.

Chaudhuri, Ishrat; ENSR International, 2 Technology Park Drive, Westford, MA USA. (978) 589-3000. Fax (978) 589-3100. ichaudhuri@ensr.com. www.ensr.com.

Echiverri, Ernani; ENSR International, 2 Technology Park Drive, Westford, MA USA. (978) 589-3000. Fax (978) 589-3100. eechiverri@ensr.com. www.ensr.com.

Fraiser, Lucy; Signature Science, 8329 N. Mopac Expressway, Austin, TX 78759 USA. (512) 533-2068. Fax lfraiser@signaturescience.com. www.signaturescience.com.

To achieve beneficial redevelopment of inactive industrial property in developing nations, it is often necessary to balance the needs of stakeholders with the availability of, or more often lack of, local regulations and policies. One way to aid decision-making in the redevelopment process is to perform a human health risk assessment. Health risk assessment is widely used in developed nations to guide site cleanup and redevelopment. Developing nations may not have available local regulations and policies governing the human health risk assessment process. However, with the consideration of stakeholders (local residents, local regulators and industry representatives), it is possible to arrive at a process that balances professional standards, best practices established by international policies or regulation and local concerns.

This case study will review the process undertaken in conducting a balanced health risk assessment that considered stakeholders interested in redevelopment of an inactive industrial property. This health risk assessment was based on US EPA procedures incorporating international best practice. Approaches used by several countries (including Netherlands, United Kingdom (UK), United States (U.S.)), the World Health Organization (WHO), and the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG) were evaluated and considered for use in this health risk assessment. The resulting health risk assessment utilized a combination of inputs and approaches recommended by these nations and organizations.

This case study will present a review of the approach used. Particular aspects to be discussed will include the importance of considering stakeholder needs in the process; developing a conceptual site model (CSM) considering current environmental conditions and future use; selection of toxicity benchmarks from a range of international sources; development of site-specific exposure assumptions representative of indigenous populations; and the consideration given to acceptable risk levels as they relate to the risk management process while balancing professional standards, and local concerns.

Risk assessment

Challenges in Data Collection for Health Impact Assessment: The Shell Nigeria Experience

Bornu, Godswill; Shell Petroleum Development Company of Nigeria, P.O. Box 263, Old Aba Road, Port Harcourt, Rivers State Nigeria. 234-084-4-24848. Fax 234-084-237127-24756. godswill.bornu@shell.com.

Dada, Oritsetimeyin; Shell Petroleum Development Company of Nigeria, P.O. Box 263, Old Aba Road, Port Harcourt, Rivers State Nigeria. 234-084-4-24039. Fax 234-084-237127-24756. oti.dada@shell.com.

Health Impact Assessment (HIA) is a discipline that seeks to assess the impact of projects and policies on human health. HIA has been proven to be a good methodology for mitigating the negative health impact of projects and enhancing sustainable development.

Prior to 1999, Environmental Impact Assessments (EIA) reports submitted for approval by Shell Petroleum Development Company of Nigeria (SPDC) were skewed heavily towards presentation and analysis of biophysical data. The quality and analysis of data on the social and health aspects in these early EIA reports was low. The need to improve SPDC's EIAs was identified in 1999, and in 2000 the company embarked on the EIA improvement project to raise the quality of the social and health data and assessment.

Since 2000, HIAs have been handled by the occupational health team and integrated into the EIA. Seven integrated EIA studies have been completed, and two have obtained approval from the Federal Ministry of Environment.

While there has been improvement in the quality and analysis of health and social data in EIAs in SPDC, there are still challenges to overcome. Some of these challenges are no regulation or legislation guiding HIA and/or medical ethics, lack of health databases, use of intrusive studies, very limited integration with social impact assessment, cultural influence, lack of resources and competence.

This paper examines the current methodology being employed in SPDC for data collection, the challenges faced, and areas for improvement to ensure that quality assessments are delivered.

Environmental and health impact assessment, Shell Petroleum Development Company

Assessing Human Health in Canadian Northern EA: A State-of-Practice Survey

Noble, Bram; Department of Geography, University of Saskatchewan, # 9 Campus Drive, Saskatoon, Saskatchewan S7N 5A5 Canada. 306-966-1899. b.noble@usask.ca.

In response to the 1987 World Health Organization's conceptualization of health in EA to extend beyond physical health and to include social and public health concerns, several studies have addressed the need for, and challenges to, bridging public health and environmental assessment. Few studies, however, have empirically examined the state-of-practice of health assessment in project EA from the practitioners' perspective.

From the Berger Inquiry of the 1970s to the more recent Mackenzie Valley gas project, EA at the federal level is strongly reflected in Canada's northern regions. The consideration of human health impacts in Canadian northern EA is guided by several pieces of federal, provincial and territorial legislation including the Canadian Environmental Assessment Act, which defines an 'environmental effect' as including any change that a project may cause in the environment, including any effect of any such change on health.

The practice of addressing human health as part of the EA process is receiving increased attention from EA and health practitioners alike. That being said, there has not been a systematic examination of the practice of health integration in Canadian northern EA since a 1990 workshop by the Canadian Environmental Assessment Research Council acceded that human health is not adequately considered by processes that evaluate the effects of northern development projects.

This paper presents the results of a practitioner survey of health integration in Canadian northern EA. Based on the experiences of Northern EA practitioners, community health workers, administrators, and project proponents, the state-of-practice of health assessment in Northern EA is explored, including the extent to which human health and health determinants are considered in each phase of project assessment, perspectives on the importance of health integration in Northern EA, and the perceived barriers to effective health integration.

Health assessment, practitioner survey, Northern EA, Canada

Addressing Health in Planning: What Role for HIA?

Bond, Alan; InteREAM, School of Environmental Sciences, University of East Anglia, Norwich, Norfolk NR4 7TJ UK. + 44 1603 593402. Fax + 44 1603 591327. alan.bond@uea.ac.uk.

Cave, Ben; Ben Cave Associates (BCA), PO Box 220Brighton, Sussex SE15 4DZ UK. + 44 1273 723400. ben.cave@caveconsult.co.uk.

Molyneux, Peter; Common Cause Consulting, 34 Adys Road, Southwark, London SE15 4DZ UK. + 44 02076776196. Fax + 44 02076776196. peter.molyneux@btopenworld.com.

In South East England there is a demand for new housing on a huge scale and the Government response has been to identify "Growth Areas" within which public funds will be allocated to develop the infrastructure to facilitate the new

build. The Government's wish is for 'sustainable communities' to be developed; the proper consideration of health is, thus, an explicit aim.

This research focuses on the Eastern Region of England which contains parts of three of the four growth areas. The objective of the research was to conduct a training needs analysis such that health expertise could properly be brought to bear in the growth areas through a subsequent training programme. This analysis has three separate components:

1) a survey, making use of a market research company, of relevant stakeholders in the planning process and in the health sector in the Region to identify current understanding of planning and health issues;
2) a facilitated workshop to discuss the results from the survey and to identify the reasons why responses were given, i.e. this component led to better understanding of the survey responses and to the formulation of some recommendations; and
3) case studies examining the consideration of health in four separate developments, involving in depth interviews with key personnel and examination of planning documentation, to identify learning points in terms of both good and bad practice.

The research has identified not only training needs, but a range of other issues which need to be resolved at regional and central Government level if health is to be properly considered in planning. Key issues are the future role of statutory impact assessment and appraisal processes, and a lack of synergy between planners and health professionals exacerbated by a focus on targets which are unrelated to the development of sustainable communities.

Health, planning, HIA, SEA

CS24. HIA: PRINCIPLES AND PRACTICE OF HIA ROUNDTABLE

CS25. CROSS-NATIONAL TRANSFER OF POLICY ANALYSIS AND IMPACT ASSESSMENT (PHILOSPHY, METHODS AND PRACTICE)

Application of SEA to Regional Power Sector Integration in the Lower Mekong Delta Subregion (Thailand, Laos, Cambodia, Vietnam)

Nilsson, Måns; Stockholm Environment Institute, Lilla Nygatan 1, Box 2142, Stockholm, Sweden 10314 Sweden. +46-8-4121415. Fax +46-8-7230348. mans.nilsson@sei.se.

Strategic Environmental Assessment, as a decision-support procedure that puts sustainability considerations into up-stream strategic decision-making, is being increasingly used and advocated by Western donors as donor support moves away from project-based to sector-oriented support and programmes. However, SEA is still immature in its methodology and suffers from a poor understanding among policy officials in both North and South. This paper reports on the experience of establishing an SEA procedure for energy sector programming in Southeast Asia. Key issues are related to building capacity and ownership among sectoral actors to undertake SEA, as well as adapting analytical methods and deliberations to capacities and regional cultural and decision-making contexts. The analysis is based on a series of regional methods workshops as well as in-depth interviews with energy policy officials in Cambodia, Thailand and Vietnam.

SEA, energy, integration, decision-making

Possibilities for Participatory Approaches in Management of Small Reservoir Systems

Poolman, Martine; Technical University Delft, the Netherlands (Faculty of Technology, Policy and Management), Julianalaan 3Delft, Zuid-Holland 2628 BB the Netherlands. +31 (0)616386548. m.i.poolman@student.tudelft.nl.

At the UN Millennium Summit (September 2000), the world leaders placed development "at the heart of the world agenda by adopting the Millennium Development Goals." The goals set clear targets for reducing poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women by 2015.

These goals have become the basis for funding-criteria set-up by development organisations for projects that are carried out in developing countries. With this, such organisations increasingly "demand" that local governments should implement participatory approaches in order to achieve a sustainable solution to the problem that the project

aims to "solve". Via such approaches local communities will get the chance to become involved in projects that affect them directly and be more willing to stay committed to ensuring the project's sustainability.

However, does a local government have the means, capacity and will to set up such participatory approaches? How can they actually achieve this involvement/participation? What can a local government aim to achieve via such participation, does this differ from the ideas development organisations (donors) have?

This paper looks at the possibilities for implementation of participatory approaches in the decision making process of the District Assembly in the management of small reservoir systems in the Upper East Region of Ghana. With this, the paper aims to look at the gap between the engineers (who design and construct the dams and reservoirs) and the users (who often do not have a say in design) and what role the District Assembly can play in an attempt to bridge this gap through participatory approaches.

The paper also questions the "demands" of the development organisations; does implementation of the MDG's impose a western idea as to how to reach sustainability that isn't ideal for a development in a region such as the Upper East region?

Participation, sustainable development, millennium development goals

CS26. INDIGENOUS PEOPLES

Environmental Assessment and Management of the Voisey's Bay Mine/Mill

Bonnell, Steve; Department of Labrador and Aboriginal Affairs, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, Newfoundland and Labrador A1B 4J6 Canada. (709) 729-4959. Fax (709) 729-4900. stevebonnell@gov.nl.ca.

Biasutti, Marina; Innu Nation, P.O. Box 119, Sheshatshiu, Newfoundland and Labrador A0P 1E0 Canada. (709) 497-8155. Fax (709) 497-8396. mbiasutti@innu.ca.

Chaulk, Keith; Labrador Inuit Association, PO Box 909, Stn B, Happy Valley - Goose Bay, Newfoundland and Labrador A0P 1E0 Canada. (709) 896-8582. Fax (709) 896-2610. kchaulk@nunatsiavut.com.

Botsford, Jack; Voisey's Bay Environmental Management Board, 39 Poplar Ave, St. John's, Newfoundland and Labrador A1B 1C7 Canada. (709) 753-7655. Fax (709) 753-7661. jack@vbemb.ca.

The Voisey's Bay Mine/Mill Project involves the construction and operation of an integrated mine and concentrator in Northern Labrador, Canada. The nickel-copper-cobalt deposit was discovered in 1993, and is within the land claims areas of both the Inuit and Innu of Labrador. The Project was subject to a joint environmental assessment (EA) process under a Memorandum of Understanding between the Governments of Newfoundland and Labrador and Canada, the Labrador Inuit Association (LIA) and the Innu Nation. Construction of the $829 million (Cdn), 6,000 tonne-per-day mine and concentrator at Voisey's Bay commenced in July 2002, with operations scheduled to begin in late 2005. An Environmental Management Agreement (EMA) was also signed in July 2002 by the provincial and federal governments, LIA and Innu Nation, in response to a key recommendation of the Project's EA Review Panel. Its purpose is to provide for effective, responsible, comprehensive and coordinated environmental management for the Voisey's Bay Mine/Mill. Under that Agreement, an Environmental Management Board comprised of representatives from each Party was established to provide advice to governments on project-related environmental permits, plans and other matters. This innovative and collective approach also allows for the direct and on-going involvement of the aboriginal groups in regulatory processes pertaining to the Mine/Mill. This paper provides an overview of the Voisey's Bay Mine/Mill Project and its environmental assessment, key agreements and approvals which enabled it to proceed, the on-going land claims processes, and the nature and functioning of the EMA process.

Impact and Benefits Agreements and Environmental Impact Assessment

Reschny, Jamie; The Memorial University of Newfoundland, Department of Geography, St. John's, Newfoundland A1B 3X9 Canada. (709) 737-8998. Fax (709) 737-3119. j_reschny@yahoo.ca.

Impact and Benefits Agreements (IBAs) are agreements negotiated between an industry developing a resource and the party or parties affected by the development. The purpose of the agreements is to provide local short-term and long-term benefits, while mitigating the adverse impacts of development. In Canada, IBAs are increasingly recognized as standard and regulatory requirements for mineral development projects, particularly when Aboriginal peoples are involved. The content of IBAs negotiated between Aboriginal groups and the mining industry include

provisions to stimulate economic growth, as well as address the adverse effects of development on Aboriginal traditional way of life. As a result the content has significant policy and decision-making implications. Yet, the agreements are particularly difficult to study because of the confidentiality provision inherent in most IBAs. The provision is designed to protect the interests of the aboriginal groups and industry, and in so doing may limit or deny information access to government and the general public. At the same time both government and the public have an interest in issues negotiated in IBAs. This potential for conflict is evident in the Environmental Impact Assessment process where project outcomes may be significantly influenced by IBAs, but for which there is no information or prospect for detailed analysis. This paper explores this issue with particular reference to IBAs and mining projects in Canada.

Impact and Benefits Agreements, Environmental Impact Assessment, aboriginal; mining

Developing Traditional Knowledge Guidelines: The Mackenzie Valley Environmental Impact Review Board Experience

Schuh, Renita; Mackenzie Valley Environmental Impact Review Board, Box 938, 5102-50th Ave., Yellowknife, NT X1A 2N7 Canada. 867-766-7060. Fax 867-766-7074. rschuh@mveirb.nt.ca.

Traditional knowledge is a critical component of environmental assessments in the Mackenzie Valley, Northwest Territories, Canada. However, after several years of working under a new set of legislation, it became evident to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) that further guidance was needed for industry, government and communities on how traditional knowledge fits into the MVEIRB's environmental impact assessment process. Thus, the Review Board drafted the first set of guidelines for traditional knowledge in the environmental impact assessment process to be issued in Canada.

This paper discusses three main challenges MVEIRB faced in the development of its Traditional Knowledge Guidelines. The first challenge for the Review Board was clearly communicating the purpose and intent of the document. The misconception that these guidelines would or could regulate traditional knowledge use by communities caused great concern. The Review Board's next challenge was dealing with the current political climate between the federal government and first nation groups. Recent court decisions created confusion on how or if the "duty to consult" applied to the Review Board's processes and whether or not documents such as the Traditional Knowledge Guidelines should be subject to this requirement and/or make reference to it. A third challenge was the difficulty in reconciling intellectual property rights of traditional knowledge with community policy and access to information legislation. There was concern about the degree of intellectual property rights protection these guidelines offered or could offer to the traditional knowledge holders while maintaining a fair and open decision making process. In conclusion, Traditional Knowledge Guidelines for the EIA process will provide much needed guidance to stakeholders and communities. Valuable lessons in planning a public consultation process have been learned, particularly the importance of being inclusive with the public and cognisant of legal and political issues.

Traditional knowledge, environmental assessment, intellectual property rights, consultation

Human Impacts of the James Bay Hydroelectric Project (Eastern Sector)

Senécal, Pierre; Hydro-Québec, 75 René-Lévesque-ouest, 10th floor, Montreal, Québec H2M 2J5 Canada. + 1-514-289-2211 # 4233. Fax + 1-514-289-5038. Senecal.Pierre.B@hydro.qc.ca.

Originally designed as a relatively simple SIA follow-up of two power plants, the "Eastern Impact" study evolved into a major ex post follow-up program covering a huge territory and extending over a period of more than 30 years. The program assessed on a detailed basis, on each trapline, all the land use impacts of the construction and operation phases as well as the economic, social and cultural repercussions of those impacts. Three Cree communities and a large population of non-aboriginal users from Southern cities (including U.S. residents) were affected both positively and negatively by the large infrastructures. They include three power plants and reservoirs, a large number of dams and dykes, a major road system and a power line. The area affected, located at the very center of Québec, is one of the remotest in North America and was unaccessible by land until the access roads were built. On of the special features of the program was its supervision by a Steering Committee on which sat all the involved parties, including the three Cree communities and the Cree Regional Administration as well as the main sponsor, Hydro-Québec. The staff included three Cree community coordinators and three consulting firms. The paper will highlight the history of the follow-up, which extended over a period of six years, its main results (which are presented in five reports) and the lessons which can be drawn from this undertaking (especially from the study process), one of the largest of its kind.

James Bay project, human impacts, reservoirs, roads

CS27. PRACTICAL ISSUES IN ENVIRONMENTAL IMPACT ASSESSMENT

Make It Easy on Your Readers: Ideas on Environmental Impact Document Style

Page, John; Parsons Brinckerhoff Quade & Douglas, Inc., 909 Aviation Parkway, Suite 1500, Morrisville, North Carolina 27513 United States of America. 919-468-2130. Fax 919-467-7322. pagej@pbworld.com.

An environmental impact document serves as an aid to decision-making. Many factors are involved in a public works decision, which means that many and varied individuals and groups have a stake in the decision. These stakeholders should have the opportunity to make a thoughtful contribution to the decision. An environmental impact document should present its information in a manner that makes it easy for its readers to grasp the trade-offs between alternatives and their relative importance.

This paper will discuss elements of environmental document style important to presenting environmental assessment findings such that they can be readily understood and used in constructive debate and to reach sound conclusions. These elements are:

1) Be Honest: tell the truth, present the facts, be objective, be accurate, be frank, be complete and thorough, and be fair;
2) Be Vivid: select words that invoke vivid images, include who, what, when, where, how, and why, define abstractions, use charts, pictures, and graphics, and say what the findings mean;
3) Be Accessible: explain the logic of each assessment specialty, explain important but unfamiliar technical concepts, and use words familiar to the reader;
4) Be Concise: include only relevant information, use as few words as possible, and distill the analysis;
5) Be Consistent: use the same key terms consistently and create a style manual; and
6) Be Defensible: explain the basis for conclusions, indicate significance, and avoid subjective/relative words.

(Note: This paper is one part of a larger paper that also addresses knowing one's readership, focus, organization, and format.)

Style, readability, environmental impact documentation

'Lemons' Can't be Made into 'Diamonds': A Screening Framework for Mining Projects

Hacking, Theo; University of Cambridge, Trumpington Street, Cambridge, Cambridgeshire CB2 1PZ UK. + 44 1223 766 685. Fax + 44 1223 765 625. th252@cam.ac.uk. www.cam.ac.uk.

Middleton, John; International Finance Corporation, 2121 Pennsylvania Ave, NW, Washington, DC USA. + 1 202 458 1206. Fax + 1 202 974 4347. jmiddleton1@ifc.org. www.cam.ac.uk.

In 2000 the World Bank Group (WBG) initiated a comprehensive assessment of its activities in the extractive industries sector. This Extractive Industries Review (EIR) concluded in 2004. Some critics have dismissed the response of the WBG management to the EIR as an endorsement of 'business as usual', since they failed to adopt some of the more controversial recommendations. However, an analysis of the management response reveals a number of far reaching commitments, especially in relation to the selection of projects.

The International Finance Corporation (IFC) is the arm of the WBG which promotes private sector investment in developing countries and the IFC's environmental and social assessment procedure is widely regarded as the international 'benchmark'. However, since the IFC's involvement is at the project-level, the focus of assessments has tended to be local. In addition, assessment has mostly been used as a 'negative screening' tool at the early review stage or for 'beating into shape' projects at later stages.

The WBG management response to the EIR endorses the need to be more selective in the choice of extractive projects by proactively considering strategic factors, such as the governance and country context, in addition to local risks and opportunities. This acknowledges that individual projects cannot easily overcome the pre-existing factors that weigh for or against sustainable development; hence a sober assessment of these factors is required when identifying potential projects.

This paper will present a framework that can guide the 'screening' of mining projects during their pre-feasibility/ early review stage. The framework covers governance and transparency, strategic justification and local risks and

opportunities. The objective is to identify the key risks/ vulnerabilities and opportunities, which can be used to guide the selection of projects. The tool will be of particular interest to projects investors and financiers.

Screening, mining, extractive industries review, IFC, governance

A Multiple Stakeholder Perspective of the Importance of a Social and Economic Impact Assessment of Harmful Algae Blooms

Robertson, Robert; University of New Hampshire, 317 James Hall, 56 College Road, Durham, New Hampshire 03824 United States. 603-862-2711. Fax 603-862-0208. robertr@cisunix.unh.edu. www.dred.unh.edu/Rob.htm.

Ward, Kristin; Department of Resource Economics, University of New Hampshire, 325 James Hall/56 College Road, Durham, NH United States. 603-682-5498. ward@primal.ucdavis.edu. www.dred.unh.edu/Rob.htm.

Toxic and harmful algal blooms (HABs) are one of the most scientifically complex and economically significant coastal issues facing the United States today. In the past, only a few regions of the U.S. were affected by HABs, but now virtually every coastal state has reported major blooms. Such algal bloom events result in economic and social costs stemming from monitoring/management activities, restrictions/closures on fishery areas, limitations on recreational and tourism activities and health costs associated with the consumption and/or exposure to toxins produced by HABs. There is a lack of research that accurately estimates or documents these social and economic costs.

The United States Department of Commerce's National Oceanographic and Atmospheric Administration's Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) and Monitoring and Event Response for Harmful Algal Blooms (MERHAB) programs have as one of their priorities to improve their understanding of socioeconomic impacts of HAB events. This paper will report the results of an effort to assist the Center for Sponsored Coastal and Ocean Research with future programmatic planning by identifying areas where research investments are needed to gain a deeper understanding of the socioeconomic issues and costs stemming from HAB events. A web-based tool was used to secure the assistance from a variety of stakeholders in prioritizing social science research needs.

This assessment provides a guide for researchers, policy analysts, stakeholders and others who maybe interested in engaging in using or collecting this type of data. It will serve to highlight some of the barriers and challenges associated with conducting economic and social impact analysis of HABs in the United States. It also provides some insights into the "politics" of this type of assessment.

SEA, public participation, harmful algae blooms

Assessment criteria for determining environmental impact significance ratings

Friend, John; University of Pretoria, Environmental Engineering GroupPretoria, Gauteng Pretoria. + 27 82 554 8900. francois.friend@up.ac.za.

Determining the impacts of industries on the environment can be a very subjective issue. The consultant completing an environmental impact assessment for a relevant company, together with the company, may rate certain impacts as far less of a detriment to the environment than, for example, the relevant affected community and public. Using some form of assessment criteria can assist in bridging this subjective gap. This paper illustrates the use of assessment criteria in determining environmental impact significance ratings for use in environmental impact assessments and ISO 14001 implementation by addressing the following issues: environmental concerns, business concerns and control measures. The determination of significance of various impacts are explained using practical examples and calculation tables.

Review of EIA and SEA Reports' Quality by the Multi Criteria Analysis Method

Dengis-Vandermeulen, Stephanie; ConsultEAM Ltd, 74 Richmond Meech Drive, Kennington, Ashford, Kent TN24 9RF Kent. 0044 (0)1233 666 274. Fax 0044 (0)1233 666 274. s.dengis@tiscali.co.uk.

In order to assess and review the EIS reports' quality in the most unbiased way, Walloon region and the "Université Libre de Bruxelles" in Belgium have developed a software based on the multi criteria analysis method (formalizing an intellectual approach for taking a decision) to review the quality of the EIA reports. Although not offering absolute objectivity, the approach could help to reduce the subjectivity of judgements of quality. It is most valuable in indicating omissions or other aspects of poor quality. Indeed, a number of EIA reports of a bad or at least insufficient quality were encountered and in addition, the provision of information in strategic environmental assessment is very often defective. Although some checklists have already been developed, there was a need for a tool for standardisation, and harmonisation of the analysis criteria.

Developed with the aim to be accessed by the general public, this tool allows all the involved parties of the decision-making process to understand and adopt the most favourable substitution solutions.

After a test period with 10 EISs which was successful, the same software has evolved to review the SEA reports' quality, which is a mandatory stage in the European Directive 2001/42/EC mentioned in Article 12(2)stating that "Member States shall ensure that environmental reports are of sufficient quality to meet the requirements of this Directive and shall communicate to the Commission any measures they take concerning the quality of these reports". Beyond this legal requirement, there are other reasons to analyse the quality, for instance the guarantee of the scientific quality of the report or the taking into consideration of each field of the environment, biophysical as well as human. In this context, the usefulness of a more objective tool to review the SEA reports' quality becomes understandable and obvious.

CS28. SIA: KEY ISSUES FACING SIA PRACTICE ROUNDTABLE 1

CS29. BIODIVERSITY: TREATED PROPERLY IN IMPACT ASSESSMENT? QUALITY AND APPROACHES

Impact Assessment as a Tool to 'Mainstream' Biodiversity

Treweek, Jo; Southwest Ecological Surveys, Chancery Cottage, Kentisbeare, Cullompton, Devon EX15 2DS UK. +44 1884 266798. Fax 0870 7622963. jo@treweek,fsnet.co.uk.

The Convention on Biological Diversity (CBD) calls on Contracting Parties to integrate 'the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies' as well as into national decision-making. Mainstreaming biodiversity involves integrating the values and goals of biodiversity conservation and sustainable use into development planning. This is important because conventional mechanisms to protect biodiversity are limited and increasingly inadequate. This paper will review the extent to which impact assessment can be used as an effective tool to achieve this, whether at project or strategic level.

Designing a New Framework for Integrating Biodiversity into the Senegal's Environmental Impact Procedure

Soumare, Arona; WWF - WAMER, BP 22087 Dakar - Ponty,Dakar, Dakar Senegal. +2218693700. Fax +2218693702. asoumare@wwfsenegal.org.

In African Sub-Saharan countries there is an increasing interest in implementing linear and coastal development projects. The New Partnership for Africa's Development will basically consist of linear developments (roads, highways, pipelines transmission lines, railways). However, from a biodiversity perspective, these developments can be very damaging given the lack of clear environmental procedure taking into account biodiversity issues.

As in many African countries, the EIA process in Senegal is at very early stage of its implementation. Up to now most to the environment impacts statements failed in not fully integrating biodiversity (poor baseline surveys/data, lack of consideration of the full range of potential impacts, lack of explanation of explicit criteria used to determined impact magnitude and significance, etc.).

The objective of this paper is to provide a general guideline on the incorporation of biodiversity considerations into the new environmental impact assessment procedures in Senegal. This framework will be a first attempt to address the incorporation of biodiversity into the different stages of the environmental impact assessment process, including, screening and scoping phases, mitigation, and evaluation and monitoring.

The approach is based on:

- a review of the current conservation policy in Senegal (analysis of the legislation and institutional framework)
- a review of the existing biodiversity and ecological guidelines such as the IAIA/Netherlands Commission for Impact Assessment (2001) in order to assess to what extent they are applicable in the Senegalese context (poor biodiversity information system, lack of human resources, etc).

This paper provides also general criteria which can be used to evaluate the significance of ecological impacts, in the context of site and habitat evaluation or at the species level.

Senegal, biodiversity, EIA

Quality of Biodiversity Related Information in EIA Documentation for Environmental Decision Making and Conservation Planning: The Indian Experience

Rajvanshi, Asha; Wildlife Institute of India, ChandrabaniDehradun, Uttaranchal 248001 India. + 91-135-2640111 Ext.: 225. Fax + 91-135-2640117. ar@wii.gov.in. http://www.wii.gov.in.

With the biodiversity now placed firmly on the international agenda by the ratification of Article 14 of the Convention on Biological Diversity and the recent enactment of the Biodiversity Act in India, there is an urgent need to ensure that impacts of development projects on biodiversity are systematically reviewed, carefully evaluated and effectively documented for conservation of country's biodiversity resources that are being relentlessly threatened by rapidly growing human and livestock population, and haphazardly expanding urbanization and economy.

This paper reviews the quality of information contained on biodiversity aspects in EIA reports in India. The evaluation is based on the review of over 100 EIA reports by the author in the professional capacity as a member of the federal review panel for environmental appraisal of development projects proposed in hydropower, transportation, mining and industrial sectors.

The findings reveal variability and inconsistency in the presentation of biodiversity information. The important barriers to incorporation of biodiversity issues are the lack of clear focus of biodiversity assessment in Terms of Reference for consultants and poor appreciation of the importance of values and functions that biodiversity elements command. The information generated reflects lack of seriousness in purpose, low prioritization of biodiversity issues and greater reliance on secondary data with little consideration of spatial context, natural variability factors and elements of seasonality in EIAs.

There is tremendous scope of improving integration of biodiversity issues in EIA by reinforcing the importance of screening, scoping and assessment stages for facilitating informed decision making. The review also establishes the merits of commissioning stand alone Biodiversity Impact Assessments (BIAs) for projects that portend significant threats to biodiversity values. This should prove a positive step in better conservation planning through considerations of species area relationship, protected area design, viability of species population and connectivity of fragmented habitats and landscapes.

Biodiversity, quality of information, EIA, decision making

Quality of Biodiversity Treatment in Finnish EIAs

Söderman, Tarja; Finnish Environment Institute SYKE, P.O. Box 140Helsinki, Finland FIN-00251 Finland. + 358-9-40300727. Fax + 358-9-40300791. tarja.soderman@ymparisto.fi.

Finnish biodiversity impact assessment practices were evaluated. The 38 assessment reports between 1995 and 2001 were reviewed using qualitative document analysis, and a power line case from the years 2003 - 2004 was studied through process review.

The results of the document review demonstrated a number of shortcomings. The deficits were too few new surveys, weak connection between baseline studies and impact prediction and neglect of indirect and cumulative impacts on biodiversity. Many shortcomings arose from an inadequate scoping stage. The basic questions: what, when and where to study, how to study and assess impacts, were not properly treated in the scoping stage. The positive finding was an interest to apply the precautionary principle. Numerous general and detailed proposals to mitigate and monitor biodiversity impacts were addressed.

The results of the case study of the EIA of 400 kV electricity transmission line between Loviisa and Hikiä in Southern Finland supported the document review's findings that assessment of biodiversity impacts concentrate on direct effects, such as impacts on certain species and clearly defined sites. The indirect and cumulative impacts were not addressed in the scoping phase or mentioned in the scoping report.

However, the connection between baseline studies, impact prediction, comparison of alternatives and mitigation was clear. This was mainly due to well timed baseline studies, which were carried out as early as possible. The results of the process review also revealed that a lot of essential data and issues which actually have been treated in the assessment were not included in the assessment report.

Raising the awareness of authorities, developers, consultants and their ecologists is likely to result in better quality in biodiversity impact assessment. The Finnish biodiversity assessment guidelines were published in 2003. The

guidelines include guidance, checklists and interpretation of central legislation affecting biodiversity impact assessment.

Biodiversity, environmental impact assessment review, quality

CS30. TRADE: INTEGRATION – TRADE IMPACT ASSESSMENT

Integrating Trade Impact Assessment into Decision Making

Burnham, Neal; Foreign Affairs Canada, 111 Sussex Dr., Ottawa, Ontario K1N 1J1 Canada. 613-944-0956. Fax 613-944-0432. neal.burnham@international.gc.ca.

The word and idea of "assessment" come from the legal system of the Roman Empire, where an assessor served as a legal advisor to a judge, but had no power of making judgments. Similarly, today's processes for impact assessment of trade are designed to inform decision making about the environmental and sustainability implications of trade liberalization. Drawing from the Canadian context, this paper will discuss some of the inherent challenges for integrating the outcomes of trade impact assessments (TIAs) with final decision making and will seek to identify opportunities and conditions for greater policy integration. Reflection about how conclusions from TIAs are adopted in final decision making is critical to ensure that TIA does not simply become an analytical exercise. It is also essential for practitioners and promoters of TIA to demonstrate to decision makers and to the public the value of undertaking such an exercise.

Integrated Assessment of Agricultural Environmental Policy in Chile

Claro, Edmundo; RIDES, Andrés de Fuenzalida 22, Of. 801, Providencia, Santiago, RM Chile. (56-2) 2318716. eclaro@rides.cl.

Alonso, Victoria; RIDES, Andrés de Fuenzalida 22, Of. 801, Providencia, Santiago, RM Chile. (56-2) 2317565. valonso@rides.cl.

The Chilean Ministry Of Agriculture's Environmental Agenda (MAEA) corresponds to a political initiative that has been discussed since the early 1990s. Although the document, in its present form, establishes the basics for environmental sustainability in the sector, it was developed without an assessment of the proposed strategy and without involvement of stakeholders beyond the Ministry of Agriculture. Thus, this project aims primarily at involving relevant stakeholders in the final design of the MAEA and at assessing the sustainability impacts of the policy instrument. After analyzing the document, interviewing relevant actors, and discussions at a workshop, it was realized that as the EAMA is structured in terms of environmental objectives such as biodiversity protection, innocuousness of production, and others. This approach, although coherent in environmental terms, makes it difficult to develop precise tools, assign responsibilities and allocate resources. In order to help in making the MAEA more concrete, this project has three specific objectives:

1) The project should analyze the main economic, social and environmental issues in the forestry, white meat, fruits and wheat sectors as well as the arising "horizontal" issues for the entire agricultural sector.
2) The project needs to more thoroughly involve the private sector and should seek stronger institutional involvement of CONAMA. The project should strive to involve marginalized groups. For each sector there should be a working table that meets at least twice.
3) In order to do the integrated assessment of the EAMA, a scenario approach was adopted.

For each sector, the approach of the project provides a focused approach. It permits the analysis of environmental problems, the identification of possible instruments to address them and the construction of potential scenarios based on the implementation of combinations of the identified instruments. The process will also provide an analysis of the sustainability impacts for each scenario and sector.

Scenario, integrated assessment, agricultural policy, Chile

An SEA Approach for GATT/WTO Rules in Developing Countries

Onyango, Vincent; Brandenburg University of Technology, Cottbus, Wilhelm-Kulz Str.50, 03046, Cottbus, Brandenburg 03046 Germany. 0176-24565868. vin_onyango@yahoo.com.

GATT/WTO rules significantly drive global manufacture, trade and consumption that is unsustainable in most Developing Countries because they harm the economy, society and the environment. This study hypothesized an ex-

ante SEA methodology (for convenience, hereinafter GSEA) which emphasizes quality of decision-making process; fuses decision-making science with policy formulation; and offers systematic integration into the decision-making process of vulnerabilities within the economy, society and environment. GSEA uses Decision Windows as a systematic mechanism to explicitly provide an auditable trail of the decision-making and integration processes, systematically allowing for critical concerns arising from GATT/WTO rules to influence resultant strategic decisions.

GSEA resulted from desktop research that analyzed the conceptual, methodological and procedural strengths and weaknesses of generic SEA to assessing GATT/WTO rules in Developing Countries. GSEA's conceptual, methodological and procedural underpinnings include crucial criteria to environmental protection and sustainable development in Developing Countries; explicit integration mechanism amenable to country specific priorities; explicit cognizance of Developing Country's ability to beneficially harness GATT/WTO rules; and an explicit short and long term methodological assessment and consideration in the decision making process. GSEA's applicability targets negotiation stages at GATT/WTO, but it is also transferable to national and regional/sectoral levels for influencing formulation of GATT/WTO-related Policies, Programs and Plans. GSEA also differs from SEA in that it methodologically operationalizes greater criteria of sustainability which were found to be central pillars of anti-GATT/WTO opposition, beyond the Triple Bottom line of Economic, Social and Environmental criteria.

SEA, GSEA, sustainability, decision making process

Perspectives and Challenges on Trade and the Environment Experiences from Africa

Shannon, Eugene H.; African Development Bank, 15 Avenue Du Ghana, Bp 323, 1002 Tunis Belvedere, Tunis, Tunisia. 216 7110 3209. e.shannon@afdb.org.

Regional Member Countries argue that neither are trade measures the appropriate tools to address environmental issues, nor is the WTO the right platform to raise them. Their argument stems from the background that with the existence of the United Nations Environment Program (UNEP) and the Multilateral Environmental Agreements (MEAs) which is the appropriate organization and relevant tools respectively, to deal with environmental concerns, WTO is not the appropriate organ to deal with environmental matters.

Environmental issues except for the issue of Domestically Prohibited Goods (DPGs) which caught attention in the 1980s by some environmental NGOs, eg., Green Peace (which exposed the illegal trans-boundary movement of toxic and hazardous wastes by developed countries to developing countries, including Africa) , the tuna-dolphin dispute and shrimp-turtle case, had not been addressed until the Marrakesh Ministerial Meeting, held in Morocco in April of 1994. At the end of that meeting, a Committee on Trade and the Environment (CTE) was formulated. It became effective in 1995 and a work program was outlined. The Ministers gave WTO a mandate to examine the relationship between the multilateral trading system and the developmental policies and measures and to determine whether any modifications to the trading rules were required to make trade and environmental policies mutually supportive.

CTE has been inconclusive on market access and environment. Environmental measures which affect product requirements, standards, technical regulations, eco-labelling, packaging and recycling are the standing issues. There is widespread concern among developing countries that environmental measures and requirements may adversely affect their competitiveness and limit market access opportunities for their products.

CS31. PUBLIC PARTICIPATION 3

How Can Impact Assessment Better Support Transparency in Decision-making and Good Governance? – The Mexican Experience

Juarez, Ricardo; Environmental and Natural Resources Secretariat (Mexico), Av. Revolucion #1425, Col. Tlacopac - San Angel, Mexico, City 01040 Mexico. 52-55-5624-3363. Fax 52-55-5624-3587. rijuarez@semarnat.gob.mx.

Heisler, Harry; Environmental and Natural Resources Secretariat (Mexico), Av. Revolucion #1425, Col. Tlacopac - San Angel, Mexico, City 01040 Mexico. 52-55-5624-3316. Fax 52-55-5624-3618. hheisler@semarnat.gob.mx.

Quijano, Martin; Environmental and Natural Resources Secretariat (Mexico), Av. Revolucion #1425, Col. Tlacopac - San Angel, Mexico, City 01040 Mexico. 52-55-5624-3604. Fax 52-55-5624-3618. mquijano@semarnat.gob.mx.

In 1988 the Ecological Equilibrium and Environmental Protection General Law is published, introducing public consultation and public information meeting as tools within the environmental impact evaluation process.

In the last three years public consultation has been requested for 24 projects, leading to a public information meeting for 20 of those.

Mexican law establishes a clear public consultation and public information meeting procedure for a project, establishing formal and time constraints on the authority as well as society.

In accordance with the 2004 Federal Law on Transparency and Access to Information, the environmental authority publishes the submission of every environmental impact statement(EIS)into the environmental impact evaluation process on its web site and a weekly journal.

Nevertheless, the 1988 legislation establishes that any citizen may request public consultation of any project within the community. Once requested, the environmental authority must compel the Project promoter to publish an abstract in a local newspaper. Once published, any citizen from the community may request that the environmental authority make the EIS available to the public in the regional office.

During the public consultation process, the environmental authority may organize a public information meeting.

During the evaluation process, and once the EIS has been made available to the public, anyone may propose preventive and mitigation measures of the environmental impacts due to the Project. The environmental authority must consider these measures during the decision-making process.

In general terms, there is still a lack of environmental culture in the Mexican population. Most of the projects are built in rural or marginalized areas where the lack of environmental culture is greater, and quality of life and survival take precedence. Consequently, most of the comments and observations during the public consultation and public information meetings deal with socioeconomic concerns, leaving the environment as as an afterthought.

Environmental impact, public consultation, public information meeting, Mexico

Environmental Impact Assessment Practice and Public Participation in Mexico

Gómez Balandra, María Antonieta; Water Technology Mexican Institute, Paseo Cuahnahuac 8532, Progreso, Jiutepec, Morelos 62550 Mexico. 52 (777) 329 36 00 - 401. Fax 52 (777) 329 36 65. magomez@tlaloc.imta.mx.

Saldaña Fabela, Pilar; Water Technology Mexican Institute, Paseo Cuahnahuac 8532, Progreso, Jiutepec, Morelos 06500 Mexico. 52 (777) 329 36 00 - 277. Fax 52 (777) 329 36 65. psaldana@tlaloc.imta.mx.

Lecanda Terán, Carlos; Electricity Federal Commission, Río Mississippi 71 11th Floor, Col.Cuauhtemoc, Mexico, Mexico City 06500 Mexico. carlos.lecanda@cfe.gob.mx.

During the last five years, there have been important advances in Environmental Impact Assessment (EIA) practice in Mexico. Sectored guidelines for Environmental Impact Statement (EIS) of Federal projects such as dams and highways, are now considered under particular or regional analysis according to the project size, importance, cumulative and residual impacts. These guidelines have been improved in terms of project description, environmental and land use regulations, impact assessment and future scenarios. The EIS review is now a transparent process and is accessible to the public at any stage through an on-line system. There is also a period of time for public review of EIS and a chance to request a legally-required public audience to the Ministry of Environment, but only after the EIS has been completed and submitted for review. The previous general guidelines are still in use for all kinds of municipal and state projects, but a review process has been implemented through integrated committees that involves authorities from government offices of land use, housing, ecology, construction licensing,academy, and neighbors association as society representatives. Despite these advances, the main focus of both the review and the authorization processes is more on the compliance with environmental standards for water, air, solid wastes, and natural resources rather than on a holistic approach, including social and economic issues under a sustainability point of view. Therefore, the final authorization can be very specific for mitigating environmental issues but not for social impacts. Moreover, the public audience at the end of the EIS process is translated into a public information meeting with a weak participatory strategy on the impact identification and compensation schemes. In this paper, we analyze this situation through some specific examples and suggest basic steps and strategies to improve public participation from the early stages of EIS formulation.

EIA practice, EIA public participation, EIA review process

Socio-Cultural Dimenson of Public Participation

Hasan, Masud; U.S. Export-Import Bank, 811 Vermint Ave, NW, Washington, DC 20571 USA. 202-565-3572. masud.hasan@exim.gov.

A well-prepared Environmental & Social Impacts Assessment (ESIA) for a large project must contain a section on Public Participation. The overall concept of transparency, of which the disclosures of information to public and public consultations are subsets, varies depending on the socio-cultural setting of the region and governmental

structure of the country. It has been commonly observed that the countries that are closer to democratic values and practices tend to involve the public in the decision making process more efficiently than the countries that are closer to the authoritarian form of government, and also the people in the industrial societies have more competence in public participation than the people of the agriculture-based or less developed societies. The task of reviewing the scope and quality of the Public Participation in an ESIA becomes more complicated when the project also involves Involuntary Resettlement, Indigenous People, Cultural and Archeological Sites. In order to assess the extent and effectiveness of the Public Participation during the planning and execution of a project, the reviewer should be familiar with the general history, geographical conditions, ethnic background and the social structure of the region, and also the national government policies and practices regarding information disclosure. Experiences of Public Participation and Information Disclosure associated with the projects of different sectors located in Bangladesh, Nigeria, Turkey, Azerbaijan, China and Peru are discussed to demonstrate the complexities and difficulties that the Project Sponsors faced in preparing an ESIA. The reviewer of an ESIA should be aware that, though the concept and ethical justification for Public Participation remain the same in all societies, there is no "one fits all" standard, model or format against which the quality of Public Participation may be evaluated for the projects located around the globe.

Public participation, disclosure of information, transparency, socio-cultural

Social and Environmental Impacts of the Hua Na Dam Project: The Need for a Participatory Approach

Shannon, Kerry; Mahasarakham University, Post Graduate Program in Environmental Science, Graduate School, Faculty of Engineering Building, 3rd Floor, Mahasarakham University, Mahasarakham, Mahasarakham 44150 Thailand. 43-754305. Fax 43-754305. shannonk@kenyon.edu.

Inmuong, Yanyong; Mahasarakham University, Post-graduate Program in Environmental Science, Graduate School, Faculty of Engineering Building, 3rd Floor, Mahasarakham University, Mahasarkham, Mahasarakham 32000 Thailand. 43-754305. Fax 43-754305. yanyong.i@msu.ac.th.

Srangsok, Sodsai; Essan Federation, 53/1 Sraborarn Road, Subdistrict Nimuang, Ampher Muang, Surin, Surin 32000 Thailand. 18-777918. ssrangsok@yahoo.com.

The Khong-Chi-Mun (KCM) Project is a large water diversion project in northeastern Thailand. This mega-project, to be built from 1992-2034, aims to divert water to approximately 4.98 million rai (797,000 hectares) of land at the originally estimated cost of US $9.1 billion. The Hua Na Dam, located on the Mun River in Srisaket Province is the largest dam in the KCM Project. Construction began in 1992 and was completed in 2000, although the gates have not yet been shut. During construction of the dam, the Thai parliament passed the 1992 Environmental Law requiring an EIA study for projects of this magnitude. The Hua Na community, aware of the serious impacts of the upstream Rasi Salai Dam, requested that an EIA be done. However, despite these requests, an EIA has not yet been completed. Furthermore, no one has assessed the actual water demand or completed surveys to determine people's land titles and plan mitigation efforts. A local group at the Hua Na and Rasi Salai Dams has collected their own information, focusing on local water resource management and food security in the wetlands.

The KCM Project has promised to solve the problems of dryness in the Northeast. However, local farmers have not seen these benefits. Problems with salinity, destruction of traditional irrigation systems, flooding, and loss of farming, wetlands and fisheries have all precluded such gains. If the Hua Na Dam gates are to be shut or other similar projects to be built, past problems must be clearly addressed in order not to repeat mistakes. The environmental and social impacts as well as compensation and mitigation plans must be properly clarified through participatory studies involving both government and local communities. In this way, new plans and projects can move towards more sustainable development.

Water resource management, public participation, impact assessment

CS32. PUBLIC PARTICIPATION 3

Multi-stakeholder Participation in Environmental Impact Assessment and Its Influence on Decision-making: The Case of Lilayi Urban Housing Development Project, Lusaka Zambia

Thomas T.B., Yatich; CLEAA Professional Development Fellow, Department of Env. Plg & Mgt, Kenyatta University, Along Thika Road, Box 43844, Nairobi 00100GPO Kenya. + 254-20-810901Ext.221. Fax + 254-20-811455. yatichthomas@yahoo.com.

Holmes, Danny; DH Engineering Consultants, Kaberenga Road, Plot 2333, 01 Lusaka, Zambia. +260-01-229555. Fax +260-01-229555. dhec@zamtel.zm.

Lorenz, Martin; DH Engineering Consultants, Kaberenge Road, Plot 2333, 01 Lusaka, Zambia. +260-01-229555. Fax +260-01-229555. dhec@zamtel.zm.

Environmental impact assessment has over the time been seen from two perspectives: as being a "technocratic" planning tool or as a political process that improves decision-making. Despite these two extremes, the transparency in decision-making and the quality of the EIA results continue to be affected by contextual problems and challenges in developing countries like Zambia. One factor that greatly influences the decision-making process is the degree of "public" participation that has always been thought to promote project sustainability and the quality of the decision-making process. This has not been the case because involvement varies a lot, even between democracies. Sometimes expert opinion is used, or lack of coordination making the EIA results adhoc and insufficient.

In Lilayi, participation has been factored into the EIA phases as required by law. This is because Lilayi housing project is a major project proposed for low income earners in South of Lusaka. The project proposed "sits" on two important subsurface-catchments, which were originally agricultural land use.

The different affected and interested parties (AIPs) are keen on the project because of its negative impacts on the subsurface drainage system. The law requires the developer to undertake a public consultation before preparing the terms of reference or indeed before carrying out an EIA. After the preparation of the TOR, the public input especially on the decision making process becomes less and less important. In the Lilayi project the scenario is different because EIA has been designed in a manner that all the AIPs are involved throughout the process and thereafter.

This paper discusses the design of the multi-stakeholder model and gives a synopsis of the EIA results and how the decision-making process works. The methods used included checklists, networks diagrams, and simulation models.

Multi-stakeholder, environment, impact, assessment, planning

Measuring Public Concern

Haefele, Martin; Mackenzie Valley Environmental Impact Review Board, P.O. Box 938, Yellowknife, NT X1A 2N7 Canada. (867) 766-7053. Fax (867) 766-7074. mhaefele@mveirb.nt.ca. www.mveirb.nt.ca.

Environmental Impact Assessment legislation in Canada uses not only the likelihood of significant adverse environmental effects but also public concern as decision triggers. For instance, the Canadian Environmental Assessment Act and the Mackenzie Valley Resource Management Act both allow "public concern" to trigger a higher level of impact review. It follows that determining the level of public concern is of similar importance as determining the significance of environmental effects. One might then expect the methods to measure public concern to be similarly well developed as those used to predict environmental effects.

Environmental impacts are commonly measured through indicators including likelihood, geographic extent, duration, frequency, and magnitude. Government agencies, e.g. the Canadian Environmental Assessment Agency, have published guidance documents on how to determine significance of environmental effects. The situation is different, however, for public concern where little to no official guidance exists.

Using several recent examples in Canada's North, this paper first shows how the measurement of public concern can vary widely in from project to project. It also provides a brief scan of official guidance documents in Canada to assess what tools are recognized for assessing public concern. Again using some northern examples, the paper then discusses the merits and pit falls of applying indicators such as frequency, geographic extent, and magnitude to public concern.

Public concern, public participation, Canada

Ethical Considerations for Internet-Based Public Participation in the NEPA Process

Sullivan, Robert; Argonne National Laboratory, 9700 S. Cass Ave., EAD/900, Argonne, IL 60439 USA. 630-252-6182. Fax 630-252-6090. sullivan@anl.gov. http://www.ead.anl.gov.

Richmond, Pamela; Argonne National Laboratory, 9700 S. Cass Ave., EAD/900, Argonne, IL 80228 USA. 630-252-7207. Fax 630-252-3611. pdrichmond@anl.gov. http://www.ead.anl.gov.

Smith, Karen; Argonne National Laboratory, 200 Union Blvd., Ste. 530, Lakewood, CO 80228 USA. 303-986-1140. Fax 303-986-1311. smithk@anl.gov. http://www.ead.anl.gov.

Argonne National Laboratory (Argonne) has developed Internet-based public involvement systems for a number of environmental impact statements (EISs) prepared for federal agencies since 1996. These systems use coordinated Web sites and e-mail communications to present documents, inform the public about the EIS process and scope, identify alternatives and impacts considered, and gather public comments via Web forms and e-mail. E-mail-based newsletters and event notices "push" information directly to users' desktops. In addition, Argonne uses a Web-enabled comment and response management system to automate the handling of both traditional paper and electronically submitted public comments, responses, and related data.

The Internet has played an increasingly important role in the public involvement strategy for National Environmental Policy Act (NEPA) projects, primarily because it facilitates presentation of information to the public and processing of public comments at an extremely low cost per participant, relative to traditional public involvement strategies. For two recent Argonne EISs, a large percentage of the comments received were submitted via the Web. The sites have been accessed by tens of thousands of members of the public from all over the country, in contrast to a few hundred local attendees at public meetings held for the projects. From an ethical standpoint, there are clear advantages to using the Internet for public involvement, including the potential to reach more people with more in-depth information and to lower the barriers to public participation. However, there are other ethical questions to consider: Does Internet-based commenting shift the geographical distribution of participants toward "outsiders"? Does using the Internet favor younger, more technically savvy members of the public? Are Internet comments as "useful" to NEPA managers as paper-based or oral comments? This presentation will examine these and other ethical issues associated with Internet-based public involvement.

Internet, e-mail, NEPA, public involvement, public participation, public comment

CS33. EIA FOLLOW-UP IN CURRENT PRACTICE

The Integration of EIA with Project Cycle: The Case of Lilayi Urban Housing Project

Thomas T.B., Yatich; CLEAA Professional Development Fellow, Department of Env. Plg & Mgt, Kenyatta University, Along Thika Road, Box 43844, Nairobi 00100GPO Kenya. +254-20-810901Ext.221. Fax +254-20-811455. yatichthomas@yahoo.com.

Holmes, Danny; DH Engineering Consultants, Kaberenga Road, Plot 2333, Lusaka 01 Zambia. +260-01-229555. Fax +260-01-229555. dhec@zamtel.zm.

Lorenz, Martin; DH Engineering Consultants, Kaberenge Road, Plot 2333, Lusaka 01 Zambia. +260-01-229555. Fax +260-01-229555. dhec@zamtel.zm.

Most governments and experts are still learning how to make EIA a practical management tool that is useful in their day-to-day decisions about how to build a country's economy. In Zambia, the Environmental and Protection Act gives explicit guidelines for the integration of EIA findings with the implementation process. It does not, however, make it mandatory that the deliberations be included in the implementation process. It remains the prerogative of the developer. In Lilayi, the developer is using the EIA findings in the project implementation cycle. The key therefore lies in the management of the EIA: by designing the process so that it provides useful information to decision-makers at just the right time in the project cycle. In other words, in the Lilayi the EIA is seen to enhance and augment project planning rather than a hindrance to development. This is unique because most developers see EIA as a waste of resources and a stumbling block to profit making. It is therefore; only by actually shaping projects can EIA become an important instrument for protecting the environment and ensuring sustainable development.

The paper articulates how the EIA process has been integrated into the different phases in the project cycle. It also presents some of the challenges faced and existing opportunities for successful EIA study and adoption by the project decision-makers. The paper also concludes by giving an appropriate management system for such an integration, citing some of the challenges faced right from the project concept phase through to the monitoring and evaluation phase.

Integration, project cycle, planning

Follow-up of Social Impacts in Senegal Basin River after Manantali and Diama Dams Building

El Hadji Malick, N'Diaye; GEIGER, Université Québec a Montreal (UQAM), Case Postale 8888, Succursale Centre-ville, Montreal, Quebec H3C 3P8 Canada. 987 3000 4923#. Fax 987 6784. elndiaye@yahoo.com.

Waaub, Jean Philippe; GEIGER UQAM, Case Postale 8888, Succursale Centre-ville, Montreal, Quebec Canada. 987 3000 5683#. Fax 987 8218. waaub.jp@uqam.ca.

Senegal Basin River was with Niger River the centre of most of West African medieval kingdoms (Mali, Ghana, Waalo, Tekrour, Jolof). In this area, we have a millenary farming civilization based on harmonious exploitation of rise and drop in the water level by farmers, cattle farmers and fishermen.

Since French colonization, a lot of management has been done in Senegal watershed. But in the 1970s, Mali, Mauritania and Senegal states associated their efforts in a regional organization named OMVS to face drought and climate change in the Sahel. Senegal River, which is Transboundary Resource, knew in this decade the lowest hydraulicity in the 1900 century. The OMVS Program proposes to build two large dams, one (Manantali Dam) in high Senegal basin and another (Diama Dam) in the delta to stop penetration of sea water. Objectives of watershed management are, among others, to produce hydroelectricity and to develop irrigated farming in Senegal Basin.

After achieving this immense program, social impacts remain major after mitigation measures application. These measures turn around an artificial flood ("crue artificielle") applied since 1992 and will mitigate all negative impacts in Senegal watershed according to OMVS' specialists. But we don't know what indicators they use for their monitoring program to affirm human and environmental ecosystems have been restored.

Senegal basin river populations don't have tradition of irrigation and all their farming civilization are based on exploitation of rich lands after drop in level. Otherwise we have propagation of bilharzias and malaria with prevalence rates never reached before dams building.

This paper presents current stakes of Senegal basin river management (human health, traditional farming, agribusiness…), and proposes some tools to improve mitigation measures efficiency applied by OMVS, and how to achieve local development among watershed integrated management.

Senegal basin river, social impacts, watershed management, transboundary Resource, human health

EIA Follow-up? An Evaluation of the Open Cast Coal Mining Sector in India

Thakur, Urmila Jha; University of Liverpool, 179, Crown Street, Flat 69, Stephenson House, Liverpool, Merseyside United Kingdom. 07760152904. urmi@liv.ac.uk.

Fischer, Thomas; University of Liverpool, 74 Bedford Street South, Liverpool, United Kingdom. fischer@liv.ac.uk.

Rajvanshi, Asha; Wildlife Institute of India, Chandrabani, Dehradun, India. ar@wii.gov.in.

EIA was formally introduced in India through an amendment in the national Environmental Protection Act of 1986 that was made in 1994. This legislative reform made EIA mandatory for development projects in all the major sectors including the coal sector. Since the introduction of EIA as a regulatory process for environmental decision-making, emphasis has been laid on developing appropriate mechanisms and institutional procedures and capacity to co-ordinate and monitor environmental status and policies. However, project specific follow-up has been neglected reducing EIA to a document production exercise.

The aim of this paper is to review the current practices of EIA follow-up in the open cast coal sector in India. In order achieve this a number of EIA reports and Environmental Management Plans (EMPs) of open cast coal projects submitted to the Impact Assessment Agency during the period 1997 to 2004 for obtaining authorisation for project implementation were studied. This helped in assessing the weight given to follow-up in the pre-decision phase. In addition to this, unpublished information of the Coal Industry as well as from the Ministry of Environment and Forest (MOE&F) was also consulted. Efforts were also made to supplement the information collected through consultations with environmental experts, representatives from MOE&F and the Coal Industry. This provided valuable insight into the follow-up practices in the open cast coal sector in India. The research methodology also involved semi-structured interviewing that was targeted upon national level key players in environmental protection and mining industry.

This work attempts to explore possible evidence of regional variation and investigate the attitudinal set-up of the key players, which might play an important role in delivering efficiency and may hold the key to improve future follow-ups.

India, open cast coal mining, EIA Follow-up

CS34. AGRICULTURE, FORESTRY AND FISHERIES 3

Road and Dyke Reconstruction and Rehabilitation in the Jonglei Area of South Sudan: The need for Environmental Impact Assessment

Echessa, Protas; REMPAI, Limuru Road, Nairobi, Nairobi 00200 Kenya. 254-20-3742653. Fax 254-2-3747076. protase@yahoo.com.

Ojok, Luke; Nairobi, Kenya. 254-720879425. liopok@yahoo.com.

The road and dyke project aims to improve annual flood control and year-round road communication in the area. The project extends over a 95 km stretch between Bor and Panyagor towns in South Sudan cutting across one of the largest wetland systems in the world. Project implementation involves enlargement and raising of the road/dyke crests to the desired measures, sometimes across a wetland area with potential adverse environmental impacts.

Environmental assessment became imperative to identify potentially adverse environmental impacts and to ensure adequate mitigating measures as well as environmental monitoring activities are included in the project plan.

The most remarkable feature of the area is its flatness. Due to this topography, the soil types and the seasonality of streams, wells and swamps, there are extremes of too much and very little water depending on the season. The combined effect of these processes is that varying areas are inundated permanently or seasonally. River flooding is the key factor influencing the biophysical environment and socio-economic systems in this wetland area.

The dominant economic activity in the region is pastoralist grazing of livestock. The settled communities also depend on the permanent and seasonal floodplains for harvesting other ecosystem services such as fish. Wildlife is also dependent on the floodplains' water and grazing resources.

A multidisciplinary approach was adopted in the initial stages of environmental assessment utilizing numerous relevant background documents and systematic field observations in the design of a full EIA. Full EIA will also take a multidisciplinary approach.

The project is expected to alter existing hydrological regimes influencing the dynamics of the grassland systems in the floodplains with significant environmental impacts on prevailing ecosystems and associated economic and social life. Major impact areas include: hydrological and consequences for the wetland functions; grazing resources and livestock productivity; wildlife and socio-economic.

Environmental impact, flood control, livestock, wildlife, wetlands, mitigating, monitoring

Environmental Index To Evaluate Saemangeum Reclamation Project

Lee, Sang Hoon; Dept. of Env. Engineering, The University of Suwon, Suwon P.O.Box 77, Suwon, Republic of Korea, 440-600 Republic of Korea. + 82-31-220-2148. muusim@suwon.ac.kr.

Chung, Yong; College of Medicine, Yonsei University Seoul, 134, Shin chon dong, Su dae moon ku, Seoul, Republic of Korea. + 82-2-362-5346. ierychung@yumc.yonsei.ac.kr.

Koo, Jakon; Yonsei Institute of Environmental Science & Technology, 234 Maeji-Ri, Heunhup-Myeon, Wonju, Kangwon-Do, 220-710, Wonju, Republic of Korea. + 82-33-760-2537. koo904@chol.com.

Ryu, Jaehong; Research Center for Ocean Industrial Development, Pukyung University 599-1 Daeyeon3-Dong Nam-Gu, Pusan, Republic of Korea. + 82-16-577-8645. umegaoka@hanmail.net.

Saemangeum Reclamation Project was started in 1991 at the western coast of Korea. Upon completion, it will make a man-made lake of 11,800ha and agricultural area of 28,300ha mainly for rice production. Environmental activists have opposed the project on the basis of adverse environmental impact and low economic feasibility. The construction of the 33km sea-dike has been stopped and resumed twice during the hot debate regarding the project.

The proponents of the project insist that it may be completed on pro-environmental basis. The opponents of the project insist that it should be stopped for the sake of the environmental protection. This study was initiated to define the nature of 'pro-environment' and to propose a comprehensive environmental index to evaluate the land use planning after the sea-dike was completed.

The nature of pro-environment consists of five elements: natural resources, energy, pollution, biological diversity, and social amenity. A land-use planning or a construction project may be evaluated on these five elements and measured on a scale of + 10 to -10. The sign + means it enhances the pro-environment, and the sign - means it adversely affects the environment.

The items to be included in the environmental index are being investigated by delphi technique. By applying adequate weighting factors, the scores of the items are added and a comprehensive environmental index is obtained. The environmental index would be used to evaluate the Saemangeum Projects on quantitive basis.

Environmental index, reclamation

Alqueva Dam and Irrigation Project: Hard Lessons Learned from Good and Bad Assessment Practice

Joanaz de Melo, João; New University of Lisbon, Dep. Environmental Science & Engineering, Quinta da Torre, Caparica, Portugal 2829-516 Portugal. + 351 + 212948374. Fax + 351 + 212948374. jjm@fct.unl.pt. gasa.dcea.fct.unl.pt.

Janeiro, Carla; Centro de Estudos da Avifauna Ibérica, R. do Raimundo, 119Évora, Portugal Portugal. 266746102. Fax 266745782. carla.janeiro@netvisao.pt. gasa.dcea.fct.unl.pt.

The Alqueva dam and irrigation project involves the largest reservoir in Europe and an irrigation network to cover 110000ha of land, with three main goals: water management, regional development and promotion of agriculture.

This paper reviews the major impacts and assessment procedures of the project. Lessons learned from this difficult process are discussed.

Flooding has already provoked large ecological and social impacts, e.g., loss of natural and cultural heritage in the Guadiana valley, cutting of ecological corridors, pressure over endangered species such as the iberian lynx; and the resettlement of hundreds of families. On the plus side, the project created some water management capacity on the Portuguese side of the Guadiana and some local development in a traditionally depressed region. When the project is full-fledged, greater impacts are expected, including water pollution, soil salinization, barrier effect, destruction of wetlands, and possible biological contamination of water transfer from the Guadiana to the Sado basin. However, the resulting economic benefit is expected to be rather low. Local social benefit is expected mostly from public investment. Overall, the enterprise is certainly not sustainable - environmentally or economically.

This myriad of problems and oportunities generated a huge amount of information and uncommon assessment procedures, including an observation committee and strategic-level environmental studies.

They managed to curb some of the worst impacts of the project, but had little influence on key decisions. Many of the approved mitigation measures were not put to practise. The reference framework of the project has changed dramatically in the past decade years (the project concept goes back to the 1950s and the technical solutions to the 1970s), so an altogether new strategy is called for. Strategic environmental assessment may be part of the answer.

SEA, dams, irrigation, good practice

National Environmental Policy Act (NEPA) Review of 117 Salmonid Hatchery and Genetic Management Plans in the Puget Sound of Washington, USA

Gunther, Pamela; Parametrix, One Bellevue Center, Suite 1800, 411 – 108th Avenue NE, Bellevue, WA 98004-5571 USA. 425.458.6200. Fax 425.458.6363. pgunther@parametrix.com.

Concern has been expressed by the public regarding potential adverse effects of salmon hatchery operations on wild (natural-origin) salmon populations. These effects may include (1) competition between hatchery-produced salmon and wild juvenile salmon for food and space, (2) impacts of adult hatchery fish straying and interbreeding on genetic diversity and fitness of wild populations, (3) injury or mortality associated with collection of juvenile or adult wild fish for use as broodstock in hatcheries, (4) effects of physical facilities and operations on wild salmon and their habitat, (5) amplification and transmittal of fish pathogens to wild fish populations, (6) predation by hatchery fish on juvenile wild salmonids, (7) hatchery production effects on commercial harvest, and other effects. These concerns have become particularly important with Federal Endangered Species Act (ESA) listing of Chinook salmon as a threatened species in the Puget Sound region of Washington. Furthermore, Federal agencies have a legal obligation to support Puget Sound Tribes (Native Americans) in their efforts to preserve and rebuild treaty-reserved salmon fisheries in their usual and accustomed fishing areas. To mitigate for wild salmon population depletion that has occurred mainly as a result of habitat loss and degradation, much of this effort has been through the production and release of hatchery fish. Native Americans depend on hatchery fish for a significant proportion of their overall tribal harvest. The hatchery managers have recently prepared hatchery genetic management plans (HGMPs) and resource management plans (RMPs) describing current hatchery operations, and changes implemented or proposed to address the above-cited concerns. As the lead agency, the National Oceanic and Atmospheric Administration (NOAA) is preparing an environmental impact statement (EIS) to review the HGMPs and RMPs, and ensure that any

ESA determination regarding these plans would be in compliance with the National Environmental Policy Act (NEPA).

CS35. SEA: INTEGRATION OF DIFFERENT ASSESSMENT SUBJECTS AND SEA

Nutritious, Wholesome Food – Or a Toothless Future: Is the All-in-One Sustainability Assessment Diet Becoming Deficient in Vitamin E(nvironment)?

Morrison-Saunders, Angus; School of Environmental Science, Murdoch University, South Street, Murdoch, West-Australia WA 6150 Australia. + +618 9360 6125. Fax + + 618 9360 6787. A.Morrison-Saunders@murdoch.edu.au.

Fischer, Thomas; Department of Civic Design, University of Liverpool, University of Liverpool, Liverpool, England 2600 GA United Kingdom. + +44 151 794 3113. Fax + +44 151 794 3125. Fischer@liv.ac.uk.

Arts, Jos; EIA/Transportation Centre, Ministry of Transport, PO Box 5044, Delft, 2600 GA The Netherlands. + +31 15 2518461. Fax + +31 15 2518555. e.j.m.m.arts@dww.rws.minvenw.nl.

You are what you eat! Therefore, a healthy meal should be nutritious and wholesome. A lack of only one important vitamin could mean losing your teeth… If we adapt this wisdom to current sustainability driven trends in EIA and SEA, it looks like our diet is in danger of becoming deficient of a crucial ingredient – the environment! And, contrary to the food analogy, it is unclear whether there are any false teeth available.

In this paper, we want to stir up discussion on sustainability assessment trends and how to ensure truly sustainable outcomes. We argue that experiences to date indicate that when adding the economic and social 'flavours' to EIA and SEA, the environment might lose out. In order to support our point of view, we use practice examples from Australia, the UK and the Netherlands. We conclude that the need for environment-focussed EIA and SEA in planning processes is now greater than ever. Until power relationships develop in a way that allow integration in an environmentally sustainable manner, practitioners should not lightly give up the hard-won benefits that have arisen from several decades of the EIA and SEA diet.

Maybe the new 'supersize sustainability shake' in which all ingredients are blended into ready-to-eat fast food seems attractive. But there is also a danger that we will be developing an eating disorder – or worse, lose our teeth vital for healthy decision-making – due to insufficient vitamin E(nvironment)!

Sustainability, SEA, EIA, integration, coordination, sidelining, environmental protection

Sustainability Assessment of Scenarios for Agriculture Development and Biodiversity Conservation in Mountain Areas

do Rosário Partidário, Maria; New University of Lisbon, Departamento de Ciências e Engenharia do Ambiente, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Quinta da Torre, Lisbon, 2829-516 Caparica Portugal. +351 21 2948500. Fax +351 21 2948554. mp@fct.unl.pt.

Sheate, Bill; Imperial College, London, Department of Environmental Science & Technology, Imperial College, London, UK. +44 20 7594 9299. Fax + 44 20 75949334. w.sheate@imperial.ac.uk.

Bina, Olivia; New University of Lisbon, Qunita da Torre, 2829-516 Caparica, Lisbon, Portugal. +351 91 7451961. Fax + 351-21-2948554. ocb@fct.unl.pt.

Byron, Helen; Imperial College, London, DEST Imperial College, London SW7 2AZ UK. +44 20 7594 6398. Fax +44 20 7594 9334. h.byron@imperial.ac.uk.

BioScene (Scenarios for Reconciling Biodiversity Conservation with Declining Agriculture Use in Mountain Areas in Europe) is a three-year project (2002-2005) being funded by the EU 5th Framework Programme, and aims to investigate the implications of agricultural restructuring and decline for biodiversity conservation in Europe's mountain areas.

The project takes a case study approach to the analysis of the biodiversity processes and outcomes of different scenarios of agri-environmental change in six countries (France, Greece, Norway, Slovakia, Switzerland and the United Kingdom) covering the major biogeographical regions of Europe. The project is coordinated by Imperial College London, and each study area has a multi-disciplinary team including ecologists and social and economic experts, which seeks a comprehensive understanding of the drivers for change and their implications for sustainability (i.e., environment, society and economy).

A key component is the sustainability assessment (SA) of alternative scenarios both for agriculture and rural policy and for biodiversity management. This paper discusses the development of the SA methodology developed for this project which has been specifically designed to respond to the needs of the overall research objectives. For example, while the SA is objectives-led, it is also strongly grounded in baseline ecological and socio-economic data; and a stakeholder panel approach has been adopted to facilitate the engagement of stakeholders in each of the study areas. The paper will also highlight some of the key differences observed in application of the methodology in the different case study areas.

Sustainability Assessment, biodiversity, agriculture, methodology, scenarios

Strategic Environmental Assessment (SEA) as a Tool for Integration Within Coastal Planning

Barker, Adam; Department of Geography and Environment, St Mary's, King's College, University of Aberdeen, Aberdeen AB24 3UF Scotland. 01224 272364. a.j.barker@abdn.ac.uk.

Integrated coastal zone management (ICZM) has emerged as a central mechanism for the delivery of sustainable development within coastal areas (Vallega, 2001; Kalaora and Charles, 2000). In common with other forms of integrated environmental management (IEM), ICZM seeks to overcome the failings generated by overly sectoral and fragmented approaches to environmental decision making which have often failed to account for the dynamic structure of natural systems (Mitchell, 1997). Based on the key principles of harmonisation, participation and strategic decision making, ICZM has been able to generate a series of benefits within coastal regions throughout the world.

Despite such advances however, international ICZM practice faces a number of important challenges which threaten integrated decision making. These can be identified as follows:

- Limited awareness of the relationship between socio-economic and environmental impacts.
- Poor levels of institutional coordination.

In response, this paperconsiders the application of strategic environmental assessment (SEA) as a tool for decision-making within ICZM. Although the role of project level environmental assessment (EIA) within coastal areas has been widely discussed (see for example, Frihy, 2001 and Matishov et al, 1998), awareness of SEA utility is less well understood. As SEA provides a systemic procedure for the assessment of both the environmental and socio-economic consequences of strategic decisions along with opportunities for participation and conflict resolution, it is argued that SEA application can generate clear sustainable development benefits within ICZM and improve levels of integration.

The paper consists of three parts. In the first part of the paper, the transition towards integrated environmental management solutions is explored. This is followed by the consideration of the key threats to integration. Particular emphasis is given to both procedural and organisational issues. In the final part of the paper, the concept of SEA is explored as a potential management solution.

Strategic environmental assessment, integrated coastal zone management

Study on Improvement of Prior Environmental Review System (PERS) for SEA Implementation in Korea

Song, Young-Il; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul 122-706 Korea. +82 2 380 7674. Fax +82 2 380 7744. yisong@kei.re.kr. www.kei.re.kr.

Seo, Seong-Cheol; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul 122-706 Korea. +82 2 380 7762. Fax +82 2 380 7744. scseo@kei.re.kr. www.kei.re.kr.

Lee, Young-Joon; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul 122-706 Korea. +82 2 380 7763. Fax +82 2 380 7744. yjlee@kei.re.kr. www.kei.re.kr.

Lee, Hyun-Woo; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul 122-706 Korea. +82 2 380 7768. Fax +82 2 380 7744.

Bae, Hyun-Joo; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul 122-706 Korea. +82 2 380 7753. Fax +82-2 380 7744.

In Korea, Prior Environmental Review System (PERS) is conducted in order to attain harmony between development and preservation by assessing environmental impact at the early planning stages of development. Similar to the

Strategic SEA, the PERS was introduced to overcome some of the limitations of the EIA, through review of the environmental impacts on 3Ps in the earlier stage of decision making process.

Since its introduction in 1993, the PERS has been applied to some of the major administrative plans and programs ever since. However, problems still remain with the PERS, such as 1) a limited range of the target area, 2) the lack of capacity in collecting stakeholders' opinions and 3) inappropriate timing for execution.

Due to these limitations, the results of the execution of PERS were insufficient to comply with its objective of establishing an organized system for optimal planning and development procedures.

Meanwhile, the importance of the precautionary environmental management policies has been emphasized continuously in Korea after 1990s, due to increasingly complex and diverse environmental problems. Particularly, social demand on implementation of the SEAs has grown rapidly.

Over the years, a number of discussions on improvement of the PERS have been conducted as a measure to implement the SEA, and increasing the range of the target areas has been pointed out as an utmost issue. Accordingly, relevant studies have been carried out and the range of the target areas subject to PERS has been determined.

In the light of these considerations, this paper reviews the decision criteria to adopt administrative plans subject to the PERS and the selection procedures that have been taken into account when establishing the range of target area. Also the government's institutional frameworks for improving the PERS, including the legislation procedures and trends on policy improvement, are introduced.

PERS, SEA, EIA, target area, criteria

CS36. ETHICAL CONSIDERATIONS IN IS

Infusing the Ethos of Sustainable Development into a Research Organistaion

Weaver, Alex; CSIR, Jan Cilliers St, PO Box 320, Stellenbosch, Cape Province 7599 South Africa. + 27218882443. Fax + 27218882696. aweaver@csir.co.za. www.csir.co.za.

Africa is well endowed with natural capital. A key to guiding Africa on the path to sustainability lies in our ability to unlock that natural capital and to convert it to other forms of capital to meet the needs of current and future generations. Science and Technology have a strong potential role to play in repatriating and developing the various value chains associated with Africa's natural capital in a sustainable fashion.

The CSIR as the largest scientific and technological research and development organisation in Africa has a mandate to support sustainable development, nationally and in Africa, through its various research and development activities.

This paper provides a background to a programme designed to infuse the ethos of sustainable development into all of the research activities of CSIR and to ensure that as an organisation we optimise our contributution to the challenge of sustainable development.

The programme includes:

- an organisational awareness and capacity building function;
- application of the principles of sustainable development in the workplace;
- integration of the principles of sustainable development into business processes; and,
- support to the national and continental response to the challenge of sustainable development.

Sustainable development, research, ethics, Africa

The Relationship Between Technology Adoption and Ethical Belief for Decision Making in Northern Malaysia: A Case Study

Asree, Susita; Northern University of Malaysia, Jalan Sintok, Sintok, Kedah 06010 Malaysia. 604-9287135. susita@uum.edu.my.

Smith, Arthur; University of Toledo, Business School, 2801 Bancroft Street, Stranahan 4037, Toledo, Ohio USA. 419-5302097. asmith@uoft02.utoledo.edu.

Moral Performance of a society is highly influenced by economic, social, legal and political events. In technology adoption phenomena, ethics involved nature of moral judgement and rules of using technology for decision making. This paper is a case study that examines the standards of ethical belief of managers using technology adoption for decision making in Malaysia. The measurement tool for the study is the seven ethical codes of the Institute for Computer Professional. These seven codes are accountability, conflict of interest, integrity, personal conduct, protection of privacy and social responsibility. Case study includes enquiries on positive aspects of decision making and the relationship with moral performance of the particular organization.

Technology, ethics

Using the Environmental Impact Assessment (EIA) Process to Help Persons with Disabilities and Meet the Millennium Development Goals (MDGs)

Alton, Charles; Global Environmental Solutions, 11066 NW Valley Vista Road, Hillsboro, Oregon 97124 USA. 503-351-2142. charles.alton@comcast.net.

Mercier, Jean-Roger; World Bank, 1818 H Street NW, Washington DC USA. 202-473-5565. jmercier@worldbank.org.

What is the importance of EIA and persons with disabilities? The World Bank Group's mission is to fight poverty with a commitment to the United Nation's MDGs of cutting poverty in half by 2015. The Bank's Disability and Development Team has identified disabled persons as strategically vital to reducing poverty. A projected 400 million disabled live in developing countries. Major causes of disability are malnutrition, diseases, congenital factors, accidents, violence, war, landmines, and inaccessible health care. The Bank's Operational Policies (OP) helps ensure it follows sound economic, social, and environmental practices. These policies also try to maximize inclusiveness in development while protecting the natural environment and the most vulnerable human groups. The Environmental Assessment Safeguard Policy (OP 4.01) uses an EIA process to analyze these impacts for Bank-funded projects. Unfortunately, until recently, the expression of concerns for the disabled from the Bank's borrowers has either been too weak to be heard, or too difficult to capture within the existing organization of the Bank.

The EA Safeguard and EIA process provide an excellent opportunity to bring coordination among the borrowers and World Bank staff. There is a need for better data on the disabled which the EIA process could help obtain. Disabled are disproportionately poor. They more often live in rural areas with less opportunity for assistance than in urban areas where the help for the disabled has been focused. The EIA process has several avenues of related activity, especially public participation requirements and due diligence, to more effectively mainstream the disabled into projects. The end result of EIAs on the impacts to disabled persons from Bank-funded projects is the ability to facilitate the development of appropriate strategies and actions to break the vicious cycle of poverty and disability.

Safeguards, EIA, disabled

Social Responsibility of Multinational Oil & Gas Companies in Ameliorating the Impacts of Their Operations in Nigeria: Towards the Resolution of the Lingering Crisis in the Delta Region

Bristol-Alagbariya, Edward; Centre For Energy, Petroleum & Mineral Law & Policy (Cepmlp), Faculty of Law & Accountancy, University of Dundee., Perth Road, Dundee, Scotland DD1 4HN United Kingdom. + 44 (0)7795054814. Fax + 44(0)1382 322578. e.t.bristolalagbariya@dundee.ac.uk.

Like other businesses, the multinational oil and gas companies in Nigeria owe their primary duty and responsibility to their shareholders. These companies also owe their stakeholders a measure of social responsibility.

The obligation of the operating companies in Nigeria to conduct EIA may be distinguished from the benefits accruable to the resources bearing stakeholder-communities of the Delta region from the impact assessment process. The implementation of Impact Benefit Projects and Programmes in Nigeria are largely voluntary, as distinct from the obligation of multinational companies to their shareholders which are legally binding.

The needs and concerns of the stakeholder-Niger Delta communities are mainly political, environmental and socio-economic. These needs and concerns are to be considered against the background of the Sir Willink's Minority Commission of Inquiry Report of 1958 which described the Delta region as poor, backward and neglected. The over four decades of petroleum resources extractive industrial operations have worsened the state of the region; hence, the lingering crisis in the region.

Some interesting questions may be asked on this subject. How may the moral obligation of the multinational companies persuade them to sufficiently address the needs and concerns of the Delta region? Is the non-justiceable nature of the objective of government regarding community development in Nigeria capable of resolving the lingering

crisis in the Delta region? If the prevailing efforts of the companies and the intervention measures of the government may not resolve the crisis in the Delta region, what are the possible ways forward, in the interest of the uninterrupted extraction of the abundant petroleum resources of the region vis-à-vis its sustainable development? Attempts will be made to answer these and other related questions, considering the prevailing global trend of events relating to impact assessment, corporate social responsibility and good governance.

Nigerian Delta, oil & gas, Corporate Social Responsibility, impact assessment, governance

An Ethic of Consequences

Wolf, C. P.; Social Impact Assessment Center, 423 Broome Street, New York, NY 10013 USA. (212) 966-2708. Fax (212) 219-1963. cpwolf@igc.org.

In sympathy and solidarity with the theme of "Ethics and Quality in Impact Assessment," this paper will explore the proportions and dimensions of "an ethic of consequences." If impact assessment can be broadly conceived as "the knowledge of consequences," taking responsibility for that knowledge and its application then implies "an ethic of consequences." Five years ago I wrote, "Because such knowledge [of consequences] implies responsibility, to intervene or refrain, it must be joined with an ethic of consequences."

It is hardly an original thought. Nearly a century ago, Max Weber distinguished between "two fundamentally differing and irreconcilably opposed" principles for orienting conduct, one based on intent and the other on effect. The former is an "ethic of ultimate ends" that "does not ask for 'consequences'"; the latter is an "ethic of responsibility" in which "one has to give an account of the foreseeable results of one's action."

True to our tradition, impact assessors should prefer the latter. But that does not answer to how to take and act on our responsibility. Moreover, there are limits to responsibility that are proportional to the efficacy of actions taken in upholding that principle, which in the case of impact assessment must be regarded as marginal and minimal—though we seek to expand them.

"Impact philosophy" can be conceived as answering to both the knowledge of consequences (epistemology) and an ethic of consequences (axiology). In either case, value inclusion and integration must occupy a central place in the art, science, and craft of impact assessment. Philosophical discussions in recent years over "consequentialism" and "situation ethics" provide some insights that may prove useful in addressing the value basis and bias of impact assessment.

Consequentialism, impact philosophy, knowledge of consequences

CS37. HIA: KALEIDOSCOPE 2

Using Health Impact Assessment for Selecting the Location for a New Incinerator Near Florence, Italy

Bianchi, Fabrizio; Institute of Clinical Physiology-CNR, via Moruzzi, 1Pisa, n/a 56124 Italy. + 39 050 3152100. Fax + 39 050 3152095. fabriepi@ifc.cnr.it.

Arniani, Stefania; Tuscany Health Agency, viale Milton, 7, Firenze, n/a 50139 Italy. + 39 055 4624358. stefania.arniani@arsanita.toscana.it.

Bartolacci, Simone; Tuscany Health Agency, viale Milton, 7, Firenze, n/a 50139 Italy. + 39 055 4624358. bartolacci.simone@arsanita.toscana.it.

Barchielli, Alessandro; Florence Local Health Unit #10, via di San Salvi, 12, Firenze, n/a 50135 Italy. + 39 055 6263373. alessandro.barchielli@asf.toscana.it.

Corti, Andrea; University of Siena - Dip. Ingegneria Informatica, via Roma, 56 Siena, n/a Italy. + 39 0577 234607. corti@pin.unifi.it.

Lombardi, Lidia; University of Florence - Dip. di Energetica, via Santa Marta, 3 Firenze, n/a Italy. + 39 055 4796349. lidia.lombardi@pin.unifi.it.

Minichilli, Fabrizio; Institute of Clinical Physiology-CNR, via Moruzzi, 56124 Pisa, Italy. + 39 050 3152106. fabrizio.minichilli@ifc.cnr.it

Rial, Michela; Institute of Clinical Physiology-CNR, via Moruzzi, 56124 Pisa, Italy. + 39 050 315210. michela.rial@ifc.cnr.it

Buiatti, Eva; Tuscany Health Agency, viale Milton, 7, 50139 Firenze, Italy. + 39 055 4624320. eva.buiatti@arsanita.toscana.it

In 2002 the Florence Province commissioned a Health Impact Assessment (HIA) to the Health Agency of Tuscany for helping decision-makers to determine whether one out of three or none of the proposed locations for a new municipal waste incinerator in the western area of Florence could be selected.

For the screening stage all ICD-9 groups and subgroups of causes of mortality and discharge hospital records over 1996-1999 were analyzed at the municipality level. Atmospheric diffusion models were performed to obtain current values of existing pollution. For the appraisal stage, selected causes of mortality and hospital discharge records of individuals residing within 2.5 km of the proposed sites were considered.

Results: the screening stage found some excesses for lung cancer, non-Hodgkin and selected congenital malformations.

Appraisal stage. One of the three sites had a smaller residing population (site C 17,213) compared to sites A and B (27,744 and 30,913). A statistically significant pulmonary diseases (ICD9 518) excess in the southern part of the 1.5-2.0 km site A crown (SMR 168) emerged. Additionally, excesses of pulmonary diseases in adults (SMR 122) and asthma (ICD9 493) in children aged 0-14 (SMR 169) living near a heavy traffic road area were observed. Excesses for respiratory diseases in adults and children in the site B area were also detected, while no increases of any causes potentially associated to environmental pollution were found around the site C.

Results of the first two stages led the administration decision-makers to establish a three-target upgrading program to improve the environment:

- Ameliorating the extra-urban transport services to attenuate traffic flows,
- Developing a district heating program using the incinerator plant,
- Revegetating a large area to mitigate air pollution following a readily available Environmental Impact Assessment (EIA)

Health Impact Assessment, new incinerator, upgrading programme

Better Power for Health: The Strategic HIA Study on Thailand's Power Development Plan

Sukkumnoed, Decharut; HPP-HIA Program, Health System Research Institute, 5th Fl., AI Nont Bldg., 70/7 Tiwanon Rd., Nonthaburi, Nonthaburi 11000 Thailand. 66-2-951-0169. Fax 66-2-591-5867. tonklagroup@yahoo.com.

Nuntaworakarn, Suphakij; HPP-HIA Program, Health Systems Research Institute, 5th Fl., AI Nont Bldg., 70/7 Tiwanon Rd., Nonthaburi, Thailand. 66-2-951-0169. Fax 66-2-591-5867. suphakijn@yahoo.com.

Power plant projects in Thailand always have significant impacts on health. Call for better power plant projects for health has been echoed in Thai society. However, as long-term social infrastructure, power plant projects are hardly determined by each stand-alone decision-making process. They are always needs long-term investment plan, which determine what kinds of project should be invested and consequently what kind and levels of impacts will be generated in the future.

Therefore, developing HPP in energy sector, strategic HIA study is very important. This strategic HIA study has concentrated on the latest National Power Development Plan (PDP2004) as the main policy and planning mechanism in Thai power sector and applied the National Energy Strategy launching (in August 2003), as a political platform to stimulate public discussion.

From several public discussions and documents, three alternative power development plans have been established, based on the main fuel used in future power plants. These three alternatives; namely PDP-gas, PDP-coal, and alternative PDP, have been compared in several aspects, including environmental health, social health, and also economic aspect.

The study has found that alternative PDP, which promotes renewable energy and decentralization systems, has shown positive impacts on health, both in terms of environmental and social health. Moreover, alternative PDP also provides better economic results compared to other two alternatives, especially when the risk of imported fuel prices, the effects on National balance of payment, and the external costs are taken into account.

This strategic HIA study is possibly the first step to develop new path of power sector development, with more health aspects in our concerns. However, the better power plan still requires actual power in action. Therefore, the

most challenging of this study is not already-presented calculation part, but how to stimulate public actions for changes.

HIA, energy planning, power sector, Thailand

The SEA Directive and Consideration of Health in Land Use Plans: Is There Much To Do?

Bond, Alan; InteREAM, School of Environmental Sciences, University of East Anglia, University Plain, Norwich, Norfolk NR4 7TJ UK. +44 1603 593402. Fax +44 1603 591327. alan.bond@uea.ac.uk.

Burns, Jennifer; Major Projects Branch, Planning Service Group, Essex County Council, County Hall, Chelmsford, Essex UK. +44 1245 437351. jennifer.burns@essexcc.gov.uk.

The Strategic Environmental Assessment (SEA) Directive (2001/42/EC) established a statutory requirement for the consideration of significant effects on human health from July 2004. This requirement applies to specified plans and programmes within European Union Member States and includes land use plans under the UK planning system.

This research investigates the consideration of human health effects within the plan-making process in the East of England. It is based primarily upon questionnaires and interviews with those involved in plan-making.

The results indicate that, prior to the implementation of the SEA Directive, very limited consideration has been given to human health in land use plans. However, the Directive, along with reforms to the planning system, do provide a framework for improving the consideration of health, but some barriers remain to be overcome:

- analytical and methodological complexity may hinder the ability of planners to consider health;
- there is a lack of capacity and no evidence base within planning; and
- there is a lack of application of SEA to policies which has led to contradictory guidance.

It is clear that, given the present uncertainty over human health impacts resulting from the implementation of land-use plans, greater application of the precautionary principle is required.

SEA, planning, health

Integrating Health Effects into EIA/SEA

den Broeder, Lea; RIVM, PO Box 1 Bilthoven, Utrecht 3720 BA Netherlands. +31 30 2742735. Fax +31 30 2744450. lea.den.broeder@rivm.nl. www.rivm.nl.

van Bruggen, Mark; RIVM, PO Box 1 Bilthoven, Utrecht 3720 BA Netherlands. +31 30 2742735. Fax +31 30 2744450. mark.van.bruggen@rivm.nl. www.rivm.nl.

Knol, Anne; RIVM, PO Box 1 Bilthoven, Utrecht 3720 BA Netherlands. +31 30 2742735. Fax +31 30 2744450. anne.knol@rivm.nl. www.rivm.nl.

Rademaker, Baukje; Netherlands Commission for Environmental Impact Assessment, PO Box 2345, Utrecht 3500GH Netherlands. + 31 30 234 76 35. Fax + 31 30 233 1295. brademaker@eia.nl. www.eia.nl.

Schuit, Jantine; RIVM, PO Box 1 Bilthoven, Utrecht 3720 BA Netherlands. +31 302742945. Fax +31 302744450. jantine.schuit@rivm.nl. www.eia.nl.

Staatsen, Brigit; RIVM, PO Box 1 Bilthoven, Utrecht 3720 BA Netherlands. +31 302742735. Fax +31 302742735. brigt.staatsen@rivm.nl. www.eia.nl.

Van Zoest, Frans; RIVM, PO Box 1 Bilthoven, Utrecht, 3720 BA, Netherlands. +31 302742735. Fax +31 302742735. url www.rivm.nl.

The need to pay attention to health impacts within the EIA/SEA procedure is widely recognized. The question is: how to put this into practice?

In the Netherlands a project is carried out to better include health into EIA/SEA. The first part of project consists of a feasability study leading to a go/no-go decision regarding the development of an instrument and to a development plan.

Part two (depending on the decision at the end of the first project phase) entails instrument development.

The intention is that both environment-related health impacts as well as impacts caused by social determinants will be included in EIA/SEA. The project focuses not only on technical aspects, but also on the appropriateness of the instrument within the administrative and political context of EIA/SEA application.

Integrative appoaches, instrument development, health

The Canadian Approach to Health Impact Assessment

McClymont Peace, Diane; Health Canada, 2720 Riverside Dr. AL6604M, Ottawa, Ontario K1A 0K9 Canada. 613-952-9477. Fax 613-941-8921. diane_mcclymont-peace@hc-sc.gc.ca.

Health Canada, in 1999, through the Federal/Provincial/Territorial Committee on Environmental and Occupational Health (CEOH) produced a series of reference manuals "Canadian Handbook on Human Impact Assessment" to assist practitioners on how and why to include human health in environmental assessments (EAs). The handbook is intended for EA practitioners, project proponents, government, academia and others who are not necessarily experts in health to understand the methods and disciplines involved in health assessment both at the project and strategic levels.

As a result of further consultations with practitioners and advances in the field, the handbook has been updated and expanded to four volumes. The first two volumes focus on training while the last two provide sector-specific information. Volume 1: The Basics, introduces various EA processes in Canada and internationally, the determinants of health, health indicators, as well as Aboriginal health and traditional knowledge. Volume 2: Approaches and Decision-making, focuses on health risk assessment data, risk management, communication and credibility. Volume 3: The Multi-disciplinary Team, addresses key concepts and issues that traditionally had not been adequately considered within the context of EA or health impact assessment (HIA), for example, due consideration of stakeholder values, social impact assessment (SIA), economic evaluation of development projects, indigenous HIA, concepts and methods of environmental epidemiology, occupational health, and food issues. Volume 4: Health Impacts by Industry Sector, applies HIA concepts, techniques, and tools to representative examples of EA of development projects in each of eight Canadian economic sectors: energy, transportation and communications, forestry, mining, agriculture, waste management, wastewater and sludge management, and the manufacturing sector.

The revised handbook is to be made available this year on Health Canada's website, as well as on CD and in print (English and French).

Health impact assessment, determinants of health

CS38. DECISION CRITERIA, VALUES AND IMPACT ASSESSMENT PART 1

CS39. CROSS-NATIONAL TRANSFER OF POLICY ANALYSIS AND IMPACT ASSESSMENT (PHILOSPHY, METHODS AND PRACTICE)

Transfer of TPM-Higher Education Concept from Delft (NL) to Harbin (CN)

de Jong, Martin; Delft University of Technology, Jaffalaan 5, Delft, Zuid-Holland 2628 BX Netherlands. + 31 15 2788052. martinj@tbm.tudelft.nl.

Mi, Jaining; Harbin Institue of Technology, Harbin, China.

In the past few years several professors from the Department of Management, Harbin Institute of Technology (Northern China) have paid visits to the Faculty of Technology, Policy and Management, Delft University of Technology (Netherlands) and vice versa. Some of these visit were 'courtesy calls' to establish relationships of trust and friendship between senior people at the departments, others were intended to get to know the types of teaching and research programmes current at the 'other'.

The relationship established culminated in an agreement of co-operation aimed at intensifying collaboration in all kinds of fields.

The authors of this paper are working on either side of the continent, so to say, and have been actively involved in the bilateral learning process and in the transfer of ideas matching theory on public policy and management and various ways to simulate the effect of interventions. More specifically, elements of the theory and method of policy analysis taught at TPM have been adopted and changed to fit the Chinese HIT philosophy and environment.

The authors aim to provide a realistic account of what it takes to transfer ideas on policy analysis education from a North European to a North Chinese university environment and what the experiences have been so far.

University education on policy analysis, policy transfer, Delft-Harbin

Visualising the Invisible: Cultural Disparity and Dynamic Frictions in Relation to the Visual Problem Appraisal 'Kerala's Coast'

Witteveen, Loes; Larenstein University of Professional Education, P.O BOX 7, Deventer, 7400AA The Netherlands. 00 31 570 684643. Fax 00 31 570 684608. l.m.witteveen@Larenstein.nl.

Enserink, Bert; Delft University of Technology, P.O.BOX 5015, Delft, The Netherlands. 00 31 15 2788071. Fax 00 31 15 152786439. b.enserink@tbm.tudelft.nl.

Integrated Coastal Zone Management (ICZM) is a complex multi-actor issue. Staff members of Cochin University (CUSAT) in India and colleagues from the Netherlands interpreted this problem as a challenge to initiate and enhance multi-stakeholder dialogue and action and the idea was born to produce a Visual Problem Appraisal (VPA).

VPA is a film based learning system that aims to induce social learning, to increase problem and policy analysis competencies, to reduce self referentiality, to increase commitment for concerned stakeholders and to enhance intersubjective consensus.

In 2003, staff members of Indian and Dutch universities and Indian filmmakers produced two documentaries and 23 films portraying the Keralite stakeholders in their natural environment, exposing their engagement with and different perspectives on ICZM.

Although produced for formal education, the notion emerged that the VPA might as well work in the reality of ICZM in Kerala. This notion was a fascinating conversion of questioning the nature of some events and frictions that occurred during the production process. As critical incidents were attributed to various cultural disparities such as local – foreign, higher – lower status, the hypothesis was formulated that if producing the VPA set already had a deep impact; what about using it with directly involved stakeholders? This hypothesis was tested in 2004 in workshops with publics, ranging from CUSAT students to local stakeholders of the Thycattussery Panchayat.

In this paper we describe and analyse the events and critical incidents during production and use of the VPA. Cultural models and notions of social learning will provide guiding principles. The outcome is formulated as recommendations in the context of the future use of the VPA, as for example is envisaged in a Dutch River Delta Management project.

Multi stakeholders dialogue, social learning, cultural frictions, cross-national transfer

Policy Transfer as Value Transfer

Kroesen, Otto; TPM TU Delft, Jaffalaan 5, Delft, Zuid-Holland 2600 GA Netherlands. +31.15.2785262. j.o.kroesen@tbm.tudelft.nl.

de Jong, Martin; TPM TU Delft, Jaffalaan 5, Delft, Zuid-Holland Netherlands. +31.15.2783433. w.m.dejong@tbm.tudelft.nl.

It often appears that policy transfer in itself is not enough. Different values and codes of behavior for instance in respect to power distance, individualism and pluralism may frustrate a policy, that would work quite well in another cultural context. For that reason policy transfer must also entail a kind of "value" transfer. If that is true however, a few more questions emerge: how to create an open dialogue between existing values and cultural practices and the renewal of traditions that represent them? How much change is possible and desirable? What is the right rhythm of change, and when would a change be "a bridge too far" or even undesirable?

In the perspective of such questions the sociological interpretation of cultural differences shows its limitations. In such analyses only those cultural characteristics meet the light of day, which manifest themselves in the present tense of questionnaires. Deeper lying historical experiences, that structure and mold the values of the present are not taken into consideration. The rhythm of cultural change is not taken into consideration either. But it does make a difference, whether a cultural tradition is in a period of transition and change, or in a phase of static evolution of old-time achievements.

In this contribution a model is presented, categories, which integrate the results of "spatial" sociological research with a time perspective, in which historical events and the rhythm of change of specific traditions is taken into consideration. The theory of cultural differences is broadened and deepened by such an exercise. The sociological

and historical work of Rosenstock-Huessy proves to be of tremendous value in the development of such categories. The practical value of this exercise will be illustrated by a few examples.

Value transfer, cultural differences, history

Value Transfer in the Introduction of Community Management for Fringe People in Bangladesh

Kroesen, Otto; TPM TU Delft, Jaffalaan 5, Delft, Zuid-Holland 2600 GA Netherlands. +31.15.2785262. j.o.kroesen@tbm.tudelft.nl.

Alam, Korshed; AMRF, Pisciculture Housing Society, House no- 154 (3rdfloor), Dhaka, Bangladesh 6049 CC Bangladesh. 00 880 2 8119260. amrf@dhaka.net.

Janssen, Roy; TU Delft, Maasstraat 26, Roermond, Limburg 6049 CC Netherlands. +31.655165450. R.H.M.Janssen@tnw.tudelft.nl.

Van der Stok, Ernst; TU Delft, Van Hasseltlaan 595 Delft, Zuid-Holland 2625 JL Netherlands. +31.645612755. e.j.w.vanderstok@student.tudelft.nl.

How can there be room for participatory development in a hierarchical society like Bangladesh? In opposition to large-scale top-down government-sponsored development projects, many nongovernmental organizations have propagated and implemented a bottom-up approach. Development projects should involve grassroots people, and be participatory in character. They should not only imply some form of technology transfer, but should promote self-reliance, self-organization, of local people, "indigenous development", with an emphasis on the participation and the emancipation especially of women and poor, who often are at the backseat of development.

Although many donor organizations went so far, that only project proposals were considered, that were formulated by self-reliant indigenous NGOs, the project proposals mostly were in remarkable agreement with the development agenda of the donor organization. The official ideology of self-development and self-organization was in open contrast with the actual situation. In fact of the criteria and conditions for acceptance of project proposals reflected the cultural values and preferences of the donors.

Slowly the fundamental importance of values and cultural patterns in the acceptance and implementation of development projects is recognized and taken into consideration more openly. Not only good governance is an important condition for success. The development of cultural practices and values like openness for divergent opinions, bottom-up organizations, an instrumental approach to time and planning (and some more), appears to be a decisive condition for successful technological development. This insight implies the necessity of new processes of learning, adaptation (to new values) and integration (of old and new).

One of the organizations, which tries to make the development of new cultural patterns and values part of an open development strategy is AMRF in Bangladesh. The paper will present this new approach to development and reflect on ongoing experiences and practices.

Participatory development, value transfer

CS40. URBAN: EA IN AN URBAN CONTEXT-METHODS AND APPROACHES

Local Action Plan for the Usage of Renewal Resources in the Urban Areas of Portogruaro Municipality (Venice Province, Italy)

Stevanin, Marco; TERRA Ltd. Co., Via V. Veneto, 114, San Donà di Piave, Venice 30027 Italy. +390421332784. Fax +390421456040. m.stevanin@terrasrl.com. www.terrasrl.com.

Bettini, Virginio; University of Architecture of Venice - IUAV, Santa Croce, 1957, Venice 30027 Italy. +39041257222. Fax +39041524043. bettini@iuav.it. www.terrasrl.com.

Marangoni, Federica; TERRA Ltd. Co., Via V. Veneto, 114, San Donà di Piave, Venice 30027 Italy. +390421332784. Fax +390421456040. f.marangoni@terrasrl.com. www.terrasrl.com.

Zuccaro, Carlo; TERA Ltd. Co., Via. Veneto 114, San Donà di Piave, Venice 30027 Italy. +390421332784. Fax +390421456040. c.zuccaro@terrasrl.com. www.terrasrl.com.

Drigo, Ermes; Studio Drigo, Via Ai Molini, 10, Fossalta di Portogruaro, Venice 30025 Italy. 0421 24 80 75. Fax 0421 24 80 75. ermesdrigo@libero.it. www.terrasrl.com.

INTRODUCTION

According to the local political strategies, Portogruaro Municipality seek the concrete implementation of the European environmental sustainable policies to achieve a renewed system of urban and landscape planning and a new management system to integrate energy resources issues into the decision-making process.

THE POJECT AND THE WORKING STEPS

The working strategies have been personalized to fit in with the local requirements and to develop the Local Action Plan for renewal resources usage. The main steps are:

- Screening, analysis and evaluation of legislation, plans and studies concerning with environmental urban planning and sustainable energy management to identify examples of "Good Practices" suitable for the local context.
- Carry out check-list to find out and assess the energy local demand and consumption concerning the whole Life Cycle of buildings
- Data and information collecting for the "Energy report"
- Assessment of the report and definition of planning goals, policies and strategies, new sustainable project for energy and pollution reduction
- Perform the Guide Line document for the new Energy Environmental Local Plan

THE NEXT PHASE OF THE MANDATE

Consequently to the definition of the Action Plan contents and strategies, the Municipality will have to include information and public participation procedures in the urban management process to make people aware of energy concerns and also of the real possibilities to include sustainable principles in the planning process and to achieve an integrated environmental management of the local level.

Urban planning and renewable resorurces usage and management

Rediscovering the Lost Rivers of London - EIA & River Flood Risk Management

Marshall, Ross; Environment Agency, Waterside House, Waterside North, Lincoln, LINCS LN2 2PD UK. 01522 785885. ross.marshall@environment-agency.gov.uk.

Copas, Richard; Environment Agency, Waterside House, Lincoln, LINCS UK. 0118 953 5565. richard.copas@environment-agency.gov.uk.

Many of the River Thames' minor rivers and tributaries lie hidden and ignored amongst the built up areas of the Greater London catchment. The continued subjugation of these river system over the last century has blunted perceptions to the point where many people are either unaware of their presence, or regard them as little more than residual eyesores. The result has been that almost 40% of the river systems have been culverted, and thus lost to the landscape, and of the remaining open river, approximately 83% has been put into artificial channels.

The Ravensbourne catchment in south-east London lies within one of the most heavily urbanised areas of the United Kingdom. The process of urbanisation has spread south through the catchment, and the consequent demand for land has resulted in the incremental development of many of the river's former floodplains. In the more densely developed, lower section of the catchment, little in the way of open floodplain remains with urban development spreading right up to the river's edge.

This paper looks at traditional approaches to flood alleviation and river management are now being revised and reconsidered within EIA practice. Examining the Ravensbourne catchment in greater detail and in particular its tributary the Quaggy River. The case made through the EIA process for returning these rivers to their previous open flow patterns is examined and how integration within sophisticated flood defence mechanisms can bring about greater security in flood management, enhanced visual amenity within highly urbanised areas and opportunities for nature conservation.

EIA, river management, flooding, landscape, urban

Clarity and Openness in EIA - Experience from Three Urban Environmental Projects

Ullman, Peter; SWECO International AB, Gjörwellsgatan 22, P.O. Box 34044, Stockholm, Sweden SE-100 26 Sweden. + 46 8 695 58 10. Fax + 46 8 695 64 20. peter.ullman@sweco.se. www.sweco.se.

EIAs were prepared for three projects:

1) A municipal sewerage system and wastewater treatment plant in Hungary
2) Two industrial/municipal wastewater treatment plants in Sri Lanka
3) One solid waste landfill in the Philippines.

Impacts of the projects, and experience from the EIA work, are summarized.

Each project aims at an improved environment. The overall impact should be positive, but also negative impacts must be covered in the EIA/EIS. A balance should be found here. The description of negative impacts – often a large number but of relatively low significance – may risk overshadowing the positive impacts.

Clarify early:

- What is the purpose of the EIA? May seem trivial, but the purpose can vary between projects.
- Who is writing? Formally it is the project proponent, but in practice often a consultant. The EIS should express the proponent's opinions. The consultant must remember that described mitigation measures are the proponent's commitments, requiring economic expenditures.
- Who will read? Normally several bodies: the permitting and other authorities, NGOs, and representatives of the public. All readers must understand the EIS.

The description of the present situation should not be over-elaborated. It is often easy to collect present data, while estimating future data is more difficult. This may result in an unbalanced EIS. Only data relevant for the overall impact assessment should be presented. Two cases:

- conditions and parameters, for which future data can be predicted
- conditions and parameters, for which future data cannot be predicted, but where impacts, positive or negative, can be expected. ´

An EIA/EIS often involves several experts. The risk of preparing a non-uniform EIS must be eliminated, otherwise the permitting authority will have problems in understanding the EIS, in discerning relevant and less relevant matters, and in submitting the permit in due time.

Wastewater, solid waste, impacts purpose, clarity, communication

The Boston Connection

Wolf, C. P.; Social Impact Assessment Center, 423 Broome Street, New York, NY 10013 USA. (212) 966-2708. Fax (212) 219-1963. cpwolf@igc.org.

Another excursion in impact history, the "Boston Connection" aims to impart to IAIA 2005 participants a sense of place and a feel for folks in this conference venue. Enlarging on the technical visits, the Boston Impact Tour identifies and analyzes local and regional impact sites and situations—such as inventing the Charles River, court-enforced mandatory school busing to achieve racial balance, and Thoreau's Walden Pond—with a view to enriching the conference experience.

The Boston Connection further locates the local community and culture in developing the field of impact assessment, and traces some contributions of colleagues at local institutions, such as Walter Firey's Land Use in Central Boston, the Tochs Island Dam collaboration (Boundaries of Inquiry and When Values Conflict), and NASA's "Technology, Space and Society" program.

Even casual acquaintance with local knowledge will disclose that Boston abounds with problems and possibilities of universal and transcendental importance as well as local interest. Whether the former are ascribed, as literary critic Martin Green does, to a failure of nerve on the part of Boston writers, or as others might to the influx of Boston Irish; or the latter, as C. P. Snow in his Godkin Lectures does to scientific culture, they are there (here) for the understanding. "Only connect."

Boston, impact history, impact tourism

CS41. EIA CASE STUDIES AROUND THE WORLD

Reconciling Perspectives on the Question of Alternatives in EA: A Theory of the Political Economy of EA, Applied to the Darling Wind Farm in South Africa

Hill, Richard; University of Cape Town, Department of Environmental and Geographical Science, Private Bag, Rondebosch, Western Cape 7700 South Africa. + 27 21 650 2786. Fax + 27 21 650 3791. hill@enviro.uct.ac.za.

Bodenstein, Janet; University of Cape Town, Environmental Evaluation Unit, Private Bag, Rondebosch, Western Cape 7700 South Africa. + 27 21 650 2866. Fax + 27 21 650 3791. bodenstn@science.uct.ac.za.

Fuggle, Richard; University of Cape Town, Department of Environmental and Geographical Science, Private Bag, Rondebosch, Western Cape 7700 South Africa. + 27 21 650 2874. Fax + 27 21 650 3791. fuggle@enviro.uct.ac.za.

The philosophical and political issue of the extent to which the state should intervene in the economy and in physical development is contested. The paradox of freedom holds that rights are not unconditional and state control is necessary where the freedom of one person interferes with the freedom of another. This paper outlines a theory of the political economy of EA, which addresses the ethical question of what EA ought to require in regard to the consideration of alternative proposals. The theory considers this question from the perspective of all stakeholders, including proponents, who may have good reasons for pursuing a particular proposal—particularly if they are from the private sector and own the land they plan to develop. As such, the theory goes beyond the normative position on alternatives held by many EA practitioners—that more is better.

The theory places the question 'to consider, or not to consider alternatives' in the context of an unfolding EA process. Initially, a proponent should have the right to table a proposal for environmental assessment without consideration of alternatives. Should preliminary assessment indicate that significant impacts are likely to accrue, then the EA process should switch from a cautionary role—without alternatives—to a corrective one. Alternatives are corrective in that they provide a way of balancing the rights of proponents with the rights of other stakeholders (and even other species) who should not have to bear the costs of significant environmental externalities.

The theory is applied to the case of the EA for the Darling Wind Farm in the Western Cape of South Africa. The environmentally-motivated proponent of this project is still waiting for approval six years into the planning process because interested and affected parties and the environmental authority rejected an EA that did not consider alternative sites.

Environmental assessment, theory, political economy, alternatives, wind farm case study

Ethics and Quality in Impact Assessment: An Overview of the Nigerian Situation and Experience

Dayo, Felix; Triple, 278, Ikorodu Road, Anthony, Lagos, Lagos State 01 Nigeria. 234 1 497 4751. Fax 234 1 497 4751. fbdayo@triplesys.com. www.triplesys.com.

Ojo, Adeolu; Environmental Resources Managers Limited, 107A, Imam Abibu Adetoro Street, Victoria Island, Lagos, Lagos State Nigeria. 234 1 262 5897. Fax 234 1 269 5122. adeoluojo2004@yahoo.com. www.triplesys.com.

Impact assessment is perhaps one of the most revolutionary tools of our time, towards environmental management and sustainable development, for, unless the impacts of a proposed activity are accurately elucidated, it is difficult to virtually impossible to appropriately plan for managing the impacts and thus conserving the environment. The quality of an impact assessment is premised on several considerations, including the reliability of data used, the method applied for assessing impacts and the type of environment in which the activity is taking place. One other factor, which does not appear to be attracting much attention in many developing countries, including Nigeria, is the issue of Ethics in impact assessment. Unethical practices have resulted in poor quality and inaccurate impact assessment. This paper presents an overview of the areas where ethical issues are prominent in the practice of impact assessment in Nigeria. It gives a few guarded examples of issues and problems arising from unethical practices and the alternatives eventually taken. It concludes by suggesting ways of surmounting the ethical practices barrier, towards reaching the utopia of successful impact assessment in Nigeria.

Impact assessment, revolutionary tool, environmental assessment, ethical issues

Impact Assessment and Sustainable Development of a New Hydroelectric in Mexico

Hernandez-Alvarez, Francisco; Comisión Federal de Electricidad, Río Mississipi 71 9 Piso, Col. Cuahutemoc, Mexico, D.F. 06500 Mexico. 52 (55) 52 29 44 00/ 6928. Fax 52 (55) 52 29 44 00/ 2673. francisco.hernandez@cfe.gob.mx.

Zuniga-Gutierrez, Guillermo; Comisión Federal de Electricidad, Río Mississipi 71 9 Piso, Col. Cuahutemoc, Mexico, D.F. Mexico. 52 (55) 52 29 44 00/ 3366. Fax 52 (55) 52 29 44 00/ 2673. guillermo.zuniga@cfe.gob.mx

Since 1988 Mexican regulations provide that new development projects must be authorized by Ministry of Environment; therefore an environmental impact analysis (EIA) must be carried on and the results (environmental impact statement) submitted to this authority. The National Power Company of Mexico (Comisión Federal de Electricidad – CFE) has established, as part of its environmental policy, to comply all the environmental regulations and therefore during the last twenty years, has prepared and submitted the environmental impact statements (EIS) for obtaining the environmental authorizations required for all its new projects.

CFE, as part of its energy policy, is developing new hydroelectric projects for diversifying the primary sources of energy. One of these projects is "La Parota" to be constructed in the municipality of Acapulco, State of Guerrero. CFE considered multiple uses of the dam. 14 000 hectarses will be flooded and 3000 thousands persons, from 15 localities, will be relocated. The EIA started in November 2002 and EIS was submitted in July 2004. The environmental analysis determined that project design should be modified and several programs should be incorporated for avoiding and compensating several significant impacts. Ecosystems protection programs and productive schemes will be developed. These actions will allow to contribute for a sustainable development in the region.

We will describe all the actions and programs that will be developed and the expected benefits of their implementation.

Impact assessment, sustainable devleopment, hydroelectric

Kaputei Housing Project in Kajiado District, Kenya-Case Study

Babu, Maureen; IUCN-EARO, Wassa Conservation Centre, P.O.Box 68200, Nairobi 00200 Kenya. (254)20 890605-12. Fax (254)20 890615/407. mab@iucnearo.org; babu_maureen@yahoo.com.

The Kaputei Housing project is a unique housing concept that would have involved putting up low cost housing units The organization involved with the project, Jamii Bora Trust, was established 15 years ago through the initiative of 50 street families in Nairobi. Its members have increased steadily and in addition to the founding street families, it also consists of low income earning people in and around Nairobi.

The project is financed by members savings and donations from well wishers. The project area covers 293 acres and was planned to have a fully fledged commercial area, a wetlands, a cultural community center, markets, access roads and education facilities for the more than 10,000 people expected to become the new area residents.

Whereas the project is good in principle, it is facing negative environmental, social, political and economic impacts, which has led to the rejection of its implementation by the concerned environment management authority. The major issue at hand is in failing to address key issues outlined in the ToR prepared and approved for the study, to be carried out by the appointed EIA team, which eventually presented to the environment management authority an EIS that gives no alternatives to the proposed project amongst other shortcomings.

Other issues to be considered include the time lag between enactment of the environmental law and the establishment of the regulatory body that ensures implementation of this law. The time lag resulted to an EIA of the said project, being carried out after the finalization of the project plan document. Thus any feasible recommendations outlined in the EIS might not be absorbed into the project plan and if they are, to what extent? How can the issue of EIA as a decision-making and a planning tool be addressed to ensure sustainability of proposed projects?

Term of Reference (TOR)

Assessing the Economic Development Potential of Nature Tourism

Leistritz, F. Larry; Department of Agribusiness & Applied Economics, North Dakota State University, 213B Morrill Hall, Fargo, ND 58103 USA. + 1 701 231 7455. Fax + 1 701 231 7400. lleistri@ndsuext.nodak.edu.

Hodur, Nancy M.; Department of Agribusiness & Applied Economics, North Dakota State University, 213B Morrill Hall, Fargo, ND 58103 USA. + 1 701 231 7357. Fax + 1 701 231 7400. nhodur@ndsuext.nodak.edu.

Wolfe, Kara L.; Department of Apparel, Design, Facility & Hospitality Management, North Dakota State University, 361 EML Hall, Fargo, ND 58103 USA. + 1 701 231 8224. Fax + 1 701 231 7174. Kara.Wolfe@ndsu.nodak.edu.

Nature tourism is increasingly being considered as an economic development opportunity for rural areas of the United States, as well as other nations. As rural communities seek to develop nature tourism, questions regarding the attributes and interests of the nature tourist arise. This study sought to address these questions through a survey of participants at a birding festival held in central North Dakota in June 2004. The Festival participants were predominately from outside the local area, and most of these visitors were from out-of-state. As has been reported in other studies of birders and nature tourists, the festival participants were middle-aged (more than 70 percent between age 40 and 70) and highly educated (73 percent had college degrees) with relatively high income levels. The visitors spent an average of three nights in the local area, with average local expenditures of $160 per person, approximately $54 per day. The visitors enjoyed the festival and the area; almost all would recommend the birding festival to a friend, and almost two-thirds indicated they were likely to attend the Festival again within the next two years. Given the satisfaction of the participants, who seemed to represent a cross-section of the potential birding clientele, the potential for growth of nature tourism in the area appears substantial.

Nature tourism, birding, North Dakota, economic impact

CS42. SIA: KEY ISSUES FACING SIA PRACTICE ROUNDTABLE 2

CS43. BIODIVERSITY: TREATED PROPERLY IN IMPACT ASSESSMENT? TOOLS AND METHODS

Bringing Biodiversity Information to the Table: The Example of an Independent Panel

Athanas, Andrea; IUCN, 28 rue Mauverney Gland, Vaud 1196 Switzerland. 41 22 999 0213. Fax 41 22 999 0020. andrea.athanas@iucn.org. www.iucn.org/business.

Quaile, Deric; IUCN, 28 rue Mauverney Gland, Vaud Switzerland. 41 22 999 0278. Fax 41 22 999 0020. deric.quaile@iucn.org. www.iucn.org/business.

Impact assessments are increasingly identifying and addressing biodiversity risks associated with development projects, but the level of biodiversity information in a standard EIA may be insufficient for decision makers such as lenders, the government, civil society or even the company itself. IUCN is exploring different ways to bring biodiversity knowledge and expertise into important investment decisions. One recent example has been to convene an Independent Scientific Review Panel for the Sakhalin II Phase 2 oil and gas project in Russia. The Panel was asked to evaluate the impacts of these developments on the critically endangered Western Gray Whale population and related key elements of biodiversity. The outcome of the Panel was a report made publicly available to inform debate surrounding the development and, eventually, society's decisions about the project. IUCN was asked by the proponent of the development, Sakhalin Energy Investment Company, to convene the Panel, but also benefited from the support of the potential lenders, civil society and the government for IUCN's convening role. The call for such a Panel and its eventual conclusions demonstrate the importance of biodiversity as a real business issue, as well as the need for more detailed and scientifically valid information going beyond the capacity of a standard impact assessment processes. As practitioners committed to "the assessment of the environmental, social, economic, cultural and health implications for proposals to be a critical contribution to sound decision-making processes, and to equitable and sustainable development" we should all be interested in finding ways for sound science to inform decisions - within and beyond the boundaries of impact assessment processes.

Biodiversity, business, science, informing decisions

The Millennium Ecosystem Assessment - Assessing Ecosystem Services in Gauteng Province, South Africa

Holgate, Claudia; Monash University, 144 Peter Road, Ruimsig, Johannesburg, Gauteng 1725 South Africa. + + 27 11 950 4181. Fax + + 27 11 950 4088. claudia.holgate@arts.monash.edu. www.monash.edu.

The Millennium Ecosystem Assessment (MA) is an international programme designed to meet the assessment needs of the Ramsar Convention for the Protection of Wetlands, the Convention on Biological Diversity, the Convention to Combat Desertification and the Convention on Migratory Species. It aims to provide a decision support system by identifying priorities for action, providing the tools for planning and to identify options to achieve sustainable development. The MA includes assessments at a global, regional, basin and local scale, and this paper focuses on the local assessment conducted for the Gauteng Province in South Africa. Gauteng Province is a highly urbanised province, with increasing development pressure resulting in thousands of applications for Environmental Authorisation (Environmental Impact Assessments (EIAs) from the provincial government annually. Thus, the

ecosystems and their associated ecosystem services, such as water filtration of wetlands, are under constant threat. Gauteng's major environmental issues, including water quality and quantity, fauna, flora and habitat conservation and food and agriculture need to be addressed on a provincial scale when making strategic environmental planning decisions and individual EIA authorisations. This results in the provincial government requiring detailed accurate information to allow for educated planning and to support their decisions on EIA applications, which a study such as the Millenium Assessment would provide. This paper examines the results of the Local Millennium Assessment for Gauteng Province and explores the usefulness of such an assessment as a contribution to well-informed decision making in the EIA process.

Millennium Ecosystem Assessment, EIAs, Gauteng Province

Use of IUCN Red Listing Process as a Basis for Assessing Biodiversity

Meynell, Peter-John; Mekong Wetlands Biodiversity Programme, 16 Fa Ngum Road, Vientiane, Lao PDR. +856(0)21 216 401. Fax +856(0)21 216 127. mekongwetlands@iucnlao.org.

Impact of developments on biodiversity is a critical aspect to be considered in the environmental impact assessment (EIA) process. The IUCN Red Listing process has been developed to assess changes in the degree of threat to species. The process assesses the status of a species according to such criteria as population size and rate of change, distribution and rate of change in distribution, and threats to population numbers and or habitat. It uses a systematic but pragmatic approach, using available information to assess status. The approach can be used in the EIA process to determine the extent to which key endangered species that might be affected by a proposal, and should therefore be included in the assessment. It also has potential applications where a practitioner might wish to evaluate the degree of threat to a species before and after a development is implemented. The benefits of using such a tool rest on an established methodology and criteria for assessment, which are straightforward to use and have global relevance. This paper explains the Red Listing process and provides examples from SE Asia to illustrate its potential application in EIA.

Biodiversity, IUCN Redlist, EIA, endangered species, Mekong River

Integrating Ecological and Morphological Knowledge By Means of Group Model Building

Slinger, Jill; Delft University of Technology, Jaffalaan 5, 2628 RS, Delft, Zuid Holland Netherlands. +31-15-2788067. j.h.slinger@tbm.tudelft.nl.

De Boer, Miriam; Arcadis, Lichtenauerlaan 100, 3062 ME, Rotterdam, Zuid Holland Netherlands. +31-10-2532183. m.e.boer@arcadis.nl.

This paper addresses the need to bridge the divide between disciplines in achieving consensus on the impacts of proposed interventions in environmental systems. We conclude that qualitative group modelling is useful for scoping interdisciplinary impacts, but that continuity of participation and careful knowledge management are critical in extending the influence of shared concepts beyond the scoping to the assessment phase.

During the development of the joint Dutch and Belgian Long Term Vision for the Scheldt Estuary (1998 – 2001), a number of research projects were initiated. One of these involved integrating existing ecological and morphological knowledge to bridge the gap between the morphologists' predictions of the effects of a possible deepening of the navigational channel of the Scheldt Estuary on the morphological dynamics and the ecologists' use of their understanding of ecosystem function in setting ecological goals. A qualitative group modelling technique (the Rapid Assessment Program) in which experts supplied information for collation as causal diagrams was used in this project, and a system for predicting the eco-morphological effects of management measures and policy options was developed. The process of development, the modelling product and the outcomes are described. The role of this modelling activity in achieving consensus in the Long Term Vision is assessed critically as is its influence in the subsequent Strategic Environmental Impact Assessment (SEA) of the Scheldt Estuary (2002 - 2004). We demonstrate that the composition of the participants in the group modelling sessions and the scientific review process were critical to the acceptance of the results. The lack of continuity in the involvement of 'torch bearers' in the subsequent Strategic Environmental Impact Assessment is found to be critical in the gradual reduction in influence of the shared ideas from the Long Term Vision development phase.

Ecology, morphology, modelling, group modelling, estuary, knowledge management

Landscape Ecology as Tool for Decision Support Systems and an Essential EIA Part. The Ravarino (Italy) Case Study

Marotta, Leonardo; Entropia Snc, via Corridoni 3Recanati, Macerata I-62019 Italy. + 39 3383518558. Fax + 39 0717575525. entropia_snc@tin.it.

Lara, Marangoni.

Alida, Spuches.

Bettini, Virginio; University IUAV of Venice.

Landscape ecology studies the relationship between spatial pattern and ecological processes over a range of spatial scales (Farina 2000, 2001); scale holds the key to understanding the pattern-process interactions. The Po River Plain is an over urbanised area and is a difficult place to manage, involving a dynamic natural system which has been increasingly settled and pressurised by expanding socio-economic systems. In our case study - Ravarino municipality – the landscape was studied in order to evaluate the preservation plan for wetland "macero" using "percolation in landscape" through a Key-Species Triturus carnifex (Ordo: Caudata , Family: Salamandridae) and his potential and real ecofield (Farina, 2004). Was evaluate the land potentiality and the land suitability and the dimension of optimal and sub-optimal area in order to have a percolation value over 0,49 (stocastical percolation value) and over 0,59, percolating landscape (Bettini et al., 2000). The formulation of a good conceptual model drive some clear monitoring protocols and management strategies for planning management.

Farina, A., 2000. Landscape ecology in action, KluwerDordrecth.

Farina, A., 2001. Ecologia del paesaggio: Principi, metodi ed applicazioni. UTET Libreria, Torino, 673 p.

Farina A., 2004, Verso una scienza del paesaggio, Alberto Perdisa Editore, Bologna, 236 p.

Landscape ecology, SEA, Planning

CS43. DISASTERS AND CONFLICT: SPECIAL SESSION ON THE 26 DECEMBER 2004 TSUNAMI

Impact Mitigation of Tsunami Effects

Cross, William; Illinois College, 1101 W College Av, office: Kirby 102, Jacksonville, IL 62650 USA. 217-245-3452. Fax 217-245-3365. cross@ic.edu.

The initial reaction to the catastrophic effects of the tsunami impacting South Asia last year has resulted an an unprecedented outpouring of resources to those affected. This paper deals with attempts to treat tsunami effects. Both political and ethical concerns are involved. The political problems of lobbying to obtain sufficient funding for both long and short term understanding and treatment are ongoing and extensive. Researchers trying to simulate the origin and development of tsunami waves find themselves in considerable competition with those in space research. Funds are needed to move beyond the DART warning systems, so that an alternate set of alarm procedures can be applied to diverse situations. This paper is thus an effort to examine both the ethics and politics of funding research for both research and its application, for mitigating and warning systems.

Impact, mitigation, tsunami

Environmental Impact Assessments Following the 2004 Indian Ocean Tsunami: Challenges and Lessons

Kelly, Charles; Benfield Hazard Research Centre, c/o 3225 Oliver St NW, Washington, DC 20015 USA. 13016763301. Fax 72734.2412@compuserve.com.

The 2004 Indian Ocean tsunami raised concern about environmental impacts. This concern led to a number of rapid environmental impact assessments. This presentation reviews the nature,process and outcomes of these rapid assessments and identifies lessons which can improve the rapid environmental assessment process and integration of environmental issues in future disaster and humanitarian assistance operations. The presentation draws considerably on an informal "lessons learned" review conducted by the Joint Environmental Unit, Office for the Coordination of Disaster Assistance/United Nations Environment Program in March 2005.

Disaster, impact assessment, Indian Ocean tsunami

CS45. PUBLIC PARTICIPATION 5: TOWARDS BETTER PUBLIC PARTICIPATION PRACTICE

Designing Public Participation Programs

Creighton, James L.; Creighton & Creighton, Inc., P.O. Box 1030, Los Gatos, CA 95031 USA. 408-354-8001. Fax 408-354-8012. jim@publicparticipation.com. publicparticipation.com.

Experience shows that there is no "one-size fits all" public participation process. Each process needs to be designed to fit the issue, the stakeholders, and the decision making context.

But there is a systematic way to analyze the circumstances surrounding a particular decision and develop a public participation plan that is tailored for that situation. Based on his experience designing and implementing more than 300 public participation programs on a variety of issues, the presenter has developed an analytic process to ensure that public participation is an integrated part of the decision making process. This analytic process is also designed to avoid many of the pitfalls that result from failing to take into account key circumstances that could undercut the credibility of your public participation process.

In this session the presenter will provide an overview of the analytic process, illustrating each step with examples from actual public participation cases. He will discuss the problems that can arise from how the decision itself is being made, and ways to avoid them. Then he will discuss a step-by-step process for thinking through exactly what you are trying to accomplish with the public at each step of decision making, determining which stakeholders need to be included in that task, and evaluating special circumstances that could influence technique selection. The goal is to be sure that before you begin to consider which public participation techniques to use you know the task you must complete with the public, who the public is for that task, and the conditions under which the technique will be used.

The value of this analytic process is that it is useful in virtually all circumstances, even though the results of the analysis can lead to very different public participation plans, depending on those circumstances.

Public participation, program design

International Public Participation Principles for Better and More Ethical Practice

André, Pierre; Dept. Geography, University of Montreal, C.P. 6128, Succ. Centre-ville, Montreal, Quebec H3C 3J7 Canada. 1-514-343-8051. Fax 1-514-343-8008. pierre.andre@umontreal.ca.

Since 2003, the IAIA public participation (PP) Section is working at the development of PP Best Practice Principles. This document is designed primarily for reference and use by those professionally involved in public participation within the context of impact assessment (IA). It promotes an effective practice of PP, consistent with the institutional and process arrangements that are in force in different countries and organizations (e.g. World Bank), as well as internationally (e.g. Aarhus convention). Three groups of principles have been identified: Basic Principles which apply to all stages of PP in EA process from strategic level to operational level, Operating Principles which describe how the Basic Principles should be applied to the main steps and specific activities of EA, and Developmental Principles which point the way for future development in PP. This presentation aims to summarize the document under development, and to stimulate discussion among participants on the proposed principles which may contribute to a better and a more ethical practice. The participants will be invited to comment on this third draft which, I hope, will be submitted to the IAIA Board for approval by the end of 2005. (Pierre André is currently Chair of IAIA'sPublic Participation Section.)

IAIA, Public Participation, best practice principles

CS46. NEW DIRECTIONS IN FOLLOW-UP

U.S. Army Corps of Engineers Environmental Operating Principles - The Challenge of Implementation

Fristik, Richard; U.S. Army Corps of Engineers, Institute for Water Resources, 7701 Telegraph Road, Casey Building, Alexandria, VA 22315 USA. 703-428-8066. Fax 703-428-8435. richard.fristik@usace.army.mil.

In March 2002, the Chief of Engineers issued the Environmental Operating Principles (EOPs). Subsequently, implementation guidance was issued in December 2003. The seven Principles are aimed at guiding the agency through increasingly difficult issues associated with "the multiple and competing interests with whom (the agency) must now work and reflect the changing values of our country and the services they expect of our organization." (LTG Robert Flowers) To face these issues, the EOPs establish the agency's roles and responsibilities for

sustainability, preservation, stewardship, and restoration, as well as 'corporate' responsibility and accountability, development and sharing of knowledge, and stakeholder involvement. Though begun, the challenge of implementation and integration of the EOPs remains ongoing. This involves application of the principles across related, but segmented, agency mission areas, as well as translating the principles into everyday practice through the hearts and minds of all agency employees and their activities. This presentation will briefly describe the EOPs, consider some of the ongoing challenges to their implementation, and describe some examples of projects and actions that have endeavored to embody the Principles.

Corps of Engineers, values, principles, sustainability

The Canadian Federal Government's Quality Assurance Program for Environmental Assessments: a Status Report

Lamoureux, Ray; Canadian Environmental Assessment Agency, 160 Elgin Street, 22nd Floor, Ottawa, Ontario K1A 0H3 Canada. 613-957-0554. Fax 613-948-1354. ray.lamoureux@ceaa.gc.ca. www.ceaa-acee.gc.ca.

On October 30, 2003, a package of amendments to the Canadian Environmental Assessment Act was proclaimed. Among those amendments was a requirement in law for the Canadian Environmental Assessment Agency to "establish and lead a quality assurance program for assessments conducted under this Act".

The Canadian Environmental Assessment Act requires an environmental assessment of a project to be conducted when the federal government is the proponent of a project; provides land for purposes of a project; provides financial assistance to a project; or grants a licence, permit or authorization for a project. In the vast majority of cases individual departments and agencies of the federal government are responsible for ensuring that assessments are undertaken in accordance with the Act. Those assessments cover an extremely broad range in scale of projects and potential to cause adverse environmental effects. The above circumstances present many challenges to achieving a consistent approach to environmental assessment across government, making it complex and difficult to design and operate an effective program to encourage continuous improvement of the quality of environmental assessments.

This paper will explore efforts that have been made by the Canadian government to establish effective organizational structures for a quality assurance program in the context of the decentralized Canadian federal system. It will describe the program's current areas of focus; will outline, in a very preliminary manner, what has been learned in the program's first few months of operation; and will explore the long-term potential of the program.

The Canadian federal government's quality assurance program is a pioneering effort in institutionalizing systems for bringing about continuous improvement in the quality of environmental impact assessments. It is hoped that the sharing of the Canadian experience will create a focal point for exploring ideas on the "quality" aspect of the conference theme.

Quality assurance, continuous improvement, Canadian government

Quality Assurance Programs in EIA

Ross, William A.; Environmental Design, University of Calgary, 2500 University Drive, Calgary, Alberta T2N 1N4 Canada. 1 403 220 6961. Fax 1 403 284 4399. ross@ucalgary.ca.

With the support of the Canadian Environmental Assessment Agency, I am documenting, on a world wide basis, quality assurance programs for EIA. Quality assurance programs, for the purpose of this research, are any programs that exist for the purposes of bringing about improvement in the quality of environmental assessments. From the quality assurance programs found, I will extract the key quality issues in environmental assessment and determine how others have dealt with them. The intent is that the international environmental assessment community, including the Canadian Environmental Assessment Agency, can benefit from up-to-date information on such programs and use the information to improve environmental assessment quality. I will present the results – programs identified, key quality issues in environmental assessment, successes and failures in dealing with these issues. And I will seek inputs from IAIA'05 participants to improve the research results.

EIA quality assurance programs, key issues in EIA, improvements in EIA practice

SEA Follow Up: Linking SEA to EIA

Marshall, Ross; National Environmental Assessment Service, Environment Agency of England & Wales, Waterside House, Waterside North, Lincoln, LINCS LN2 5HA UK. (UK) 1522 785885. Fax (UK) 1522 512927. ross.marshall@environment-agency.gov.uk.

Arts, Jos; Transportation/EIA Centre, Ministry of Transport, Van der Burghweg 1, P.O. Box 5044, 2600 GA Delft, The Netherlands. + +31 15 2518461. Fax + +31 15 2518555. e.j.m.m.arts@dww.rws.minvenw.nl.

The tiered model for SEA (with its ordered progression through policy, plan, or programme to project EIA) is an established concept within EIA. This model, with its delineated tiers assumes an ordered succession of activities and decision-making until the final end-point is reached. A fundamental question is how the SEA tiers can be linked with subsequent EIA processes in practice? At the conclusion of a SEA, a number of decisions and pre-determined criteria for future action will have been reached and which will require some form of follow-up, e.g.: aspects regarding the determination of environmental and sustainability objectives, decisions regarding the elaboration of alternatives, uncertainties and gaps in knowledge left, future monitoring and mitigation programmes, or public concerns. Accepting that the decisions and information developed at an higher tier of SEA represent essential precursors to the future development of a subsequent EIA, there is a clear need for a structured process to capture and control the delivery of this information and the implementation of decisions into subsequent EIA activity stages. SEA follow-up may provide for this structuring and linking of SEA to EIA as a process management tool. Recent studies and publications have presented a substantial argument in favour of EIA follow-up in directing and controlling the monitoring, evaluation, management and the communication of impacts arising from EIA. This paper examines whether there is a practical role for follow-up post-SEA and prior to the start of subsequent EIA processes. Can follow-up experience in EIA be applied to SEA and can it perform a process management function in SEA. The paper will address briefly current status of follow-up in SEA regulations and guidance, and discuss practical issues of its application when bridging the gap between SEA and EIA.

Follow up, SEA, EIA, process management, tiering

CS47. QUALITY ASSURANCE: LESSONS FROM AFRICA

Quality Assurance and Quality Control in Impact Assessment: The Different Perspectives

Ojo, Adeolu; Environmental Resources Managers Limited, Plot 107A, Imam Abibu Adetoro Street, Victoria Island, Lagos, Lagos 01 Nigeria. 234 805 663 9836. adeoluojo2004@yahoo.com. www.erml.net.

Impact Assessment is a critical requirement in ensuring the sustainability of development projects, especially in developing countries. The quality of an impact assessment effort is a function of several factors, including the level of understanding of planned project activities, level of available environmental database, the method(s) selected for qualifying and quantifying associated and potential impacts, and even post-assessment monitoring plans. Quality Assurance and Quality Control measures are therefore planned and typically incorporated into an impact assessment project from the conceptualization stage to the actual implementation and even beyond. This paper presents an overview of the various quality issues that need to be considered in impact assessment and gives a few examples of how these issues have been successfully applied to assure quality in some specific environmental impact assessment projects. It concludes by highlighting areas where opportunities exist for improvements in quality control and quality assurance, towards the overall improvement of the practice of impact assessment.

Quality assurance, quality control, impact assessment, sustainability, improvement

Baseline Data Collection for Impact Assessment- What is enough?

Umesi, Napoleon; University of Port Harcourt, P.M.B 5323, Choba, Port Harcourt, Rivers State Nigeria. 234-084-4-24039. umesi2000@yahoo.com.

Dada, Oritsetimeyin; Shell Petroleum Development Company of Nigeria, Old Aba Road, Port Harcourt, Rivers State Nigeria. 234-084-4-24039. oti.dada@shell.com.

Baseline data, which describes the environment (biophysical, health and social) setting of a project area, prior to project development, is required in impact assessment in Nigeria. The data gathered is expected to cover the project area and reflect the two predominant seasons (rain (March – November) and dry (December – February)) in the country.

Over the years, there have been concerns about the quality and adequacy of baseline data in EIAs. In Nigeria, there is a lack of historical database for this type of study from state agencies, universities, research institutes and industries that are the usual sources of this type of data. The critical decision on how much data is required is therefore taken on project-by-project basis.

The baseline data collection for the SPDC's Afam Power Station Project focused on a clearly defined study area after available data (scoping and time lapse reports, maps and aerial photographs) were obtained. The data gathering for

the biophysical indices was limited to a few weeks per season. That for health and social data was a one-time cross-sectional study undertaken within a three-week period. The adequacy of this data as a representative sample of the project area has however been an issue given the absence of previous comprehensive studies.

SPDC will operate this power station for twenty years. In order to understand and manage the impact of this power station on the environment, it has been suggested that more data be collected over the two-season period to ensure a representative dataset for the project area is obtained. The challenges however are, amount and type of data considered adequate, sampling frequency and the impact of this on the cost and timing of the project.

Baseline data, one-time cross-sectional study, two seasons, historical data

The Role of Eastern Africa Environmental Impact Assessment Database in Enhancing Quality Assurance of EIA Practice

Suleiman, Jokha; Institute of Resource Assessment- University of Dar-es-salaam, P.O.Box 35097, -, Dar-es-salaam,-Tanzania - East Africa. + 255 744 570912. Fax 255 022 2410393. jokhass@yahoo.com, jokha@ira.udsm.ac.tz.

Quality assurance (QA)in EIA practice involves the establishment of a well-organized EIA process that can lead to an effective EIA product and enhance a rational decision-making in EIA management.

To support effectiveness and consistency of EIA process, appropriate EIA guidelines have to be developed to ensure best quality of EIA product for each stage of EIA process.

The establishment of EIA guidelines has played a major role in enhancing the quality assurance of EIA. However, there are still challenges to be addressed to ensure more effectiveness of QA in EIA process.

Insufficient resources; limited EIA expertise; lack of public participation and political interference are some of challenges to be addressed if we are to attain a reasonable level of QA in EIA at both project and strategic levels.

Along with EIA guidelines, EIA database can also contribute in providing a mechanism for quality assurance in EIA practice.

In supporting QA in EIA practice, the Institute of Resource Assessment (IRA) and the World Conservation Union (IUCN) have developed an EIA database for the Eastern Africa region. This database is a center for providing a profile of EIA experts; EIA institutions; EIA work undertaken; EIA literature and a source of networking to other EIA organizations to encourage more quality assurance.

There is therefore, a need to strengthen this EIA database to provide reliable information for supporting QA in EIA practice at both project and strategic levels.

Thus, this paper will focus on demonstrating the role and significance of Eastern Africa EIA database in supporting QA of EIA work by being a source of information for:

- Qualified EIA professionals;
- EIA institutions;
- EIA projects undertaken;
- EIA literature and related issues.

Quality assurance, Eastern Africa environmental assessment database, EIA practice

CS48. SEA: CASE STUDIES

Stakeholder-Based Decision Support Framework for Strategic Environmental Assessment: A Case Study of Greenhouse Gas Mitigation in Canadian Agriculture

Noble, Bram; Department of Geography, University of Saskatchewan, # 9 Campus Drive, Saskatoon, Saskatchewan S7N 5A5 Canada. 306-966-1899. b.noble@usask.ca.

This paper presents a structured, stakeholder-based decision support framework for strategic environmental assessment. The framework is demonstrated based on a case study assessment of alternative options for greenhouse gas mitigation in the Canadian agricultural sector.

Agriculture is responsible for approximately 10% of total greenhouse gas emissions in Canada. Agricultural emissions differ from other economic sectors in two respects: first, emissions from agriculture are for the most part not caused by energy production and use, but rather through gas discharges from livestock production, soil disturbance and fertilizer use; second, agriculture is also part of the solution to greenhouse gas emissions in that it can provide for a major carbon sink through proper soil management. While many programs and practices have been suggested for managing greenhouse gas emissions in Canadian agriculture, and the potential biophysical benefits of such programs are large, there has been no strategic-level assessment of the on-farm socioeconomic effects of such programs, the institutional mechanisms required to sustain them, and the broader policy-level implications.

Using a structured strategic decision support framework, the on-farm impacts of five alternative greenhouse gas mitigation programs are assessed by industry stakeholders and representatives based on socioeconomic, institutional, and biophysical assessment criteria. Impacts are characterized based on magnitude, direction, probability, duration, and required institutional support. Assessment data are aggregated using multi-criteria weighting techniques. Stakeholder preference structures for the alternatives set are identified and the implications for greenhouse gas mitigation policy discussed.

SEA, stakeholders, decision support, GHG, agriculture, Canada

Strategic Environmental Assessment of the High-Speed Rail Network in Portugal

Coutinho, Miguel; IDAD-Institute of Environment and Development, Campus Universitário3810-193 Aveiro Portugal. + 351234400800. Fax + 351234382876. msc@idad.ua.pt.

Borrego, Carlos; Department of Environment and Planning, Universidade de Aveiro, Aveiro Portugal. + 351234400800. borrego@ua.pt.

Pinho, Raquel; IDAD, Campus Universitário, Aveiro Portugal. + 351234400800. raquel@idad.ua.pt.

Leão, Fernando; IDAD, Campus Universitário, Aveiro Portugal. + 351234400800. fleao@idad.ua.pt.

Bento, Sérgio; IDAD, Campus Universitário, Aveiro Portugal. + 351234400800. sergio@idad.ua.pt.

Portugal has recently approved the layout of the future high-speed rail network. The governmental decision was supported by an environmental report that compared the two alternative layouts that were considered at this stage: a layout that involved the construction of two connections with the Spanish network in the eastern border, the so-called N plan, and another with only one connection, known as the T plan.

Even if Portugal hasn't yet transposed the EU Directive 2001/42 concerning Strategic Environmental Assessment of policies, plans and programs, it was decided that this study should follow the guidelines included in Annex I of the Directive concerning the content and structure of the environmental report.

The study was initiated with the identification of the externalities associated with these plans and the estimate of the external costs and benefits of the transport modal shift caused by the operation of the network. At this stage it was also developed an analysis taking into account the objectives specified through the EEA (European Environment Agency) TERM set of indicators.

On a later stage, attention was focused in the characteristics of the territory that will be crossed by the railway system and in the analysis of the potential impact that the location of the station might induce in the urban development of the cities served by the high-speed train. This analysis was supported by GIS and mapping techniques.

One of the most interesting features of the methodology used in this study was that mitigation measures and monitoring indicators were organized in a strategic map. This strategic map emulates one of the outputs of strategic management through balance scorecard, familiar to top managers.

SEA, high-speed rail

Strategic Environmental Assessment (SEA) of the Industrial Area of Ottana (Sardinia - Italy) Using the Concepts of Carrying Capacity, Sustainability, Cumulative Effects Assessment

Bettini, Virginio; IUAV - University of Venice, Dipartimento di Urbanistica IUAV, Santa Croce 1957, Venice, Venice 30135 Italy. + 390412572224. bettini@iuav.it.

Rosnati, Chiara; University of Sassari Dipartimento di Botanica e Ecologia Vegetale, Località Sa Terra MalaNuoro, Nuoro 08100 Italy. + 39079975085. Fax + 39079975085. chiara.rosnati@tiscali.it.

Cabula, Emanuela; University of Sassari Dipartimento di Botanica e Ecologia Vegetale, Località Sa Terra MalaNuoro, Nuoro 08100 Italy. +390784214948. e.cabula@tiscali.it.

De Riso, Stefania; University of Sassari Dipartimento di Botanica e Ecologia Vegetale, Località Sa Terra Mala, Nuoro, Nuoro 08100 Italy. +390784214948. deriso@tiscali.it.

Mastio, Antonio; University of sassari Dipartimento di Botanica e Ecologia Vegetale, Località Sa Terra MalaNuoro, Nuoro 08100 Italy. +390784214948. mastioantonio@inwind.it.

Vacca, Sergio; University of sassari Dipartimento di Botanica e Ecologia Vegetale, Località Sa Terra MalaNuoro, Nuoro 08100 Italy. +390784214948. sergiovacca@tiscali.it.

Forense, Manuela; University of Sassari Dipartimento di Botanica e Ecologia Vegetale, Località Sa Terra Mala Nuoro, 08100 Italy. +390784214948. ma.fore@tiscali.it

Loi, Annalisa; University of Sassari Dipartimento di Botanica e Ecologia Vegetale, Località Sa Terra Mala Nuoro, 08100 Italy. +390784214948.

The subject of this study is an industrial area located in a flood plain near the small town of Ottana (Nuoro, Sardinia, Italy).

The transformation of this flood plain from pastural land into an industrial estate began around 1970 for the political purpose of promoting economic development and controling banditry.

The rapid decline of the industrialization plan has caused serious social and environmental effects. Consequently, it's essential to carry out an environmental recovery plan and develop innovative approches to strategic territorial planning.

This study proposes a strategic environmental assessment (SEA) based on the historical analysis and the environmental characterization of the interested area.

The analysis focuses on the cumulative effects assessment, a basic tool for territorial planning consistent with the carrying capacity of the involved area. To this end, the baseline conditions have been defined and compared with the current environmental conditions. The valued environmental components (VECs), affected by the past, present and reasonably foreseeable future actions (RFFAs), have been identified, using the appropriate spatial and temporal scales.

Also, a public health and ecological risk assessment for exposure to chemical substances used in the productive cycles has been tackled.

Sample data has been stored in a geographic information system (GIS) and compared with the data derived from the historic analysis.

This georeferenced data base represents a very useful tool for the monitoring of environmental status to help evaluate the threat of contaminants to human health and the environment. GIS is particularly useful for identifying human exposure pathways.

A public participation process based on focus groups methodology supports the study.

Strategic environmental assessment, cumulative effects assessment, carrying capacity

Application of SEA in the Process of New Capital Relocation in Korea

Jung, Jong-Gwan; Chungnam Development Institute(CDI), 138-42 Sangdae-dong,Yuseong-gu, Daejeon 305-313 Korea, Republic of. 82-42-820-1181. Fax 82-42-820-1199. asset@cdi.re.kr. www.cdi.re.kr.

Yi, Sang-Jin; Chungnam Development Institute(CDI), 138-42 Sangdae-dong,Yuseong-gu, Daejeon 139-701 Korea, Republic of. 82-42-820-1180. Fax 82-42-820-1199. lsjin@cdi.re.kr. www.cdi.re.kr.

Han, Sang-Wook; Graduate School of Environmental Studies, 447-1 Wolgye-dong, Nowon-guSeoul, 139-701 Korea, Republic of. 82-2-940-5086. Fax 82-2-918-5683. swhan39@hanmail.net. www.kwangwoon.ac.kr.

The capital relocation project, one of President Roh's key presidential campaign promises, was ruled unconstitutional by the Constitutional Court in October, 2004. This aspiring capital relocation was to be the centerpiece of national goal of redistributing Seoul Metropolitan Area's economic and population to lesser developed areas of the country. Under the plan, approximately 500,000 people were expected to move, creating a huge boost for housing construction and related goods, so this may be contribute the national policy of well balanced development. But since the court's decision, the ruling party and government has come under mounting pressure

from residents of the aborted capital candidate area which is within the boudary of Chungnam Province to salvage the original plan. By responding this request, government scrambled to find alternatives to the frustrated capital relocation project to defuse the public discontent.

The New Administrative Capital Counterplan Committee has finalized some alternatives proposed for its failed plan to relocate the capital. By comparing these, some options to fulfill the national policy to disperse the overpopulated Seoul Metropolitan Area, and activate local areas and finally achieve the goal of strengthening the national competitiveness. To draw out the optimal alternative from the proposed options, application of SEA methods including the tiering and examination of alternatives has been studied.

SEA, new capital relocation, options, site selection

The Successful Policy-Level or Strategic Impact Assessment: Transparency Through Triumph over Agency Predetermination

Alton, Charles; Global Environmental Solutions, 11066 NW Valley Vista Road, Hillsboro, Oregon 97124 USA. 503-351-2142. charles.alton@comcast.net.

Underwood, P. Benjamin; Global Environmental Solutions, Johns Island, South Carolina USA. 843-870-8008. globalenviron@aol.com.

Question: Can a policy-level or strategic impact statement provide technical experts and the general public with a seat in the Executive Boardroom for broad-based policy planning and day-to-day business decisions?

Background: Too often, impact assessments worldwide have been reduced to instruments validating a fait accompli. As a consequence, environmental practitioners and agency experts often feel pressured to justify a preordained outcome than to actually plumb the depths of alternative actions. Similarly, the general public feels that their ability to influence boardroom decision making is futile so they focus their efforts instead on influencing decisions via the courtroom causing expensive delays in implementation.

To alleviate this frustration both inside and outside government agencies, we have designed a methodology that presents technical and insightful information at a time when it is ripe for consideration by all parties. Our methodology condenses the typical thousands of pages of highly technical data (including the common computer modeling of nearly every conceivable impact) into a concentrated assessment designed simultaneously for immediate use and long-term application by decision makers and the interested public alike. Additionally, less technical issues (e.g., political, social, cultural and basic health) that have been poorly or inconsistently considered in assessments worldwide are more easily incorporated into overall planning.

Information that is untimely, unsupported, obscure or disjointed devalues environmental assessments. Our goal has been to create a document that is: 1) timely; 2) scientifically sound; 3) feasible (politically and institutionally); and 4) legally defensible. Our paper will illustrate our methodology and principles with actual examples from two completed impact assessments covering policy in the areas of the electric utility industry and regional fisheries mitigation and recovery undertaken by the U.S. Department of Energy, and successfully implemented in policy level and project specific actions.

Policy-level, strategic impact statement, policy planning, business decisions

CS49. IMPACT ASSESSMENT OF OIL AND GAS PIPELINES

Russia's Sakhalin 11: Subsea Impact Assessment

Ellsworth, Steve; ENSR International, 1835 S. Bragaw St., Suite 490, nchorage, AK 99508 USA. (907) 561-5700. Fax (907) 273-4500. sellsworth@ensr.com. www.ensr.com.

Gardella, Mark; ENSR International, 11 Phelps Way (P.O. Box 506), Willington, CT 32308-1549 USA. (860) 429-5323 ext 227. Fax (860) 429-5378. mgardella@ensr.com. www.ensr.com.

Schmidt, Jon; ENSR International, 1300 Metropolitan Blvd., Suite 120, Tallahassee, FL 32308-1549 USA. (850) 385-5006. Fax (850) 385-5065. jschmidt@ensr.com. www.ensr.com.

Jaques, Robert; RSK ENSR, 172 Chester Road, Helsby, Chester, England WA6 OAR UK. + 44 1928 726006. Fax + 44 1928 725633. rjaques@rskensr.com.

Tsui, Phillip T. P.; ExxonMobil Production Company, 800 Bell St., Suite 4287, Houston, TX 77002-7426 USA. (713) 656-7960. Fax (713) 656-6594. phil.tp.tsui@exxonmobil.com.

ExxonMobil and Japan Sakhalin Pipeline Co. have been contemplating the construction of a subsea natural gas pipeline between Sakhalin Island and Japan. The pipeline route would traverse potentially significant Japanese fishing grounds. Past construction of other pipelines in Japanese waters had reportedly impacted commercial fishing. Primary fishermen complaints associated with past projects concerned seafloor disturbances from anchoring by pipeline construction barges and pipeline trenching. Resulting changes in seafloor relief and texture adversely affected fishing with bottom-tending gear, especially trawling and seining. In order to obtain information for project design and use in a public participation process with Japanese fishermen and other stakeholders, we prepared a white paper that assessed the potential and known impacts of subsea pipeline construction and operation on commercial fisheries in general and potential impacts to Japanese commercial fisheries from the contemplated pipeline specifically.

Worldwide literature on the effects of marine pipeline construction, including those from sediment resuspension, seafloor relief and textural changes, hydrostatic test water discharges, construction debris, restriction of fishing near pipeline construction, construction vessel discharges, and noise and light generated by pipeline construction, on commercial fisheries was evaluated. Effects of constructed pipelines, including pipelines as barriers to marine species, effects on seafloor currents and demersal spawners, loss of access to fishing, hooking of gear and other gear-pipeline interactions, potential leaching from pipeline coatings, and the effects of noise generated by gas flow and compression were similarly assessed from the literature. The most-documented fisheries effects are gear-pipeline interactions and the effects of anchors and trench mounds on fishing gear. Prevalence and magnitude of these effects are related to pipeline diameter and placement, and seafloor sediment type. Information on Japanese commercial fisheries and sediments along the route and preliminary engineering and routing were used to assess the potential impacts of the project.

Pipeline, impacts, fishing, Japan, anchoring, trenching, trawling, seining

Taking Commitments into Construction

Swan, Jan; RSK ENSR, 16 Frogmore RoadHemel Hempstead, Hertfordshire HP3 9RW UK. 01442 437544. Fax 01442 437550. jswan@rskensr.com.

Middleton, Phil; BP, Hyatt Tower III, 1033 Izmir Street, 370065 Baku, Baku Azerbaijan. +994 12 979160. middp4@bp.com.

The commitments given in an EIA or ESIA are worthless unless they are implemented. Conversely their value can be enhanced if their efficacy is monitored and the information gained is made available to future projects.

With reference to the Baku-Tbilisi-Ceyhan (BTC) oil export pipeline, this paper considers the lessons learnt about the transition from the ESIA phase to environmental management during construction. Specifically it considers factors that differentiate between robust and weak mitigation measures and the need for tightly worded measures that have a common meaning to all stakeholders. Reference is made to mitigation measures that have worked well, and not so well and the authors examine the underlying factors that contributed to the outcome.

The environmental and social management framework applied to the construction of the BTC pipeline is outlined with emphasis on the period from tendering of construction contracts through to construction implementation. There is particular focus on the inspection, monitoring and reporting processes put in place by the pipeline operator to ensure an "early warning" system is in place to enable problems to be identified, highlighted and rectified.

As well as describing the application successes of the management framework, useful insights are provided in terms of lessons learned which are of benefit to future projects.

EIA, ESIA, construction, management, lessons learned

Resettlement Planning and Implementation Programme: Sasol Natural Gas Project, Mozambique

Squires, Geraldine; ACER (Africa) Environmental Management Consultants, 5&6 Golden Penny Centre, Hely Hutchinson Street, Mtunzini, KwaZulu-Natal 3867 South Africa. +27 35 3402715. Fax +27 35 3402232. geraldine.squires@acerafrica.co.za.

Booyens, Sarel; Sasol Mining (Pty) Limited, #3 Uno Building, Paul Kruger Street, Trichardt, Mpumalanga 2300 South Africa. +27 17 6380780. Fax +27 17 6380595. sarel.booyens@sasol.com.

Dambiaue, Samuel; DINAGECA, c/o Sarel Booyens, #3 Uno Building, Paul Kruger Street, Trichardt, Mpumalanga 2300 South Africa. c/o + 27 17 6380780. Fax sarel.booyens@sasol.com.

The Sasol Natural Gas Project (NGP) comprises major infrastructural development in South Africa (SA) and Mozambique: exploration and development of natural gas fields and construction of a central processing facility (Mozambique), construction of a 865 km gas pipeline (Mozambique-SA), and factory conversions in SA. Considering Mozambique only, major infrastructural development within remote parts of the country; a linear pipeline development that covered 520km (Mozambique), spanning three provinces, plus 950km of seismic exploration cut-lines, required careful, sensitive and iterative conceptualisation and planning to minimise social impacts, the most significant being resettlement. In the final analysis, 25 graves, 2,364 subsistence farm plots and 21 houses were impacted. These are considered relatively low impacts for a development intervention of this nature. All resettlement conceptualisation, planning and implementation were undertaken within the policies, guidelines and standards of the World Bank Group, applied within the Mozambican context, and are illustrative of best practice in resettlement conceptualisation, planning, implementation, compliance monitoring and auditing, so much so, that most resettlement aspects applied during the Sasol NGP are being developed and applied as resettlement guidelines within Mozambique. This paper explores those aspects of resettlement for the Sasol NGP that can contribute to best practice in resettlement worldwide. Examples include extreme sensitivity to potential resettlement impacts enabling an integrated, interactive and iterative planning process that strived for impact avoidance and minimisation of social impacts as far as practically possible; the management of social change in a sensitive, holistic and systematic manner, that respected peoples' cultures and values, whilst optimising their participation and potential benefits; close collaboration between the proponent and the Government of Mozambique, in the spirit of co-operative governance, to achieve the best possible results for the people of Mozambique; and the development of an overarching resettlement framework to guide future resettlement in Mozambique.

Resettlement, Mozambique, natural gas, best practice, Sasol, World Bank

Improving ESIA Quality Through Early Engagement of Stakeholders

Schmidt, Jon; ENSR International, 1300 Metropolitan Blvd, Suite 120, Tallahassee, FL 32312 USA. 850-385-5006. jschmidt@ensr.com.

In pursuing market opportunities in many worldwide locations, the private sector usually has to respond relatively quickly—often a 2 to 3-year window—to build a project to meet that market need. ENSR helps developers to manage the regulatory and stakeholder issues to enhance the quality of the impact assessment document, while streamlining their approval schedule. Our case project is the Gulfstream Natural Gas System project in Alabama, Mississippi, Florida, and the Gulf of Mexico. This project comprises a 754-mile large-diameter natual gas pipeline from processed supplies in Mississippi and Alabama, across the Gulf of Mexico, and into Tampa Bay, which services the growing electric-generating marketplace in central Florida. Gulfstream had to be in-service within three years to entice the existing utility marketplace that they had a viable option to the existing pipeline infrastructure.

ENSR worked early on with Gulfstream to lay out a three-pronged strategy to ensure regulatory approvals to start construction could be obtained in 2 years and be in-service in less than 3 years. First, a pre-application Team Permitting process was initiated with the federal, state, and local regulators to review and address issues prior to filing permit applications. Second, a proactive public outreach program addressed citizen concerns prior to filing permit applications. Third was active NGO engagement to develop a Net Ecosystem Benefit for the project above and beyond any required mitigation for impacts. The successful strategy resulted in obtaining State of Florida permits in one year, FERC licensing in 16 months (with an EIS in 14 months), a construction start-up 2 months early in April 2001, and an in-service date earlier than expected.

Stakeholders, engagement, quality, ESIA

CS50. HIA: HIA AND ETHICS

Analyzing Public Policy Processes: The Road Map for HIA Struggling in Thai Policy Arenas

Nuntaworakarn, Suphakij; HPP-HIA Program, Health System Research Institute, 5th Flr., AI Nont Bldg., 70/7 Tiwanon Rd., Nonthaburi, Nonthaburi 11000 Thailand. 66-2-951-0169. Fax 66-2-591-5867. suphakijn@yahoo.com.

Sukkumnoed, Decharut; HPP-HIA Program, Health System Research Institute, 5th Flr., AI Nont Bldg., 70/7 Tiwanon Rd., Nonthaburi, Nonthaburi Thailand. 66-2-951-0169. Fax 66-2-591-5867. tonklagroup@yahoo.com.

Applying HIA to promote healthy public policy is less effective without clear understanding of public policy processes. However, in the real world, public policy processes are multi-facets and less predictable. Therefore, strengthening capacity of Thai HIA researchers in understanding and analyzing public policy processes is crucial for HIA and HPP development in Thailand.

In general, there are three major views on public policy processes. First, several governmental agencies and HIA researchers still hold their perspective on linear and rational model. Although analyzing these formal processes helps HIA researchers in finding their entry points, the first view often fails to explain the real situations, when the outcomes of the policy decisions usually come before problem and policy analysis.

Second, more HIA researchers and policy analysts, therefore, view public policy processes as policy negotiation and learning processes. In the short run, public policy processes depends much on using political opportunities and policy windows. In the longer term, public policy processes are basically based on learning and negotiation between different policy advocacy coalitions within each policy sector.

Beyond the negotiation processes, the third view sees public policy processes as a discursive process, which is determined by different cognitive frameworks, interpretations, and communication processes. Therefore, just like other policy players, HIA researchers do not only communicate their facts. They communicate their values and interpretations with others as well. Along this view, HIA researchers should understand and prepare for constructive interactions between several ideas and policy interpretations.

With all these view, in each study, HIA researchers needs to analyze (a) formal policy processes to find entry points to formal policy-making process, (b) policy windows for actual policy negotiation, (c) advocacy coalitions to facilitate policy-oriented learning process and (d) their key messages and others' policy interpretations for effective communication and deliberative decision-making.

HIA, public policy analysis, Thailand

Strengthening the Equity Focus in Health Impact Assessment: An Australasian Approach

Simpson, Sarah; CHETRE, University of NSW, SPHCM/CHETRE, University of New South Wales, Sydney, NSW 1871 Australia. +61 2 9385 0420. sarah.simpson@unsw.edu.au.

Harris-Roxas, Ben; Centre for Health Equity Training, Research & Evaluation (CHETRE), University of NSW, SPHCM/CHETRE, University of New South Wales, Sydney, NSW 2052 Australia. +61 2 9385 0134. Fax +61 2 9385 0140. b.harris-roxas@unsw.edu.au.

Harris, Liz; CHETRE, University of NSW, CHETRE, Liverpool Hospital, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. e.harris@unsw.edu.au.

Mahoney, Mary; Deakin University, 221 Burwood Highway, Burwood, Victoria 3125 Australia. +61 3 9251 7268. marym@deakin.edu.au.

Aldrich, Rosemary; University of Newcastle, c/ NIPH, Level 2, David Maddison Building, Cnr King & Watt Streets, Nwecastle, NSW 2300 Australia. +61 (0) 409 712 587. rosemary.aldrich@newcastle.edu.au.

Stewart Williams, Jenny; University of Newcastle, Level 2 David Maddison Building, Cnr King & Watt Streets, Newcastle, NSW 2300 Australia. +61 2 4923 6314. jenny.stewartwilliams@newcastle.edu.au.

As part of the growing use of health impact assessment (HIA) as a tool for improved policy development, equity is commonly accepted as a core value or principle of HIA. However our experience of HIA in the Australian context together with a review of the published literature and practice of HIA in other contexts indicates that addressing equity in HIA is more aspiration than reality. For example, while differences in health impacts among groups are often identified in impact assessment, the further dimensions of avoidability and fairness ('equity') are rarely examined and there is a lack of structured guidance to assist practitioners in ensuring equity in their HIA.

A strategic framework for equity focused HIA (EFHIA) was developed with the intent of strengthening the ways in which equity is addressed in each step of HIA and we:

1) Developed a draft framework for equity focused HIA that mirrored, but modified, the commonly accepted steps of HIA (e.g., screening, scoping etc);

2) Developed an instruction manual outlining the draft framework and tested it in six case study sites in different health service delivery settings across Australia and New Zealand;

3) Undertook a systematic review of the literature to identify other models for incorporating equity considerations into HIA, and to determine the extent to which equity considerations were incorporated in reported HIAs;

4) Held a two-day international capacity building meeting to showcase the EFHIA framework and a one-day training program on applying the framework; and

5) Analysed feedback about application of the draft EFHIA framework and modified the framework accordingly.

This paper will outline the case for developing the EFHIA framework and present an overview of the framework, including the 'equity dimensions' of each step within HIA.

In Search of an Ethical Model to Enhance Aboriginal Health in Canada

Rattle, Robert; Human Dimensions of Global Change/Sustainable Consumption, 583 Tweedsmuir Ave, #4, Ottawa, Ontario K1Z 5P4 Canada. 613-729-5818. at758@ncf.ca.

McClymont Peace, Diane; Health Canada, 2720 Riverside Dr., Ottawa, Ontario K1A 0K9 Canada. 613-952-9477. Fax 613-941-8921. diane_mcclymont-peace@hc-sc.gc.ca.

Kwiatkowski, Roy ; Health Canada, Jeanne Mance Bldg, Tunney's Pasture, Ottawa, Ontario K1A 0K9 Canada. 613-952-2828. Fax 613-954-0692. roy_kwiatkowski@hc-sc.gc.ca.

Davis, Jeff; Health Canada, 2720 Riverside Dr., Ottawa, Ontario K1A0K9 Canada. 613-948-8297. Fax 613-941-8921. jeff_davis@hc-sc.gc.ca.

A Holistic Exploration Applying a Determinants of Health Framework

Aboriginal peoples express a deep understanding of health, quality of life and well-being, recognized by the implicit wisdom that health is dependent on many different factors and their interactions. The determinants of health model also recognize these relationships and synergism. Conventional development models often focus on the biophysical aspects of health and a high and increasing standard of living to improve health outcomes. These models emphasize employment and economic growth, and wealth and material conditions characteristic of the consumer culture. While this latter model has largely been embraced by Aboriginal peoples, special agreements and arrangements exhibit the caution with which these models are embraced. In so doing, traditional knowledge and understandings about health and well-being are recorded, studied and applied to enhance Aboriginal well-being under conventional development models. Paradoxically, as this process proceeds, fundamental features inherent to Aboriginal well-being have been transformed, replacing the context of, and foundations for Aboriginal well-being with that inherent in conventional development models. Can such models of development effectively enhance Aboriginal health? If so, under what conditions? If not, what changes are needed to ensure Aboriginal well-being is improved? What, ultimately, will be the impact on sustainable development? How might HIA contribute to a better understanding of these processes and their effects?

Health impact assessment, determinants of health, Aboriginal health, traditional knowledge

Developing a Code of Ethics for Health Impact Assessment: A Working Proposal

Kessomboon, Nusaraporn; Faculty of Pharmaceutical Sciences, KhonKaen University, 123 Mitraparb Road, Muang District, KhonKaen 40002 Thailand. + 66-43-202-378. Fax + 66-43-202-379. nustat@kku.ac.th.

Kessomboon, Pattapong; Department of Community Medicine,Faculty of Medicine, KhonKaen University, 123 Mitraparb Road, Muang District, KhonKaen Thailand. + 66-43-348-391. Fax + 66-43-202-488. pattapng@kku.ac.th.

Health impact assessment (HIA) is conducted to ensure that health consequences and effects of public policy decisions are not forgotten. However, ethical considerations of conducting HIA should also not be ignored if a transparent social environment is aimed at.

Objective: To propose efficient steps for the development of the code of ethics of HIA.

Method: A systematic review to summarize the tasks and processes in developing a code of ethics was performed.

Proposed steps: Although there are codes of ethics in related disciplines which could be adapted to HIA, it seems advisable that the development of HIA code of ethics should be started by considering its own position. Because the ultimate aim of HIA is not only research activities but also a part of processes towards healthy public policy (HPP) movement.

Forum among HIA participants should be performed to serve as an initial process. Debates on real life experiences, lessons learned from existing relevant HIA documents and the existing codes of ethics of related disciplines should be promoted. Key ethical issues pertaining to HIA should be concerned with awareness of and sensitivity to various stages of HIA for HPP including "social priorities", "public participation", "adequate treatment of sensible data" and "conflict management experiences".

Core functions, competencies and skills for HIA should be identified. The final results of the debates will be a draft proposal. The code will then be critiqued at international expert forum. In a later stage, a revised proposal will be presented for public consensus building processes before the official adoption.

Conclusions: Processes for the development of a code of ethics for HIA is proposed. The code is needed to indicate the goals, norms and to provide directions for multidisciplinary practices of HIA. The code of ethics should also provide core values to develop ethically competent HIA practitioners.

Code, ethics, health impact assessment

Environmental Impact Assessment as a Tool for Promoting Public Health in Resource Poor Communities: The Niger Delta Experience

Abah, Stephen; Ambrose Alli University Ekpoma, College of Medicine, Department of Community Medicine and Primary Health Care, Ekpoma, Edo State Nigeria. 234-08023052555. drsteveabah@yahoo.co.uk.

Amah, John; Ambah Projects International, Flat 1, Plot 104D Airport Road, Warri, Delta State Nigeria. 234-8023052556. ambahprojects@yahoo.com.

The Environmental Impact Assessment (EIA) is the tool that is used by most governments as a mechanism to fully integrate environmental considerations into development thereby achieving sustainable development and safeguarding health. In recognition of the importance and centrality of health to sustainable development, most EIAs round the world encourage the consideration of human health impacts alongside the biophysical and socio-economic impacts. Using practical experiences from environmental assessment of oil and Gas development projects in the Niger Delta area of Nigeria, the author examines the role of health assessment within an EIA to promote and protect the health of vulnerable communities. The paper highlights the problems associated with the health assessment component of environmental assessments and offers suggestions on ways to ensure that health impact assessments are adequately reported in all EIAs.

Environmental Impact Assessment, health promotion, poor communities

CS51. ENVIRONMENTAL ASSESSMENT LAW, POLICIES AND PRACTICE

Recent Trends in NEPA Cumulative Impact Assessment Case Law

Smith, Michael; Humboldt State University, Dept. of Environmental and Natural Resource Sciences, 1 Harpst St., Arcata, CA 95521-8299 USA. 707-826-4291. Fax 707-826-4145. michael.smith@humboldt.edu.

The assessment of cumulative impacts is one of the most difficult tasks a NEPA practitioner faces when preparing an EA or EIS, and it has recently become an increasing focus area of legal challenges. Federal agencies have a very poor track record in this litigation, losing a large percentage of the cases. This presentation will focus on practical steps NEPA practitioners can take to prepare their cumulative impact analyses in a manner that fulfills the requirements of the NEPA Statute and Council on Environmental Quality (CEQ) Regulations and makes them less vulnerable to an unfavorable court decision if legally challenged. A review of recent cases will focus on the pitfalls common to cases where cumulative impact analyses were ruled inadequate, as well as strategies used in cases where the analysis was upheld as adequate.

Cumulative impacts, NEPA, litigation

Pitfalls of the Finnish EIA Legislation

Polonen, Ismo Juhana; University of Joensuu, Saarelantie 4, Hammaslahti, North Carelia 82200 Finland. + 358 40 594 6024. ismo.polonen@joensuu.fi.

Environmental impact assessment is currently one of the fastest-expanding areas of environmental and planning law and one of the cornerstones of the European Community law on the protection of the environment. EIA legislation

has proven unclear in many ways, as witnessed by the numerous infringement proceedings by the European Commission and by the voluminous case law in the European Court of Justice and in the national courts.

In consequence, the essential task of the research (doctoral thesis) is to interpret and systematize the EIA legislation (legal dogmatic approach). In addition, a central aim of the study is to identify how the results of the assessment filter into decision-making and what are the obstacles concerning the effectiveness of the instrument from the legal point of view. The task of the study is to define the structural problems of the EIA legislation and address the problems of the EIA with judicial measures (de lege ferenda approach).

In addition, the methodology of the research consists of function analysis. This approach provides information about the components and rationales of the EIA legislation that may not be visible in the legislation and in case law. Function analysis helps to improve our understanding of the mechanisms behind the impacts of the instrument.

In this paper I introduce the research on the effectiveness of EIA and analyse the problems of the Finnish EIA legislation. The main focus is on the provisions concerning the quality assurance of the Environmental Impact Statement (EIS). In addition the focus is on the mechanisms and processes through which the results of environmental impact assessment filter into decision-making.

EIA legislation, effectiveness

The Concept of Environmental Streamlining and Water Resources Permitting

Draper, Harold; Tennessee Valley Authority, 400 West Summit Hill DriveKnoxville, Tennessee 37918 USA. 8656326889. Fax 8656326855. hmdraper@tva.gov. www.tva.gov/environment/.

The National Environmental Policy Act of 1969 contained language that encouraged cooperation with state and local government and improvement of the coordination of federal plans, functions, programs, and resources. The regulations implementing NEPA established the cooperating agency concept, under which agencies with jurisdiction by law or special expertise could work with lead agencies on joint environmental reviews. However, during the implementation of NEPA, it has become increasingly apparent that agencies are not cooperating as much as they could, and in some cases this is costing extra time and money for taxpayers and ratepayers. Increasing frustration with the highway development process led Congress to mandate a "coordinated environmental review process" in the Transportation Equity Act for the 21st Century. This has come to be known as 'environmental streamlining.' Issues and techniques that lead to greater efficiency in environmental impact assessment, while enhancing and protecting the natural and human environment, are reviewed, with emphasis on the experience in the southeastern United States. Techniques such as context sensitive design, concurrence processes, and early identification of concepts are being used. However, there are still barriers to streamlining because the build-no build decision takes place at a different time from permit decisions, and the information needs are often more specific or different at the permitting stage.

Environmental streamlining

The Swedish System for Impact Assessment in the Nuclear Field

Israelsson, Tomas; SKI - Swedish Nuclear Power Inspectorate, Klarabergsviadukten 90, SE - 106 58, Stockholm, Sweden SE-106 58 SWEDEN. + 46 8 698 84 13. Fax + 46 8 661 90 86. tomas.israelsson@ski.se.

Persson, Ingvar; SKI - Swedish Nuclear Power Inspectorate, Klarabergsviadukten 90 Stockholm, Sweden. + 46 8 698 84 15. Fax + 46 8 661 90 86. ingvar.persson@ski.se.

Under Swedish legislation, operators of nuclear installations are required to obtain permits pursuant to both the 1984 Act on Nuclear Activities and the 1998 Environmental Code. Since the entry into force of the Environmental Code in January 1999, it is thus no longer sufficient to obtain a permit under the nuclear legislation alone. The transitional provisions of the Environmental Code provide that an operator which was already operating an installation when the new rules entered into force has until December 2005 to submit its application for a permit to the Environmental Court.

In assessing an application, the Environmental Court shall examine a broad range of questions. Along with the safety requirements laid down in the Nuclear Activities Act, the applicant shall also show that the installation it operates complies with the common rules of consideration laid down in Chapter 2 of the Environmental Code. Furthermore, the Court shall consider and evaluate an Environmental Impact Assessment (EIA) that the applicant shall enclose the application.

An EIA is also required when the Swedish Government or the regulatory authority in the nuclear field – the Swedish Nuclear Power Inspectorate – are trying different applications for permissions according to the Act on Nuclear Activities. This dual – or "twin-headed" – system raises a lot of interesting questions. For instance, it is relevant to reason upon if and how it is possible that the independence and integrity in the different authorities are effected negatively.

In this paper the authors discuss the legal framework concerning EIA in the Nuclear Field of Sweden. Also, the paper covers and summarize the handling of two actual cases – one from 2004 and one from 2005.

EIA, impct assessment, nuclear, law, Sweden, environmental court

CS52. CROSS-NATIONAL TRANSFER OF POLICY ANALYSIS AND IMPACT ASSESSMENT (PHILOSOPHY, METHODS AND PRACTICE)

Insights on Institutional Arrangements for the Management of the Transboundary Incomati River in Southern Africa

Hilders, Marianne; DHV Water BV, Laan 1914 nr. 35, 3818 EX, Amersfoort, Holland Netherlands. +31-33-4682302. marianne.hilders@dhv.nl.

Slinger, Jill; Delft University of Technology, Jaffalaan 5, 2628 BX, Delft, Zuid Holland Netherlands. +31-15-2788067. j.h.slinger@tbm.tudelft.nl.

The Incomati River is shared by the countries Mozambique, South Africa and Swaziland. In August 2002, the groundbreaking Tripartite Interim Agreement on water sharing of the Maputo and Incomati Rivers, the IncoMaputo agreement, was signed. Following reports that the use, availability and adequacy of information posed problems for future decision making on this transboundary river, the Delft University of Technology initiated a six-month study in 2003 in which 25 southern African researchers and officials were interviewed. The Joint Incomati Basin Study (Phase I from 1992 - 1995; Phase II from 2000 – 2001) formed a central component in the investigation, because it was viewed by the parties involved as a successful learning experience that paved the way for the IncoMaputo agreement. Knowledge of the role that information played in this process and how decision-making occurred was collated and analysed. Network theory provided the guiding theoretical framework in interpreting the results. A number of problems related to information use in decision-making were identified. More importantly, however, a web of underlying causes was identified, such as the cultural and language differences, differences in perception, lack of stakeholder involvement, vagaries of political commitment, lack of capacity, absence of operational experience, the weak mandate of the international decision making body and the paradoxical South African, Mozambican relationship. Two groups of factors in this web were identified as needing to change if the management of this transboundary river is to comply with the IncoMaputo agreement. Clearly, the perceptions that each country holds of the others need to change and there needs to be a change in the institutional structure at the international level. Our analysis shows that, contrary to current international practice, when designing such an international institutional structure the socio-political interface is as important as information flow to the water managers.

International rivers, network analysis, institutional transplantation, decision-making

Developing and Implementing Strategic Environmental Assessment in the Atikamekw First Nation Context: Methodological Lessons From a Pilot Project

Waaub, Jean-Philippe; GEIGER, Geography department, UQAM, CP 8888 succ. Centre-VilleMontréal, Québec H3C 3P8 Canada. 1-514-987 3000 8908#. Fax 1-514-987 6784. waaub.jp@uqam.ca.

Houde, Nicolas; CONSEIL DE LA NATION ATIKAMEKW, 290, St-JosephLa Tuque, Québec H3C 3P8 Canada. 1-514-736 8464. nic_houde@yahoo.fr.

Peerazizi, Aryamann; GEIGER, Geography department, UQAM, CP 8888 succ. Centre-VilleMontréal, Québec H3C 3P8 Canada. 1-514-987 3000 4923#. Fax 1-514-987 6784. aryamannpeerazizi@hotmail.com.

Schaillée, Nathalie; GEIGER, Geography department, UQAM, CP 8888 succ. Centre-Ville, Montréal, Québec H3C 3P8 Canada. 1-514-987 3000 4923#. Fax 1-514-987 6784. schaillee.nathalie@uqam.ca.

Shardonofsky, Silvia; GEIGER, Geography department, UQAM, CP 8888 succ. Centre-VilleMontréal, Québec H3C 3P8 Canada. 1-514-987 3000 4923#. Fax 1-514-987 6784. shardonofsky.silvia@courrier.uqam.ca.

Côté, Gilles; GEIGER, Geography department, UQAM, CP 8888 succ. Centre-VilleMontréal, Québec H3C 3P8 Canada. 1-514-987 3000 4923#. Fax 1-514-987 6784. Gilles_Cote@uqac.ca.

Niquay, Thérèse; Petitquay, Micheline; CONSEIL DE LA NATION ATIKAMEKW, ATIKAMEKW SIPI, 290, St-Joseph, La Tuque G9X 3P6. tniquay@cnalatuque.com, mpetitquay@cnalatuque.com.

In a rapidly evolving land use planning context First Nations have to develop their own planning capacity both to face external pressures on their territory (reactive phase) and to implement their own territorial vision according their values and way of life (proactive phase). The Atikamekw Nation Council expresses great concerns for insuring environmentally sound practices in forestry and more broadly in land use planning and co-management. At the strategic level, the Council mandated GEIGER research team firstly to develop SEA process and methodology proposals adapted to the Atikamekw society and secondly to test them through their implementation as a pilot project. The project benefited from deep mutual involvement, firstly through the collaborative co-designing of the working approach. The project was unfolding through the interaction of three organisational levels: a "project management team", a "working team" and a "discussion table". The project was thus conducted as a collaborative process grounded to the nation members of the three constitutive communities (Manawan, Opitciwan, Wemotaci), whose representatives were involved at all organisational levels and in all of the project's phases. It was also based on an ongoing learning by doing capacity building approach. Even though special attention was given to the integration of the Atikamekw needs and expectations into the process, various challenges were encountered at the early stages of the project and after, and tentatively dealt with. These challenges concerned, amongst others, the difference in First Nation and Western knowledge and institutional systems as well as different mental conceptions of the environment. Furthermore, there was a special need for integrating traditional ecological knowledge and scientific data. A SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) is presented here as a basis to drawback the lessons of this pilot project and give recommendations for the future.

SEA, Atikamekw, First Nations, planning, co-management

ILO-Instigated Integrated Rural Accessibility Planning (Irap) Implemented in Cambodia

Ramaekers, Caroline; Parklaan 6Tervuren, Brussel 3080 Belgium. + 31-6-16466447. carolineramaekers@gmail.com.

de Jong, Martin; Delft University of Technology, Jaffalaan 5Den Haag, Zuid-Holland Netherlands. + 31 15 3923341. martinj@tbm.tudelft.nl.

In 1999, the ILO started to apply Integrated Rural Accessibility Planning (IRAP) to Cambodia. IRAP is a planning tool for rural development of which the Ministry of Rural Development in Cambodia has the ownership and to which the ILO provides technical assistance. Because of three decades of conflict, roads are in poor condition or non-existent in Cambodia. The main objective of the IRAP process is to help develop plans that will improve access to goods and services for the rural poor.

The origins of the IRAP-tool stem from research done by the ILO in collaboration with different donors, development agencies and experts in the early '80s. Since then, IRAP has been applied to several countries. Currently, IRAP is institutionalised in Cambodia, being adapted to the Cambodian context. However, IRAP is facing some difficulties in this phase, such as: the troublesome integration of a bottom-up planning tool within a top-down decision-making process; the lack of representativeness of the participation within IRAP; and the lack of harmonization of IRAP with the local planning environment.

The ILO, in collaboration with the TU Delft has conducted a research to investigate where these difficulties stem from and how to overcome these. It became clear that these issues arose as a consequence of the difference between the western concepts that are the basis of IRAP (participation, democratic decision-making processes, gender equity, etc.) and Cambodia's current way of decision-making and institutional structure.

This paper represents a case-study in analyzing causes of and defining solutions for implementation problems of western policies adopted by non-western societies. Special attention is paid to the adaptation of IRAP to its new institutional context and to the support of actors that IRAP receives in Cambodia.

Participation, policy transplants, infrastructure, Cambodia, institutionalisation

CS53. URBAN: EA IN AN URBAN CONTEXT–IMPROVING DECISION MAKING

The Opportunities and Challenges of Environmental Assessment in a Municipal Setting: A Case Study at the City of Calgary

Hill, Maureen; City of Calgary, P.O Box 2100 Station M, Mailcode # 8020, Calgary, AB T2P 2M5 Canada. 403-268-5745. Fax 403-268-1529. Maureen.Hill@calgary.ca.

Van Velzen, Kevan; City of Calgary, P.O Box 2100 Station M, Mailcode # 8020, Calgary, AB T2P 2M5 Canada. 403-268-6448. Fax 403-268-1529. kevan.vanvelzen@calgary.ca.

Sutherland, Lisa; City of Calgary, P.O Box 2100 Station M, Mailcode # 8020, Calgary, AB T2P 2M5 Canada. 403-268-1083. Fax 403-268-1529. Lisa.sutherland@calgary.ca.

The City of Calgary (The City) is exploring the use of Municipal Environmental Assessment (MEA). MEA identifies and evaluates the potential effects of proposed plans, activities and projects on the environment in the local planning stages, when mitigation measures are still cost effective and the project design is not yet complete. MEA strives to reduce adverse effects, integrate environmental protection into the early stages of planning, and help achieve sustainable development and environmental protection objectives.

The City of Calgary's Environmental Policy commits to ensuring environmental considerations are part of all decisions respecting planning for growth, development and operations. The City's ISO registered Environmental Management System provides an organizational framework for systematically achieving and maintaining the objectives of the Environmental Policy. Several tools have been developed to achieve these objectives, including Environmental Site Assessments to identify and manage contaminated sites, and Environmental Construction Operations (ECO) Plans to manage environmental impacts at construction sites. MEA is another tool The City is exploring to incorporate environmental considerations into decision making. If not harmonized with existing processes and fairly applied across The City, MEA can result in costly project delays and inconsistency. Properly designed, an MEA process can provide high quality environmental management of resources at the local level, where the most significant land use decisions are made. This paper discusses the challenges and benefits of adopting EA at the municipal level. It also provides some outstanding questions for municipalities to consider in the design of an MEA process.

Municipal Environmental Assessment, EA, environmental policy

Impact Assessment in Support of Transparency in Decision-Making and Good Governance: The Coega Industrial Development Zone Experience

Struwig, Andries; Department of Economic Affairs, Environment and Tourism, Eastern Cape Provincial Government, Republic of South Africa, Collegiate Building, Corner of Castle Hill Avenue and Belmont Terrace, Central Port Elizabeth, Eastern Cape 6000 Republic of South Africa. 27-41-5085815. Fax 27-41-5851958. struwiga@eetrepc.ecape.gov.za.

The Coega Industrial Development Zone (IDZ) situated 20km east of the Indian Ocean port city of Port Elizabeth in the Eastern Cape Province of the Republic of South Africa is currently the biggest project of its type on the African continent. Establishment of the Coega IDZ came about as a result of the South African government's Growth, Employment and Redistribution strategy and has evolved through a number of stages since its inception in 1996.

Development of the 11 000ha IDZ is a green fields project where infrastructure is purpose-built to meet investors' needs. This infrastructure includes, amongst others, construction of a deep water port in the Coega River mouth that on completion will be the Southern Hemisphere's most modern deep water port.

Due to the nature and scale of the Coega Project it is of extreme importance that high environmental standards are set and complied with. The Coega Development Corporation (CDC) environmental policy states that "The CDC aims to apply world-class environmental management practices to activities within the IDZ". It is imperative for the success of the project that all stakeholders, including the general public, are involved in decision-making processes. It is furthermore important that good governance will be applied to all regulatory and other processes associated with the establishment of the IDZ.

This paper aims to explore the environmental impact assessment process as applied to various activities in the Coega IDZ. In this regard its contribution to transparency in decision-making as well as good governance will be examined and reported on. Furthermore the role and effectiveness of various structures (Coega Environmental Liaison Committee; Coega Environmental Monitoring Committee) put in place as a result of the EIA process will be examined and reported on.

Finally recommendations are made regarding possible improvement of the process.

Transparency; good governance; industrial development; environmental assessment

A New Model of Governance for a Sustainable City? Working Towards Urban Sustainability In Auckland, New Zealand

Heslop, Viv; University of Auckland, 32 Aroha Avenue, Sandringham, Auckland, Auckland 1030 New Zealand. + 64 (21) 848847. Fax + 64 (9) 8467177. viv@vivacity.co.nz.

In 2003 the New Zealand Government released their Programme of Action for Sustainable Development in New Zealand. In this document the Government acknowledged that a sustainable development approach was necessary to help New Zealand find solutions that "provide the best outcomes for the environment, the economy and our increasingly diverse society".

One of the Government's priority areas for action is sustainable cities. Auckland is New Zealand's largest metropolitan area with nearly one third of the population, and hence a priority area for the sustainable development programme of action. The Government also acknowledges that a more integrated approach is required to tackle the issues associated with urban communities – this includes a focus institutional arrangements required to ensure the sustainable development of cities.

The introduction of sustainable development presents the institutions involved with yet another paradigm which they need to incorporate into the way they do things. Research has shown us that traditional institutions are often slow to change and take up new ideas, so a new approach was needed to progress sustainability ideas in Auckland. Another factor which led to the development of new institutional arrangements is that no one institution is responsible for all the aspects which make for sustainable development – so a cross-institution initiative was required which drew participants from a range of key stakeholders in the sustainability area. This includes the social, environmental, economic and cultural aspects of sustainability.

Hence the establishment of the new institution called Sustainable Cities. This paper will explore institutional theory and compare it with the development of the sustainable cities programme in Auckland. This paper will also consider how the sustainable city "institution" is going to determine what impact it is having and how it will measure its success in progressing sustainable development in Auckland.

Governance, institutional theory, sustainable cities, Auckland

CS54. EIA CASE STUDIES OF TRANSPORT

Assuring Good EIA Practice-Experiences with Institutionalising EIA in A Dutch Ministry

Boonman, Petra; Ministry of Transportation, Public Works and Water Management, P.O. Box 5044Delft, - 2600 GA The Netherlands. + 31 - 15 - 2518 563. Fax + 31 - 15 - 2518 555. p.c.m.boonman@dww.rws.minvenw.nl.

Arts, Jos; Ministry of Transportation, Public Works and Water Management, P.O. Box 5044Delft, - 2600 GA The Netherlands. + 31 - 15 - 2518 461. e.j.m.m.arts@dww.rws.minvenw.nl.

Paulussen, Astrid; Ministry of Transportation, Public Works and Water Management, P.O. Box 5044Delft, - 2600 GA The Netherlands. + 31 - 15 - 2518 492. a.m.paulussen@dww.rws.minvenw.nl.

How to assure good implementation of Environmental Impact Assessment (EIA)? Relevant to this are issues such as: capacity building, institutionalising, management of knowledge and a careful system of checks and balances. This paper deals with the experiences of the Dutch Ministry of Transportation, Public Works and Water Management in institutionalising EIA in its organization.

The Ministry had several reasons to create an internal consulting and research centre: the EIA/Transportation Centre (ETC). Why? The Ministry plays various roles in planning and decision-making; it is both competent authority and proponent. As a consequence external parties such as environmental interest groups scrutinize the activities of the Ministry. Moreover, being a governmental organisation, the Ministry has extra responsibilities for sound preparation of new projects. Court also judges strictly on environmental regulations, which the Minister considers as an important political risk. Finally, the Ministry develops many infrastructure projects and therefore it is cost-effective to have an internal unit that supports and enhances EIA practice (not re-inventing the wheel).

How is this institutionalising organised? In the decade that the ETC exists, it has invested in development of knowledge and tools, in knowledge transfer (such as newsletters, guidances, courses, meetings), support of project

managers doing EIA-studies, audits of EISs, and evaluation of the EIA practice and system. In this way the knowledge cycle is closed.

What is achieved? This is difficult substantiate, however, the EIA reviews of the independent EIA Commission indicate an improvement and good quality of EISs by the Ministry.

The paper discusses the added value of an internal knowledge centre for enhancing learning, improving and control of the quality of EIA practice. This paper is an invitation to discuss these findings from Dutch practice and to exchange experiences from other countries.

EIA, institutionalising, knowledge cycle, quality control, governance, capacity building

Assessing and Addressing the Cumulative Environmental Effects of Induced Actions: A Case Study of the Trans Labrador Highway

Bonnell, Steve; Department of Labrador & Aboriginal Affairs, Government of Newfoundland & Labrador, P.O. Box 8700St. John's, Newfoundland & Labrador A1B 4J6 Canada. (709) 729-4959. Fax (709) 729-4900. stevebonnell@gov.nl.ca.

Pottle, Roger; Department of Transportation & Works, Government of Newfoundland & Labrador, P.O. Box 8700St. John's, Newfoundland & Labrador Canada. (709) 729-5379. Fax (709) 729-3418. pottler@gov.nl.ca.

Road developments can result in a range of direct and indirect environmental effects. Improved access to, from and within a previously remote area can provide opportunities for new or accelerated resource development, as well as other land and resource use activities. These induced actions may themselves have environmental implications, and can therefore result in cumulative effects in combination with the proposed project, each other and with other activities in the region. The growth-inducing potential of a proposed road is therefore an important consideration. The inevitable uncertainty associated with induced actions and their effects poses a number of challenges, however. In addition, controlling future developments is typically beyond the ability of a highway proponent under the environmental assessment process, but rather, is a larger regulatory and resource management issue.

The Trans Labrador Highway (Phase III) (TLH3) is a 280 km, all-season highway in south-central Labrador, Canada. The project was subject to environmental assessment under both the provincial and federal processes, and is currently under construction. Using the case study of the TLH3, this paper explores a number of issues and key considerations associated with assessing induced actions and their effects in environmental assessment. It goes on to describe the role of existing and potential resource management processes in the region in managing future development, as well as an innovative, inter-agency process that has been established to identify any additional regulatory and planning measures that may be required to help address highway-induced actions and effects.

Cumulative effects, induced actions, highway

Institutionalization of Environmental Assessment of Road Development in the Congo Basin Forest

Bitondo, Dieudonné; University of Montreal, 520, Côte Sainte-Catherine, local 305, Outremont, Québec H2V 2B8 Canada. 1 514 343 8056. Fax 1 514 343 8008. bitondo@hotmail.com.

André, Pierre; University of Montreal, 520, Côte Sainte-Catherine, local 305, Outremont, Québec Canada. 1 514 343 8051. Fax 1 514 343 8008. pierre.andre@UMontreal.CA.

This paper analyses the institutionalization process of environmental assessment of road development in the Congo basin forest, using the situation in Cameroon as a case study. Evolutional phases were determined based on the national and international context, and on key events related to road development in Cameroon forest: Phase 1 before 1992 corresponding to the building of the national road network with no environmental assessment; phase 2 1992-1996 characterized by the laying down of the basic legal and institutional environmental assessment framework as part of the environmental and forestry policies reforms within the framework of the After-Rio Conference and of the structural adjustment program, and phase 3 After 1996 with the effective implementation of environmental assessment in the forest road development sector as a result of the involvement of donors and pressures from NGOs. Three dimensions of institutionalization were analysed according to these evolutional phases: a normative dimension, an organizational dimension and an actors' dynamic dimension. It was found that the context has enabled the consolidation of elements of the normative and organisational frameworks related to EA, but it also has conditioned their relative performance and induced mixed feelings vis-à-vis the procedure from certain actors with consequences on its social acceptability. Therefore, the EA institutionalization of road development in Cameroon is highly context dependent, and this process should be defined as a permanent exchange of information

and feedbacks between the EA system, and the human and biophysical context of its application. This paper is based on some results from the Ph.D. studies conducted by the first author.

Institutionalization, road development, Congo basin forest, context dependent

Applying the Environmental Sustainable Index to the Roadway Construction Projects in South Korea

Lee, Soojae; Korea Environment Institute, 613-2 Bulgwag-dong, Eunpyeong-Gu, Seoul, Capitol 122-706 Korea. 82-2-380-7679. Fax 82-2-380-7744. sjlee@kei.re.kr.

Choi, Sanggi; Korea Environment Institute, 613-2 Bulgwag-dong, Eunpyeong-Gu, Seoul, Capitol 122-706 Korea. 82-2-380-7719. Fax 82-2-380-7744. skchoi@kei.re.kr.

Lee, Hisun; Korea Environment Institute, 613-2 Bulgwag-dong, Eunpyeong-Gu, Seoul, Capitol 122-706 Korea. 82-2-380-7614. Fax 82-2-380-7744. hslee@kei.re.kr.

Choi, Joongyu; Korea Environment Institute, 613-2 Bulgwag-dong, Eunpyeong-Gu, Seoul, Capitol 122-706 Korea. 82-2-380-7698. Fax 82-2-380-7744. jgchoi@kei.re.kr.

Jung, Heungrak; Korea Environment Institute, 613-2 Bulgwag-dong, Eunpyeong-Gu, Seoul, Capitol 122-706 Korea. 82-2-380-7752. Fax 82-2-380-7744. chlak@kei.re.kr.

Lee, YoungSoo; Korea Environment Institute, 613-2 Bulgwag-dong, Eunpyeong-Gu, Seoul, Capitol 122-706 Korea. 82-2-380-7657. Fax 82-2-380-7744. leeys@kei.re.kr.

Lee, Gwangu; Korea Environment Institute, 613-2 Bulgwag-dong, Eunpyeong-Gu, Seoul, Capitol 122-706 Korea. 82-2-380-7678. Fax 82-2-380-7744. kklee@kei.re.kr.

In general, it is difficult to avoid conflicts that arise from a broad spectrum of opinions expressed by stakeholders who are involved in the environmental impact assessment processes. This situation is often experienced by a review team of the environmental impact statements (EIS) at Korea Environment Institute(KEI), a government-commissioned review body of EIA in Korea. Conflicts that arise from coordinating different opinions, and delay in making a final decision pose serious problems to all the stakeholders. In this regard, KEI has developed some simple environmental sustainable indices(ESI) to apply to roadway construction projects in Korea, in order to minimize environmental conflicts among the stakeholders.

As an example, the restoration of ecological corridors index(RECI) was introduced in order to measure the total length of tunnels, bridges, eco-bridges and multi-purpose passages per kilometer of a roadway. The RECIs of highway, roadway and railway were below 0.200 in 1960s. In 2000s, the RECIs were 0.383(n = 10), 0.235(n = 17), and 0.434(n = 21), respectively. Environmentally speaking, the higher the RECI, the better. But higher RECIs tend to produce other issues such as air-quality degradation near the tunnel, installation of ventilation tower in the forested area, depression and seepage of groundwater, disposal problem of enormous amount of excavated rocks plus economical burden etc. Other ESIs, such as degree of fragmentation index(FI), degree of topographical change index(TCI), degree of potential generation of suspension index (PGSI) etc., have similar dilemma whenever we apply them to the specific projects. So we are seeking the equilibrium point of ESIs for the roadway and railway construction projects considering Korea's present economic and environmental situation. We hope that this new trial will be successful to reduce the environmental conflicts in Korea.

EIA, EIS review, roadway construction, Environmental Sustainable Index

CS55. DECISION CRITERIA, VALUES AND IMPACT ASSESSMENT PART 2

Public Values Protected? A Comparison of Stakeholder Analysis Methods for the Dutch Electricity Industry

van der Lei, Telli; Policy Analysis Section, Faculty of Technology, Policy and Management, Technical University of Delft, Jaffalaan 5, Delft, Zuid-Holland 2628 BX Netherlands. +31152785493. t.e.vanderlei@tbm.tudelft.nl.

Stakeholder analyses play an important role in the assessment phase of an IA. These analyses provide insights into the values and perceptions of the different stakeholders that play a role in the IA process. There are, however, different stakeholder analyses methods available. This paper argues that the use of multiple stakeholder analysis methods may lead to more profound insights. This paper compares two stakeholder analyses methods applied for the case of network ownership in the Netherlands. To ensure competition in the Dutch electricity sector the government's intentions are to split network companies both economically and legally from the integrated power companies by January 2007. This split goes further than is required by EU law that only requires a legal split of the

network companies. The reason for this intended split is to introduce fair competition and thereby protect the values of the public. The stakeholder methods applied for this case structure the problem by means of possible actions of stakeholders and control and interest over issues. The stakeholder analyses provide insights in terms of possible opportunities for collaboration amongst stakeholders and possible ways forward in terms of solution directions. Particular attention is paid to the applicability and added value of the two stakeholder methods.

Stakeholder analysis, tools, methods, values

Uncertainty in EIA—Need for Better Communication and More Transparency Throughout the Decision-Making Process

Tennoy, Aud; Norwegian Institute for Urban and Regional Research, Sinsenveien 47 B, Pb 44 Blindern, Oslo, Oslo 0313 Norway. +47 22 95 89 84. Fax + 47 22 22 37 02. aud.tennoy@nibr.no.

Predictions constitute much of the basis for EIAs. Most authors recognize the unavoidable uncertainty inherent in predictions. This is confirmed by post-audit studies, which show that the real impacts of projects often differ from the proposed impacts (Flyvbjerg, Bruzelius and Rotherngatter 2003, Wood, Dipper and Jones 2000, Buckley 1992).

Thus, uncertainty in predictions is an important issue when discussing EIA. Still, Glasson Therivel and Chadwick (1999) claim that EISs often appear more certain in their predictions than they should, and that impact predictions often constitute a "black box" in EIA studies.

The paper is discussing if and how uncertainty is described and input data and assumptions accounted for in the EIA and decision-making process. The discussion is based on a case study including 22 Norwegian cases (infrastructure developments and relocation of big businesses), and it includes post-auditing of predictions, a discussion about why these predictions are inaccurate, a study of if and how uncertainties are described and input data and assumptions are accounted for in crucial documents throughout the decision-making process.

The objective is to contribute to the discussion on how EIA can be improved as a tool to aid decision-making, by improving the communication of uncertainty and the transparency of the prediction process.

References:

Buckley (1992): How Accurate Are Environmental Impact Predictions? In Ambio, vol. 20 no. 3-4, May 1991.

Flyvbjerg, Bent, Nils Bruzelius and Werner Rothengatter (2003): Megaprojects and risk. An anatomy of ambition. Cambridge: Cambridge University Press.

Glasson, John, Riki Therivel and Andrew Chadwick (1999): Introduction to Environmental Impact Assessment. 2nd edition. London: UCL Press.

Wood, Christopher, Ben Dipper and Carys Jones (2000): Auditing the Assessments of the Environmental Impacts of Planning Projects. In Journal of Environmental Planning and Management, 43(1), 23-47, 2000

Predictions, uncertainty, communication, transparency, transport effects

Evaluation Methods, Conflicts and Rationality in Environmental Planning and Management

Persson, Jesper; Dep. of Landscape Management and Horticultural Technology, Swedish university of agricultural sciences, Kungsgårdsvägen 8a, Box 66, Alnarp, Malmö 23053 Sweden. +4640415155. Fax +4640464085. jesper.persson@lt.slu.se.

There are today large varieties of methods for evaluating the environmental impact of plans, programs and projects. But which of these methods should planners and managers choose? Does it really matter? This paper explores the connections between environmental evaluation methods, conflict and rationality. It focuses on the understanding of rationality and communicative planning. In line with advocators of, e.g. Position Analysis I argue that evaluation methods ought to emphasize affects on interests.

Evaluation methods, impact assessment, conflict, rationality, planning, management

CS56. BIODIVERSITY: TREATED PROPERLY IN IMPACT ASSESSMENT?

Improving Wildlife Conservation Prospects Through Better Impact Mitigation Options for an Irrigation Project in Central India

Mathur, Vinod; Wildlife Institute of India, Chandrabani, Dehradun, Uttaranchal 248001 India. + 91-135-2640111 Ext.: 202. Fax + 91-135-2640117. vbm@wii.gov.in. http://www.wii.gov.in.

Development projects in the water resource sector invariably lead to creation of valley bottom reservoirs and alignment of irrigation canals through the wilderness tracts. Submergence of large tracts of biodiversity rich areas for water impoundments and clearing of forests enroute the irrigation canals cause impoverishment and decimation of natural habitats and biodiversity resources. While conserving biodiversity in threatened habitats is a formidable challenge, evolving effective mitigation approaches to counter the negative impacts and also improve wildlife conservation prospects is a still greater challenge for the wildlife managers.

Destruction of valued ecosystems and wildlife habitats of endangered species, fragmentation and obstruction of movement corridor for a wild carnivore species (tiger) and a range of herbivore species were the key impacts associated with the 'Hooman Irrigation Project', located in the central Indian state of Maharashtra. This paper highlights the author's experience in developing options for mitigation of impacts of the above project.

Habitat compensation and enhancement approaches were developed for improving wildlife conservation prospects. Delineation of additional movement corridor for tigers and extension of the ecological boundaries of Tadoba-Andhari Tiger Reserve to include the drawdown areas of 'Hooman Irrigation Project' have been proposed in the mitigation plan. To overcome the impacts of fragmentation associated with routing of irrigation canal through a forested landscape, recommendations have been made for below ground alignment of irrigation canal in vulnerable sections and suggesting 'wild animal crossing over points' at strategic locations. The proposal for enlargement of designated conservation unit viz. the 'Andhari Wildlife Sanctuary Extension' would include areas under (i) submergence; (ii) draw down area; and (iii) the evacuated villages. This would not only provide an additional 'upstream movement corridor' for tigers but would also improve overall habitat availability and contiguity for enhancing wildlife conservation prospects in the region.

Biodiversity, corridor, mitigation planning

Data Acquisition Strategies for Large Scale, Linear Development Projects

Camp, Henry; ICF Consulting, 33 Hayden Avenue, Lexington, MA 02421 USA. 781-676-4097. Fax 781-676-4037. hcamp@icfconsulting.com. www.icfconsulting.com.

Coogan, Ted; ICF Consulting, 33 Hayden Avenue, Lexington, MA 02421 USA. 781-676-4000. tcoogan@icfconsulting.com. www.icfconsulting.com.

Kollar, Johanna; ICF Consulting, 33 Hayden AvenueLexington, MA 02421 USA. 781-676-4000. jkollar@icfconsulting.com.

Germano, Joseph; Germano and Associates, 12100 SE 46th Place, Bellevue, WA 98006 USA. 425-865-0199. germano@ix.netcom.com. www.remots.com.

Armah, A.K.; University of Ghana, PO Box LG 239, Legon Ghana. + 233 21 51 3976. akarmah@yahoo.com. www.remots.com.

Linear projects can affect the social and ecological environment to a far greater extent than a single facility. A pipeline, for example, that uses a right of way only 50 meters wide can extend for hundreds of kilometers and therefore have pervasive impacts. The same can be true of power transmission cables, roads, proposed shipping routes, and rail lines. Consequently, these projects are likely to traverse a large variety of habitats and human settlements.

Examples of this can be found in the recent development projects in West Africa. A number of oil and gas pipelines lines have been designed and constructed in the past three years in both the onshore and offshore environments. Some of these gas projects are related to the efforts to use previously flared natural gas and provide environmental and economic benefits to the region.

These projects created a unique set of challenges for collecting pre-construction, baseline data. A number of strategies have been employed in the design and implementation of the fieldwork to effectively survey the extensive length of the pipeline route. In the onshore environment, habitat-based surveys are sometimes conducted to collect

vegetation, wildlife, and soil property data. In the offshore environment, sampling can be stratified mainly on the basis of sea floor depth. In many cases, a random element was added to the sampling design in the way of meander searches in the onshore areas and stratified random sampling along the offshore route. Rapid screening methods also were employed. These included sediment profile imaging for quick assessment of large expanses of seabed in the project area. This presentation will describe the sampling approaches for these complex projects and will discuss the benefits and lessons learned.

Addressing Biodiversity Issues in Environmental Assessment for a Highway in Remnant Appalachian Hardwood Forest, New Brunswick Canada

Barnes, Jeffrey; Jacques Whitford, 711 Woodstock Road, P.O. Box 1116, Fredericton, New Brunswick E3B 5C2 Canada. 506-457-3243. Fax 506-452-7652. jeff.barnes@jacqueswhitford.com.

McEwing, Brian; New Brunswick Department of Transportation, P.O.Box 6000, 515 King Street, Fredericton, New Brunswick E2L 5E8 Canada. 506-453-2764. Fax 506-444-5207. brian.mcewing@gnb.ca.

Johnson, Gregory; Jacques Whitford, 20 Broadview Ave. S., Saint John, New Brunswick E2L 5E8 Canada. 506-634-2185. Fax 506-634-8104. greg.johnson@jacqueswhitford.com.

Phillips, Michael; New Brunswick Department of Transportation, 515 King Street P.O. Box 6000, Fredericton, New Brunswick Canada. 506-453-5667. mike.phillips@gnb.ca.

An Environmental Assessment (EA) of the upgrading of the Trans Canada Highway to four lanes in New Brunswick, Canada, included a 70 km section in the Central St. John River Valley, where remnants of Appalachian Hardwood Forest (AHF) are largely confined. Potential routing was confined to an area between 5 and 20 km in width, between the United States border and the Saint John River, where agriculture is the predominant land use, and considered a major contributing factor to the loss of AHF. Corridor and initial route selection processes included consideration of identified biological constraints such as known AHF, moose habitat, Environmentally Significant Areas, and wetlands, in addition to engineering, social, and socioeconomic constraints. Biodiversity investigations of the preferred route included site-specific surveys for wetlands, rare plants, rare herpetiles, ungulates, migratory birds, fish and fish habitat, and other wildlife. Surveys resulted in the discovery of several previously unrecognized AHF sites containing rich assemblages of rare plants. As a result of these discoveries, the alignment was modified to avoid these rich sites, all "very rare" plants encountered and several other smaller concentrations of "rare" plants. Compensation measures for the residual loss of 6.8 ha of moderate to low priority (for preservation) AHF and some rare plants included the protection of 72.2 ha of previously unprotected, avoided high priority AHF site and two other areas containing populations of two other plants of special conservation concern. One of the protected areas contains the highest concentration of butternut (listed endangered by the Committee on the Status of Endangered Wildlife in Canada) encountered along the alignment.

Biodiversity, Appalachian hardwood forest, butternut, rare plants, compensation

Cumulative Impact on Ecosystem and Health: An Approach for Transport Infrastructures and Navigation

Marotta, Leonardo; Entropia Snc, via Corridoni 3Recanati, Macerata I-62019 Italy. + 39 3383518558. Fax + 39 0717575525. entropia_snc@tin.it.

Cecchi, Arianna; Entropia Snc, via Corridoni 3Recanati, Macerata I-62019 Italy. + 39 3383518558. Fax + 39 0717575525. entropia_snc@tin.it.

Deandrea, Gianmario; Entropia Snc, via Corridoni 3Recanati, Macerata I-62019 Italy. + 39 3383518558. Fax + 39 0717575525. entropia_snc@tin.it.

Costa, Stefano; Researcher, via Corridoni 3, Recanati, Macerata I-62019 Italy. + 39 3383518558. Fax + 39 0717575525. entropia_snc@tin.it.

In order to evaluate cumulative impacts from infrastructures an human health we apply a wide system of different techniques and approaches: linear sum of impacts, map algebra on digitalized cartography, map overlay of all type of impacts, analogous case on similar – and complex – morphology, connectivity and percolation for key species approach. Our studies demonstrate the importance of multidisciplinary approach. The cumulative impacts are non-separating each other, but can be possible to understand the dominant impact factor (Bettini et al., 2002).

Priorities for impact evaluations include the identification of key thresholds to ecosystem carryng capacity, ecological resilience, and geodynamical processes.

The cumulative impacts evaluation can be one of best instruments to preserve the adaptive capacity of regional land-use matrices and all the sustainable benefits at multiple spatial and temporal scales.

Results shows the importance of multicriterial analysis based on Environmental Cost-Benefits Analysis (Bettini et al., 2000) and Social Multi-Criteria Evaluation (Munda, 2003). In all the complex problems only post normal science can be used in order to integrate environmental and social values.

Bettini V., L. Canter, L. Ortolano. 2000. Ecologia dell'impatto ambientale, UTET Libreria, Torino.

Bettini, V., L. Canter, C. Rosnati, 2002. "Gli impatti cumulativi" in Bettini V., 2002. (a cura di) Valutazione d'Impatto Ambientale, le nuove frontiere, UTET Libreria, Torino, pp. 203-245.

Munda G., 2003. Between Science and Democracy: the Role of "Social Multi-Criteria Evaluation (SMCE)" region, who are the relevant social actors to interact with? European Working Group "Multicriteria Aid for Decisions" Série 3, n°7, printemps 2003. Series 3, n° 7 Spring, 2003.

Cumulative impacts, transport, spatial models, multicriteria analysis

CS57. TRADE: CONSULTATION AND METHODOLOGICAL CHALLENGES

CEC Analytical Framework: Consultation process

Carpentier, Chantal Line; Commission for Environmental Cooperation, 393 St-Jacques St. W. Suite 200, Montreal, Quebec H2Y 1N9 Canada. 514 350-4336. Fax 514 350-4314. clcarpentier@cec.org. www.cec.org.

The CEC is uniquely designed to involve consultation. It is composed of a Council - made up of the NAFTA ministers of the environment, Secretariat and a Joint Public Advisory Committee (JPAC). JPAC is composed of 5 members of the public from each of the NAFTA countries. It has a mandate to oversee the work of the CEC and make recommendations to the Council on the CEC work program. The JPAC was involved in the development of the CEC Analytical framework and the ongoing assessment of the environmental impacts of NAFTA. The public of North America is also consulted and informed by these activities through the CEC biennual symposia on trade and environment. The presenter will highlight the quality and ethical aspect of these conusltation processes during the first 10 years of the CEC and lessons that can be drawn from this experience.

Quality and ethics of CEC consultation process on assessing NAFTA environmental impacts

Establishing A Methodology for Characterizing the Risk of Invasive Alien Species Along Trade Pathways

Gilbreath, Janiece; Environmental Protection Agency, 1300 Pennsylvania Ave. N.W., Washington, D.C. 20004 United States. 202 564-6279. Fax 202-565-2411. gilbreath.jan@epa.gov.

EPA, in conjunction with many other agencies of the U.S. government, has begun an internal dialogue on how best to assess any increased risk of invasive alien species (IAS) as the United States continues to deepen trade and economic relations with other countries through free-trade agreements. A gap exists in the U.S. government's knowledge of the role that trade has played in introductions of IAS into the United States. Generally, the public and many researchers have assumed that the opening of domestic markets to foreign products has increased the risk for invasives to be introduced into U.S. territory. But this assumption has not been empirically demonstrated.

Trade provides three categories of potential pathways for IAS: transportation-related, tradeable commodities, and tradeable commodity "hitchhikers." The goal of my research, undertaken in cooperation with other agencies, is to provide a methodology to characterize these pathways by undertaking a historical analysis of the role that trade has played in previous introductions of IAS, particularly for those species that have resulted in signficant economic or biological damage.

Methodology, risk, invasive alien species, trade pathways

Dealing with Data Limitations During EA of Trade: The Government of Canada Experience

McCormick, Rachel; Foreign Affairs Canada, 111 Sussex Dr., Ottawa, Ontario Canada. (613) 741-8276. rachel.mccormick@international.gc.ca.

The Government of Canada's Framework for Environmental Assessment of Trade Negotiations calls for identification of economic effects of the agreement to be negotiated and the likely environmental impacts of such economic changes. Past efforts have experienced challenges due to data limitations associated with analyzing these effects and

impacts. A review of existing expertise and resources was undertaken to determine how these challenges could be addressed. Initial findings indicate that use of the Global Trade Analysis Project (GTAP) model in concert with models and data available from Statistics Canada could provide quantified analytical results of anticipated scale, structural, and product changes. This will complement the continued use of qualitative information and consultations and enhance future outcomes.

Impacts of Trade on Environment: Strengthening Capacity of Eastern African Countries to Realize Sustainable Trade

Kiragu, Serah; IUCN - World Conservation Union, Wasaa Conservation Centre, off Mukoma Rd, P.O. Box 68200, Nairobi, 00200 Kenya. +254 20 8906-5/12. Fax +254 20 890615. ksw@iucnearo.org.

Eastern African countries belong to various trade initiatives such as COMESA, EAC and SADC. They also have a wide range of commitments under multi-lateral environmental agreements (MEAs) and World Trade Organization. Impacts of trade on environment and vice versa pose the challenges of defining a proactive agenda due to strong possibility of conflicting trade and environmental obligations as a result of different rules and commitments in these various arrangements. From a southern perspective, being dictated how to produce goods by the north is felt as infringement on their national sovereignty. It has also been viewed to create an avenue for the perpetration of protectionist measures disguised as environmental regulation. This calls for a broader debate on issues of equity and the structure of the trading system particularly on how the Eastern African countries can take advantage of their own competitive advantage and in such a way that can advance their own environment. This paper assesses the preparedness of these countries to take up the window of opportunities created by the Doha mandate on environment and trade. It takes note of the challenges and priorities of the region. The paper makes key references to biodiversity conservation related MEAs and schemes. As way forward, strategies for enabling Eastern African countries to increase capacity to realize a balanced trade off between trade and environment are suggested.

Trade, environmental impacts, sustainable trade

CS58. EMS: USING EMS TO ADVANCE CORPORATE SOCIAL RESPONSIBILITY

Sensitive Areas and Impact Management – The BP Way

Witchalls, Ben; BP, Maddox Farm, Little Bookham Street, Leatherhead, Surrey KT23 3BU UK. +44 1932 739 409. ben.witchalls@uk.bp.com.

Stump, Mick; BP, Chertsey Road, Sunbury on Thames, Middlesex TW16 7LN UK. +44 1932 764499. mick.stump@uk.bp.com.

Finney, Rob; BP, Chertsey Road, Sunbury on Thames, Middlesex TW16 7LN UK. +44 1932 763 742. finneyrw@bp.com.

Herlugson, Chris; BP, 501 Westlake Park Blvd, Houston, Tx 77079 USA. +1 (281) 366-2835. Herlugsc@bp.com.

BP is keen to demonstrate that they recognise the importance of sensitive areas and that that recognition is embedded in the day to day operational standards of the company. They recognise that entry into and operations within sensitive areas are issues of legitimate concern and believe that there are steps which can be taken to ensure that any activities they plan to undertake in such areas are subject to a clear and transparent process of review. As a company a consistent process and a consistent set of criteria to the way in which sensitive areas are approached are being developed.

In particular, these are intended to define

- A process for very early assessment of the sensitivity of particular projects, establishing the criteria which will govern all the activities on those projects.
- Subsequent rigorous processes for testing performance against these criteria including where appropriate the involvement of external assessors.
- Performance expectations in sensitive areas, including the criteria to be used in BPs environmental impact assessments.
- A clear decision making process within BP to deal with issues which go beyond its own rules and standards.

- The necessary improvements in transparency in BPs reporting processes in order to provide greater information on projects which are in development

BP recognises that these are complex issues and is therefore engaging with a number of stakeholders. The hope is that the internal work will be completed before the end of 2004 and that they will then be able to publicly report the processes and criteria being used as a baseline against which BPs future performance can be judged.

Sensitive areas, stakeholder consultation, Impact management

Environmental Perspective of Total Quality Manangement of Quality Products Quality Transportation and Sustainable Development Nigeria Experience

Adeyemi, Abraham Adeshina; Sintos Consulting Firm, 46/48,Lagos/Abeokuta Express Way Beside Joerdan Hospital P.O. Box 605, Ota, Sango Ota, Ogun State Nigeria. 234-1-7900599,8034244279. Adeyemisintos@Yahoo.Com.

Adeyemi, Titilayo Eunice; Sintos Consulting Firm, 46/48,Lagos/Abeokuta Express Way Beside Joerdan Hospital P.O. Box 605, Ota, Sango Ota, Ogun State Nigeria. 234-1-7900599. Adeyemisintos@Yahoo.Com.

Environmental awareness is gathering momentum the world over. Some people are still confused about how environment relates to quality of product, quality of transportation and sustainable development in Nigeria. And significantly our society is entirely dependent on the provision of high quality product and services to reduce the high level of environmetal damage and waste, while Total Quality Management (TQM) is the elimination of waste for sustainable development which is today giving increasing concern to governments, non-governmental organizations and people worldwide.

Ofcourse, man can not be seperated from his environment, natural and cultural background; this calls for TQM of the environment because waste and pollution are among the greatest environmental crimes.TQM as it relates to products and transportation in Nigeria and effect on sustainable development are the focus of this paper.

QUALITY OF PRODUCTS AND TOTAL QUALITY MANAGEMENT

Has received a considerable patronage from many management practitioners, environmental specialists and consultants in Nigeria, because of its potentially powerful instrument for raising organizational performance and waste reduction, national agency for foods, drugs, admistration and control (NAFDAC) shall be considered.

QUALITY OF TRANSPORTATION AND TOTAL QUALITY MANAGEMENT

Transportation imposes substantial penalties in the distruction of the environment, while many Nigerians still depend on the imported but fairly used vehicle which of course could not meet emission standards in Europe and America.

SUSTAINABLE DEVELOPMENT

Is the use that satisfies the needs of present without compromising the ability of future generations to meet their own needs? Today in Nigeria urban population is increasing rapidly, putting pressures upon pressures on the environmental resources in Nigeria. All these shall be discussed in this paper.

Total quality management of environment and sustainable development

Corporate Sustainability and Social Responsibility Program Development

Beck, Michael; ENSR International, 2 Technology Park DriveWestford, MA 01886 USA. 978-589-3009. mbeck@ensr.com. www.ensr.com.

Roemer, Robert; ENSR International, Via F. Ferruccio, 17/AMilan, 01886 Italy. + 39 02 31 80 77 1. broemer@ensr.com. www.ensr.com.

Frawley, Maryellen; ENSR International, 2 Technology Park Drive, Westford, MA 01886 USA. 978-589-3257. mfrawley@ensr.com. www.ensr.com.

As a global environmental services firm, ENSR has always attracted staff with deep convictions about environmental and corporate social responsibility, as exemplified by their involvement in environmental stewardship and technical organizations. More recently, our clients have shown an increasing interest in shaping projects and programs according to sustainability and corporate citizenship principles, especially in large development projects. The synergy of these influences encouraged us to take our environmental leadership to the next level through development of a corporate environmental and social responsibility program.

Through examples and case studies, this paper demonstrates how a how a consulting company with core values of environmental sustainability and corporate social responsibility can work with it clients to develop programs of environmental stewardship for the joint advantage of all stakeholders. For example, ENSR's dual role as an industry advocate and community liaison, combined with expertise in wetlands ecosystems, has been a key success factor in the Corporate Wetlands Restoration Partnerships (CWRP) active in New York, New Jersey, California, Texas, Massachusetts, Connecticut, Rhode Island, Maine, and Alaska.

The paper also outlines our experience with developing a program to improve our sustainability/social responsibility performance in ENSR's internal operations and client services. The paper cites specific challenges, success factors, the role of senior management. and the approach used to engage personnel at all levels and functions throughout the company.

Corporate social responsibility programs, sustainable development, corporate citizenship

Making The Business Case for Environmental Management: Environmental Management Tools and Large Organisations in Australia

Nitz, Tracey; InteREAM, School of Environmental Sciences, University of East Anglia, School of Environmental Sciences, University of East Anglia, Norwich, Norfolk NR4 7TJ United Kingdom. 44 1603 593130. Fax 44 1603 591327. t.nitz@uea.ac.uk. http://www.uea.ac.uk/env/.

Brown, Lex; Griffith University, Faculty of Environmental Sciences, Griffith University, Nathan, Queensland Australia. 61 7 3875 7430. Fax 61 7 3875 5282. lex.brown@griffith.edu.au. http://www.uea.ac.uk/env/.

A plethora of tools for environmental management have emerged in the last 40 years, such as EIA, SEA, environmental management systems, environmental risk assessment, life cycle assessment and corporate environmental reporting. These tools are the subject of much discussion and debate in the environmental management literature. In particular, the benefits of using environmental management tools and the drivers for using them have been discussed at length. There is, however, limited knowledge about the actual use of the various tools in practice.

This paper reports the results of an empirical study of environmental management practices of twenty-three large organisations in Australia, based on in-depth interviews with environmental managers. It describes the environmental management tools used by these organisations and the activities of environmental managers within them. The views of environmental managers about various environmental management tools are presented. The main factors that influenced the decisions of environmental managers are described. The key issues for environmental managers interviewed in this study indicated are making the business case for the use of environmental management tools and the ease with which a tool can be adapted for their organisation. On the basis of these findings, a number of recommendations for improving the use and effectiveness of environmental management tools in practice are made.

Environmental management, environmental management systems, environmental risk assessment

Environmental Guidelines for the Messina Strait Bridge

Mezzalama, Roberto; Golder Associates Ltd, 1000, 940 - 6th Avenue S.W., Calgary, Alberta T2P 3T1 Canada. 001 403 2995635. rmezzalama@golder.com. www.golder.com.

Majetta, Serena; Golder Associates Srl, Via Sante Bargellini 4, Roma 00157 Italy. + 39 06 4384610. smajetta@golder.it. www.golder.com.

Landini, Chiara; Golder Associates Srl, Via Sante Bargellini 4, Roma 00157 Italy. + 39 06 4384610. clandini@golder.it. www.golder.com.

The Messina Strait Bridge will be the longest suspension bridge in the world, and one of the biggest infrastructures ever built in Italy. The bridge will connect mainland Italy to Sicily, in the center of the Mediterranean basin, and will be built in an already highly urbanized area, with some residual small patches of high ecological value. Moreover, the bridge will intersect one of the most important bird migration routes in the Mediterranean basin. The preliminary project underwent a simplified environmental assessment procedure according to a special legislation meant to speed up the approval process of infrastructures of strategic importance. Approval has been granted with a considerable list of conditions. The authors worked on the follow up of the environmental assessment procedure, with the aim of integrating the approval's conditions in the subsequent design and construction phases. As a result, a set of guidelines for the detailed design and construction phase, and an environmental and social monitoring plan have been prepared. The guidelines include instructions for the collection of further information on particular

aspects of the environment and communities affected by the project that were not completely covered during the EA phase. They include also instructions on design of particular components of the project in areas of particular sensitivity. The monitoring plan is meant to collect informations on key indicators of environmental and social quality, both in the areas directly interested by the construction and in the extended impact area. The guidelines have been included in the project documentation used for the international tender for the selection of the general contractor.

Environmental guidelines, monitoring plan, bridge, Italy

CS59. PUBLIC PARTICIPATION 9

The Landscape as an Integral Part of Quality of Life - Case Study on City of Plzen Highway Bypass

Martis, Miroslav; Landscape Ecology Laboratory FFE CAU, namesti Smirickych 1Kostelec nad Cernymi lesy, Czech Republic 281 63 Czech Republic. 00420321697500. Fax 00420321697500. martis@kostelec.czu.cz.

Zdrazil, Vladimir; Landscape Ecology Laboratory FFE CAU, namesti Smirickych 1Kostelec nad Cernymi lesy, Czech Republic Czech Republic. 00420321697500. Fax 00420321697500. zdrazil@kostelec.czu.cz.

The diversity of percepting the landscape protection as integral part of life quality is illustrated by different approaches of key players in the process of finding a final solution to the city of Plzen highway bypass. The paper presents the search for and assessment of roles and mutual relations of government administration and/or governments, developers and public (both general public and nongovernmental organisations) on the local, municipal, regional, national (and international) levels in connection with the crucial mission of the landscape protection from the point of view of public interest in cultural, ecological, environmental and social sphere. The paper also mentions a recent post-project analysis of the key actors positions development during the past 7 years after the EIA process. The Council of Europe Landscape Convention assignments are considered for comparing individual approaches, in particular in connection with the terms like landscape quality objective, landscape protection, landscape policy, landscape management and landscape planning.

Landscape, highway, quality of life, EIA key actors, PPA, European Landscape Convention

Applying the Methodology for Participatory Assessment to Improve the Distribution of Costs and Benefits of Rural Water Projects in Kenya

Hendriks, Michelle; Delft University of Technology; Faculty of Technology, Policy and Management, Jaffalaan 5, Postbus 5015, Delft, South Holland 2600 GA The Netherlands. +31-(0)15-2787199. m.j.a.hendriks@tbm.tudelft.nl.

The interrelatedness of environment, health and social relations with water availability in rural Africa, makes the assessment of the success of water development projects a complex task. Indeed, the balance between the benefits and costs for the various groups and individuals participating in a development project can differ substantially.

In this paper we demonstrate how the distribution between different users of the benefits and costs of rural water development projects can be improved by using the Methodology for Participatory Assessment (MPA). We describe a small scale study on changes in water use patterns following the construction of sand dams in seasonal rivers in the Kitui district of Kenya. The MPA made it possible to assess benefits, costs and preferences at a very detailed level. Information on the daily water use patterns of different communities, households and individuals was obtained and insights into the causes of, and motivation for water usage patterns were garnered. Information on the potential effects of changes in water use was also obtained.

In general, the findings confirm existing knowledge about changes in water use owing to increased availability of water. The added value of this study lies in the acquisition of detailed information about exceptions to these general rules. An obvious example being that some of the people do not use more water because they live farther from a dam. Additionally, factors that could increase the costs or minimize the benefits for particular water users are identified. We argue that as in the Kenyan case, the participatory nature of the project assessment can improve the quality of the knowledge about these factors and allows more equitable sharing of the costs and benefits of development projects.

Improving Communication in Public Participation: What Are the Requirements?

Van Kamp, Irene; RIVM, POBOX 1, (mailbox10), Bilthoven, Utrecht 3720 BA Netherlands. +31302743222. Fax +31302744451. irene.van.kamp@rivm.nl.

de Jong, Taeke; Thechnical University Delft, DELFT, 3720 BA Netherlands.

den Broeder, Lea; RIVM, POBOX 1Bilthoven, 3720 BA Utrecht. lea.den.broeder@rivm.nl.

The quality of public participation in EIA can be improved by taking the notions and language games of the different actors into account. Prediction, decisions, planning and design demand different ways of reducing realities and futures. The scientist reduces reality into variables and studies relationships between those in order to predict, the policymakers and planners tend to reduce reality to items on the agenda and agreements in which time and space are clearly defined. Designers make a reduction into units that can be carried out in the course of a clearly defined time-frame and at specific locations. Citizens might in their turn divide reality into parts that are controllable and parts that are under the control of others. If these differences are not accounted for in the participatory process, the gap between the different participants will remain, independent of the communication and interaction techniques chosen. This paper will further discuss if and how these gaps between disciplines, knowledge users and—producers, between policy sectors, between planners and citizens etc could be bridged. Two Dutch examples from respectively the field of environmental noise and electromagnetic radiation will be presented to illustrate the discrepancy in use of concepts and language between scientists, citizens and policy makers. The ethical implication will receive due attention where possible.

Participation, language

Addressing Public Perception and Reality in Impact Assessment: The SPDC Afam Power Station Project Experience

Dada, Oritsetimeyin; Shell Petroleum Development Company of Nigeria, P.O. Box 263, Old Aba Road, Port Harcourt, Rivers State Nigeria. 234-084-4-24039. oti.dada@shell.com.

Umesi, Napoleon; Department of Chemical Engineering, P.M.B 5323, University of Port Harcourt, Choba, Port Harcourt, Rivers State Nigeria. 234-084-4-24039. umesi2000@yahoo.com.

The National Electric Power Authority (NEPA) is empowered by law to be the generator and distributor of electric power in Nigeria. The company operates as a vertically integrated, government owned monopoly. This structure, coupled with years of inadequate investment has resulted in epileptic power supply to consumers. The government through its power sector reform program plans to solve the problem by making it profitable for the private sector to participate in the industry.

To take advantage of this program, the Shell Petroleum Development Company (SPDC) of Nigeria Limited proposes to construct and operate a new 600-700MW capacity power generation station (Afam VI) adjacent to the existing NEPA Afam power station. This will increase the power generation capacity in Nigeria by more than 20% and provide a market for natural gas produced by SPDC.

The management of the expectations of neighboring communities from the project will be critical to the successful execution of the project because of the pre-existing relationship between NEPA and the communities. NEPA has been operating the Afam Power Station for over forty years and most of the Afam communities are not linked to the national power grid. This apparent neglect and perception of injustice by the communities has heightened public and community interest in this project. The communities' expectations are high and have to be managed. The social impact of the project is also high and appropriate systems and structures have to be installed to mitigate or enhance these impacts depending on if they are beneficial or adverse.

As part of the management plan, the EIA has proposed measures to mitigate/enhance significant adverse/beneficial impacts as well as address perceived impacts and expectations of the project with a view to securing the vital social license to operate. These measures are discussed in this paper.

Public perception, host communities, impact assessment, electric power

CS60. SIA: A CRITICAL EXAMINATION OF THE CONCEPTS AND PRACTICES OF SIA

Causes of Faulty Social Mitigation Measures

Senécal, Pierre; Hydro-Québec, 75 boul. René-Lévesque-ouest, 10th floor, Montreal, Québec H2Z 1A4 Canada. + 1-514-289-2211 ext. 4233. Fax + 1-514-289-5038. Senecal.Pierre.B@hydro.qc.ca.

Kudat, Ayse; Social Assessment, Llc, 205 Yoakum Prk, 2-1111Alexandria, VA USA. 202 418 8896. akudat@socialassessment.com.

The design and implementation of mitigation measures, which should be considered as the logical outcome of SIA, raise difficult issues and may have very serious implications which have not always received the attention that they deserve. In the context of large scale infrastructure and energy projects, especially those involving resettlement, the disastrous consequences of badly designed social mitigation measures (such as RAPs - resettlement action plans) have been have been held responsible for the failure of many rehabilitation programs. The implementation of social mitigation measures (including RAPs) has also been viewed as a weaker segment of the SIA cycle which needs to be strengthened. Because they are badly designed, under-funded, and managed by people who lack proper training, faulty social mitigation measures or programs result in severe losses in the quality of life, an unequal distribution of negative impacts of projects or even cause impoverishment. On the basis of past experience, the authors believe that some key factors at the pre-project stage play an important role in the identification of failures/shortcomings, which can be avoided at the implementation stage. Specific factors to be considered include: inadequate policies or regulatory frameworks (e.g., in the field of public participation or expropriation); the selection of project alternatives which challenge or surpass the management capacities and resources allocated to local authorities; the absence of communication channels between those who design the measures at the pre-project stage and those who implement them; and a lack of detailed budgetary planning which can be enforced by lenders and which ensure a steady or timely allocation of social mitigation funds over the project's life.

Social mitigation measures, implementation stage, resettlement

Community Identity and Forestry Closure in Rural New Zealand: The Contribution of 'Place Attachment' to Improving Understanding.

Goodrich, Colin; University of Canterbury, Ilam Road, P.B. 4800, Christchurch, Canterbury 8004 New Zealand. 00 64 3 364 2975. Fax 00 64 3 364 2977. colin.goodrich@canterbury.ac.nz.

Sampson, Kaylene; University of Canterbury, Ilam Road, P.B. 4800, Christchurch, Canterbury New Zealand. SampsonK@landcareresearch.co.nz.

The Social Impact Assessment literature covering the assessment of actual effects of projects, programmes and polices is now sufficiently large to allow the drawing of quite specific conclusions on many general problems. In endeavoring to understand the counter-intuitive nature of the findings of a study on industry closure in south Westland, New Zealand, this paper engages the concepts of 'sense of place' and 'attachment to place' to argue why two small West coast communities did not suffer major population loss and subsequent community decline in response to the loss of their core (and iconic) timber industry. We ask, "what was it about these two communities that enabled them to avoid predictable community decline, when the generalized SIA literature would have indicated otherwise?" In this paper we argue that the resilience of these communities lies in the embedding of identity in place rather than in occupation. It is this recognition that gives the findings an integrity and robustness they would otherwise lack.

Social impact assessment, sense of place, community identity

Are You Positive?: Striking a Balance in Addressing Socio-economic Impacts

Shrimpton, Mark; Jacques Whitford, 607 Torbay RoadSt. John's, Newfoundland and Labrador A1A 4Y6 Canada. 1-709-576-1458. Fax 1-709-576-2126. mark.shrimpton@jacqueswhitford.com. www.jacqueswhitford.com.

Various factors militate against a balanced evaluation of the socio-economic impacts of projects. These include negative attitudes on the part of local residents, who commonly initially see projects as threatening community well being. These expectations are often reinforced, not countered, by the attitudes of consultants, regulators, business groups and even project proponents, and by legislation, regulations and guidelines. For various reasons, all of these are likely to give a greater consideration to negative than positive impacts, distorting the assessment process and its outcomes. This may have negative consequences for both the project proponent and local residents.

This paper first outlines the nature of this emphasis on negative impacts, why it occurs, and its consequences. It then argues for a better recognition, identification and assessment of the potential positive effects, and hence for more balanced and higher quality assessments. The analysis draws on experience with projects across Canada and in the United States, Australia and Iceland, including a description of example initiatives designed to create and enhance positive and sustainable socio-economic impacts.

Socio-economic, assessment, approaches, positive, balance

New Social Impact Assessment Schemes and Their Contribution to the Transparency in the Decision-Making Process of Projects in Mexico

Pelaez Figueroa, Arturo; Secretaria de Urbanismo y Medio Ambiente (SUMA), Escarcha 272. Col. Prados de Campestre Morelia, Michoacan 58290 Mexico. (52) (443) 3140645. apelaez@michoacan.gob.mx. www.michoacan.gob.mx.

Vargas Uribe, Guillermo; Secretaria de Urbanismo y Medio Ambiente (SUMA), Escarcha 272. Col. Prados de Campestre Morelia, Michoacan 58290 Mexico. (52) (443) 3140645. gvargas@michoacan.gob.mx. www.michoacan.gob.mx.

Delgado Lemus, Tzitzi; Secretaria De Urbanismo Y Medio Ambiente (SUMA), Escarcha 272. Col. Prados de Campestre Morelia, Michoacan 58290 Mexico. (52) (443) 3140645. rataricarda@todito.com.

For more than a decade, Environmental Impact Statements (EIS) presented for new projects in Michoacán have lacked detailed information about the socioeconomic and cultural aspects; as a result of this, it has been impractical and impossible to measure the effects of these projects on society. We have analyzed 40 EIS from January 2000 to September 2004. Based on methodologies proposed by experts and the authorities on EIA, we have concluded the following: 60% of EIS does not include information about the socioeconomic conditions of the affected area; 45% contain incomplete information; 15% contain complete information and integrate prediction of environmental impacts and 90 % of the social impact assessments are not critical, do not identify mitigation measures and do not involve public participation. The importance of each aspect within the various methodologies consulted, demonstrates a total change in focus of decision-making of the environmental viability of the authorized projects. Due to several recent cases, we have promoted the strengthening of the legal and technical schemes in the EIA procedure. A new code enacted in the year 2004 includes four articles that promote the improvement of the social aspect information of EIS. Technical guides have included more than 22 modifications that ensure the integration of the physical and biological baseline with the social aspects. The legal resolutions have acquired 32 modifications, 5 of which are related to social aspects. Through the social indicator, we have noted that during the past two years there has been a social acceptance of 99% of the projects authorized. These have grown in 200% from 2002 and only 2% have developed into social conflict. We have proved that the mentioned modifications promote a culture in which public consultation and participation is an important part of EIA procedures.

EIS, social impact assessment, decision-making

CS61. EVALUATION AND EVOLUTION OF NATIONAL EIA SYSTEMS

The Evolution of EIA In Mexico, From Hope to Sustainable Development

Juarez, Ricardo; Environmental and Natural Resources Secretariat, Av. Revolucion #1425, Col. Tlacoparc San Angel, Mexico, D.F. 01040 Mexico. 52-55-5624-3363. Fax 52-55-5624-3587. rijuarez@semarnat.gob.mx.

Heisler, Harry; Environmental and Natural Resources Secretariat, Av. Revolucion #1425, Col. Tlacoparc San Angel, Mexico, D.F. 01040 Mexico. 52-55-5624-3316. Fax 52-55-5624-3618. hheisler@semarnat.gob.mx.

Environmental and Natural Resources Secretariat, Av. Revolucion #1425, Col. Tlacoparc San Angel, Mexico, D.F. 01040 Mexico. 52-55-5624-3604. Fax 52-55-5624-3618. mquijano@semarnat.gob.mx.

Environmental impact assessment in Mexico was established as one of the tools of environmental policy implementation, formally and legally sustained since 1982. Administrative structures have been created at the federal and state level in order to comply with the legal requirements of EIA application.

Since 1994, the federal government included in its administrative structures a Ministry whose responsibility centers on promoting sustainable development in the country and paving the way to making it a reality. Inside that administrative unit a space was opened for a General Directorate in charge of applying the policy on environmental impact assessment. In the last three years 1,200 requests for project authorization have been assessed in this General Directorate. The projects can be grouped in 12 economic sectors, and the results represent an environmentally regulated investment of approximately US$46.7 billion.

In environmental terms, this unit has been successful in decreasing the negative effects of project development on land use, as well as air, water and soil quality, vegetation cover, fauna and natural resources.

Indicators of the efficiency reached with the application of EIA show the tool's importance. Nevertheless, the job, increasing every day as the consequence of the "design" forced on the tool in the current legal framework and the development of "ballasts" that have been developed have stressed the questioning around the validity of EIA in its

current development scheme, specially as a result of declining quality in the reports analyzed, reflecting an ethical problem affecting the actors involved in the process.

Continuing with the "massive" evaluation of individual projects model, without the possibility of regulating the cumulative impacts in regions where economic growth is centered, is the most important emerging problem that has to be faced in Mexico, if we want the transition to sustainable development to be a reality.

Environmental impact assessment, Mexico, sustainable development

10 years of EIA in Austria. A Good Reason for an EIA Evaluation

Brandl, Klara; Federal Environment Agency, Spittelauer Lände 5Vienna, Austria 1090 Austria. +43-1-31304-3310. Fax +43-1-31304-3700. klara.brandl@umweltbundesamt.at. www.umweltbundesamt.at.

Merl, Astrid; Federal Ministry of Agriculture, Forestry, Environment and Water Management, Stubenbastei 5Vienna, Austria Austria. +43-1-51522-2131. Fax +43-1-51522-7122. Astrid.Merl@lebensministerium.at. www.umweltbundesamt.at.

After 10 years of EIA practice in Austria, an evaluation of the quality and efficiency of this meanwhile recognised instrument of sustainable environmental policy seems appropriate.

The legal, technical and procedural adjustments of the past 10 years, as well as the advancements in decision quality, point to an "added value" for the environment, which was identified in the process of a discussion initiated in 2004.

Those participating in the discussion were competent authorities, ombudsmen for the environment, planners, project applicants and interest groups under the moderation of the Federal Ministry of Agriculture, Forestry, Environment and Water Management.

In this context, theories were developed which are now the starting point for our present study. The approach to the examination is a multi-disciplinary one, the object of investigation is examined from a legal, technical and political perspective. The theories mainly deal with the core questions of process quality / quality of procedure, technical quality and decision quality, namely who adds quality (project applicant, authority, public) and which stage of the procedure is especially important in terms of quality assurance. After a statistical analysis of all EIA procedures completed by the end of 2004 in Austria, selected cases will be evaluated by way of a qualitative document analysis of the EIA documents. To support this analysis, there will also be oral and written inquiries.

The presentation will highlight the methodical approach and first results.

Environmental Impact Assessment, evaluation

The NEPA Modernization Program - Adapting Lessons Learned from International Organization Environmental Assessment Practices and Policies

Gallegos, Carl M.; Independent Consultant, 7968 Aldan Dr., Chestertown, MD 21620 USA. 410/ 778-4987. carlmgallegos@aol.com.

On May 20, 2002, the Council on Environmental Quality (CEQ) established a NEPA (National Environmental Policy Act) Task Force to review the current NEPA implementing practices and procedures. "The Task Force Report to the Council on Environmental Quality – Modernizing NEPA Implementation" was published and presented to CEQ on September 20, 2003. Since then, CEQ has held a series of regional public roundtables to raise public awareness of the NEPA Task Force draft recommendations and discuss the recommendations and their implementation. NEPA is arguably one of the first environmental policies enacted by a national government, and it has had considerable influence on environmental policies and regulations that have been promulgated by other national governments and international organizations. Because of this, NEPA modernization is a topic of great interest not only to U.S. Government agencies but also to other governments, international organizations and the private sector. Environmental policies and regulations have evolved considerably since NEPA was enacted in 1969, and it is maintained that the NEPA modernization process can be strengthened by adapting lessons learned from programs and activities such as the Common Framework on Environmental Impact Assessment adopted by the Working Group on Environment of the Multilateral Financial Institutions (MFI-WGE), the Equator Principles, and Environmental Management Systems (EMS) used by the private sector and several national and international organizations.

Environmental policies and regulations, NEPA modernization

A Quality Review of EIA in Swedish Bilateral Cooperation

Stephansson, Eva; Swedish EIA Center, PO Box 70 12Uppsala, Uppsala 750 07 Sweden. 46 (0)18 67 10 00. Fax 46 (0) 18 67 35 12. eva.stephansson@lpul.slu.se. www-mkb.slu.se.

Isaksson, Karin; Swedish EIA Center, PO Box 70 12Uppsala, Uppsala 750 07 Sweden. 46 (0)18 67 10 00. Fax 46 (0)18 67 35 12. karin.isaksson@lpul.slu.se. www-mkb.slu.se.

Wallentinus, Hans-Georg; Swedish EIA Center, PO Box 70 12Uppsala, Uppsala 750 07 Sweden. 46 (0)18 67 10 00. Fax 46 (0)18 67 35 12. hans-georg.wallentinus@lpul.slu.se. www-mkb.slu.se.

Sida (Swedish International Development Cooperation Agency) has worked with EIAs since 1991, and has gradually acquired experience and developed its use of EIAs over the years. In 2001 a regulation for EIA in development cooperation was introduced. Following this Sida's programme officers must ensure that an EIA is carried out on all contributions. It is the responsibility of the partner in co-operation to carry out the EIA. Sida's role is that of inspection and support.

This review aims to look at what impact the more strict EIA regulation has had on project design and the decision process within Sida. An attempt will be made to analyse what role the institutional arrangements and the organisational culture has had (in terms of how environmental issues are perceived/defined and given priority as regards values, norms, rules and regulations, networks and inclusions in decision-making processes).

EIA, Sida, quality review, organisational cultures, institutional development

CS62. SEA: TECHNIQUES AND METHODS

Data Needs in SEA as Contrasted with EIA

Hanssen, Martin; Norwegian Institute for Urban and Regional Research, Sinsenveien 47b, Oslo, Norway 0131. +47 22 95 88 86. Fax +47 22 22 37 02. martin.hanssen@nibr.no.

Lindblom, Inge; Norwegian Institute for Cultural Heritage Research, Storgt. 2, Oslo, Norway. +47 23 35 50 51. inge.lindblom@niku.no.

Attempts have been made to contrast the data needs in SEA and EIA in theoretical terms, and a number of rather general criteria have been published. This paper discusses two models for determining data needs in SEA, by contrasting it with the needs in EIA for the same topics. It is argued that the contrasts are supported by a number of the criteria suggested in theory, by differences in the two corresponding EU-directives, and by practical examples. With the models, we make an attempt to establish a broad based data selection perspective for SEA, which tries to cover all relevant SEA-data.

The first model, the Selection-model, suggests that SEA may often just make a selection of the data required for an EIA, in dealing with the same topics. This is because decision-makers may be concerned with getting EIA-kind of data in land use planning, although development consents are not being given at this stage. The paper suggests criteria for selecting SEA-data from the "EIA-pool" or not, by what may characterise this data, and by what may motivate the choice.

The second model, the Probability-model, rejects the idea of making a selection from EIA-data, and states that SEA-data should merely approach the probability of finding the data one expects to be looking for in EIA. This is because decision-makers may be content with this, which also may be cheaper, since subsequent EIAs may find what is necessary before development consent is given. Linked to this model, the paper suggests criteria for selecting this data, by what may characterise the data, and by what may motivate the choice.

Strategic Environmental Assessment, SEA, data

A Web-GIS to Support the SEA of TEN. The Tool and the Public Participation Dilemmas

Silva, Elisabete; School of Engineer, Catholic University, Estrada Octávio PatoRio de Mouro, Sintra, Sintra 2635 -631 Portugal. + +351-21 426 98 19. elisabetesilva@fe.ucp.pt.

Neves, José; Lisbon Technical University, Av Rovisco Pais, Lisbon Portugal.

Macario, Rosario; Lisbon Technical University, and TIS.PT, Av Rovisco Pais, Lisbon Portugal.

Ramos, Ana; TIS.PT, Av. 5 de Outubro, 75 - 7º, Lisbon, Portugal.

Fermison, João; TIS.PT, Av. 5 de Outubro, 75 - 7°Lisbon, Portugal.

The paper "A Web-GIS to support the SEA of TEN - The tool and the public participation dilemmas" presents the opportunities and challenges that WEb-GIS tools might grant to the SEA process.

It stresses the importance of Web-GIS as a tool to distribute information across the internet, and as an important means of building new maps that will facilitate the SEA process of Trans European Networks.

It raises the questions of multiple and different users and the importance of building two levels of analysis and participation (technicians from EC, member states,and the overall citizen that will access internet public).

The EC project Beacon will be used as a means of testing the entire structure of the Web-GIS.

The paper finishes with a discussion of the main opportunities, and problems of developing the Web-GIS for the Beacon project and for other SEA projects.

It concludes by raising several points on the concept of "remote participation" that the internet and the Web-GIS might allow.

SEA, TEN, GIS, Internet

From Here to There: How Does a Strategic Forestry EIS Reach an Implementation Phase of High Standard

Pratt, Cynthia; Washington Department of Natural Resources, 1111 Washington St. SE, PO Box 47014, Olympia, WA 98504-7014 USA. (360) 902-1633. cynthia.pratt@wadnr.gov.

How does a natural resource agency get from strategic to on-the-ground timber harvest planning of high quality? In the State of Washington, the Department of Natural Resources (DNR) has responsibility to satisfy the fiduciary expectations of its citizens while still providing sustainable timber sales which meet requirements under the federal Endangered Species Act (ESA). DNR prepared a Habitat Conservation Plan (HCP), receiving an Incidental Take Permit by the U.S. Fish and Wildlife Service and National Marine Fisheries Service, prepared in junction with a National Environmental Policy Act EIS for DNR's proprietary timber sales.

The HCP helped direct DNR to prepare sustainable harvest calculation (SHC) strategies that develop, programmatically, ways to harvest timber that will be protective of wildlife and its forest habitat. The SHC strategies required processing under the state's environmental review process, the State Environmental Policy Act (SEPA). This resulted in a recent final SHC EIS.

Because of the changes required by the above strategic, or programmatic, environmental review, policies that were in place prior to the HCP and SHC EIS required updating to be compatible. The agency's Forest Resource Plan, which establishes forest harvest policies, now must be changed to ensure no conflicts exist, and that these policies are restrictive enough to provide protection under ESA and the HCP.

This spring, DNR met with interested parties to discuss what should be the guiding strategies at the implementation level to achieve desired outcomes for specific geographical areas over time. The expectation is to prepare an EIS that allows foresters opportunities and constraints for decision-making for their schedule of activities, i.e., where harvests will occur, acres to cut, legacy trees, riparian buffers, aesthetic (viewshed) issues, and wildlife requirements. Quality comes from an outcome that provides habitat protection while meeting DNR mandates.

Strategic, forestry, implementation

Assessment Method for SEA on Urban Plan in Korea

Lee, Jong Ho; Department of Urban Planning, Cheongju University, 36 Naedok-Dong Sangdang-Gu, Cheongju, Chungbuk 360-764 Republic of Korea. +82-43-229-8279. Fax +82-43-229-8233. jhlee1013@cju.ac.kr.

Hong, Sang-Pyo; Department of Environmental Engineering, Cheongju University, 36 Naedok-Dong Sangdang-Gu, Cheongju, Chungbuk 360-764 Republic of Korea. +82-43-229-8576. Fax +82-43-229-8432. sphong@cju.ac.kr.

Kim, Tae Geun; Department of Environmental Engineering, Cheongju University, 36 Naedok-Dong Sangdang-Gu, Cheongju, Chungbuk 360-764 Republic of Korea. +82-43-229-8575. Fax +82-43-229-8432. ktkenv@cju.ac.kr.

The EIA system in Korea consists of EIA and Prior Environmental Review System (PERS) partly playing SEA. EIA is for the environmental assessment of large development project and PERS is for the environmental assessment of administrative plans including establishment of land use plan, assignment of industrial complex and development projects in the environmentally sensitive conservation region etc.

PERS based on Basic Environmental Policy Act has similar concept of SEA, because PERS evaluates the environmental impact of administration plan; and PERS has that of project-EIA, because PERS also evaluates the environmental impact of the above mentioned small-scale development project in the conservation region.

The administration plans environmentally assessed by PERS consist of plans for national land, urban and regional development, plans for industrial complex, and plans for water resource and energy development etc.

Urban plan in Korea consists of metropolitan urban plan, basic urban plan, and urban management plan including unit district plan.

Manual on PERS and Manual on Environmental Assessment for Environmentally Friendly Urban Planning explain the procedure, assessment method (tool) and main concerns of environmental assessment on development plan. But the content and assessment method included in PERS report on most development plan are similar with those of project-EIA. PERS on urban plan is focused on not the quantitative environmental assessment but qualitative one and related assessment method for it has not been sufficiently developed.

This paper analyses the procedure, methodology and main concerns of environmental assessment of development plan and suggests the improvement of them, focusing on the assessment method of PERS having the function of SEA.

SEA, Prior Environmental Review System (PERS), urban plan, EIA

Strategic Environmental Assessment (SEA) for Biotechnology

Linacre, Nicholas; International Food Policy Research Institute, 2033 K Street NW, Washington, DC 20008 United States. 1-202-862-8138. n.linacre@cgiar.org.

Biotechnology innovations may have the potential to help alleviate specific problems in the developing world. The deliberate environmental release of transgenic organisms (GMOs) is governed by the Convention on Biological Diversity through the Cartagena Protocol on Biosafety. The protocol specifies the use of case by case risk assessments. These environmental or ecological risk assessments form the basis of Environmental Impact Assessments (EIAs) of specific biotechnology projects. The incorporation of environmental considerations only at the level of specific projects precludes the adoption of alternatives environmental visions and Strategic Environmental Assessment (SEA) was developed as an approach to integrate environmental considerations at a policy level, where alternatives environmental visions can be considered. In this review we outline a Strategy Environmental Assessment approach for biotechnology products. We argue that SEA should be used as a precursor to the adoption of biotechnology policies for the assessment of economic, social, and environmental benefits, cost and risks of adopting specific biotechnology policies. The SEA process outlined has both qualitative and quantitative assessment components.

SEA, GMO, genetically modified organisms, risk, EIA

CS63. CAPACITY BUILDING FOR BETTER IA SYSTEMS

EIA System Quality & Integrated Compliance: Similar Challenges; Mutual Lessons and Ways Forward

Stoughton, Mark; 81.78.262.6634. stoughton@iges.or.jp.

In the US and other wealthy industrial economies, EIA regulatory requirements function as one element of the environmental regulatory system. The EIA system frequently is only a limited source of operational requirements and is poorly linked with regulatory programs that do have jurisdiction over operations of regulated entitites (e.g., pollution permitting programs.) In EIA "late adopter" countries (particularly in Africa), however, the EIA system is often the primary source of operational environmental management requirements and bears the full burden of assuring sustainable management of industrial production, extraction, and other economic activities.

There is wide agreement that in the US, persistent resource constraints and the expansion of the regulated universe to smaller and more numerous entities are placing clear limits on first generation regulatory approaches. "Perfect policing" is increasingly unachievable, and there is an emerging consensus that the effectiveness of the regulatory system depends on integrated compliance—that is, the ability to strategically deploy monitoring, enforcement and technical assistance resources and tools.

African environmental regulatory institutions face strikingly similar problems in raising the quality of their national EIA systems: how should even more limited resources be deployed for effective follow-though, particularly as decentralized and SME-based development approaches drive the expansion of the regulated universe?

The challenges of "EIA system quality" in Africa and "integrated compliance" are therefore closely linked. Unfortunately, the practitioners and regulatory communities involved are not. The presentation draws on extensive comparative state-level comparative research in the US and several years'experience in African EIA capacity-building to identify common challenges and promising approaches and policies. The analysis focuses on the critical combination of information systems, management mechanisms, and statutory tools/authorities.

Improving EIA Quality and Investing in Capacity Building: the West African Gas Pipeline Project as a Model

Kollar, Johanna; ICF Consulting, 33 Hayden Avenue, 3rd FloorLexington, MA 02421 USA. 1-781-676-4012. jkollar@icfconsulting.com. www.icfconsulting.com.

Morin, J. Renee; ICF Consulting, 1725 Eye St NW, Washington, DC USA. 1-202-862-2976. rmorin@icfconsulting.com. www.icfconsulting.com.

Armah, A.K.; Environmental Solutions (Gh) Limited, P. O. Box LG 239Leggon, Ghana. esl_ghana@yahoo.com.

Cornwell, John; ChevronTexaco, USA. CORJ@ChevronTexaco.com.

The topic of capacity building in Sub-Saharan Africa has been previously discussed in terms of training, technology, and monetary transfer for environmental assessment activities. The focus of transfer has traditionally been on building capacity within government institutions (i.e., institutional strengthening) in attempts to facilitate the environmental impact assessment (EIA) process. The EIA process itself, however, can be used as a tool for the formalization and reinforcement of capacity building when there is a commitment on the part of the project proponent and EIA team.

Increasingly, African governments are demanding, and rightly so, that African scientists conduct the EIAs for large development projects. However, terms of reference of donor-driven projects often define the eligibility of firms bidding for project roles by placing requirements on the country of registration of the bidding firm and setting goals for a percentage of "local content". As private corporations seek to incorporate "local content," the challenges of finding adequate local resources (teams of experts and support staff); overcoming logistical and communication issues; meeting schedules, and at the same time managing costs can become particularly difficult.

This paper examines how the incorporation of local content on behalf of industry project proponents has furthered capacity building in Sub-Saharan Africa. One successful mechanism for driving capacity building is examined here: the contractual arrangements between clients (the project proponents) and private consultants conducting EIA work in developing countries. The West African Gas Pipeline team is discussed as one such model for capacity building techniques. Staffing solutions, "best practices," and "lessons learned," as well as pitfalls to be avoided are presented. Using an energy industry perspective, the discussion focuses on how to incorporate local content into EIAs, promote capacity building as part of the process, ensure the overall quality of the EIA, and simultaneously meet multiple stakeholder expectations.

Technology transfer, capacity building, institutional strengthening, West Africa

Is the Demand for Quality in IA Documents Detrimental to Efficient Implementation in Africa?

Dalfelt, Arne; Norwegian Institute for Urban and Regional Research, Sinsenveien 47B, Oslo, Oslo 0585 Norway. + 47 22958993. Fax + 47 22223702. arne.dalfelt@nibr.no. www.nibr.no.

A common problem encountered by development institutions in Africa is the low quality of IA documents caused by lack of professionally educated impact assessors. A number of local consultant companies advertise their skills in doing EIAs for donors and investors involved in development activities. Nevertheless, often the received documents are of a quality that is unacceptable to the requirements of international development agencies, resulting in delayed funding and project initiation.

Most IA capacity building activities offered in Africa are of short term duration, and mostly based on the assumption that the students already possess the basic professional training. A system for post-vetting of local consultants has been proposed, and studies have been made of available options, including the use of voluntary examination over Internet, but there is opposition to these ideas. The result is that locally based consultant companies with limited IA knowledge provide local investors with IA documents that are approved by local authorities, while international donors or financiers have to use international consultants which have professionally approved qualifications. This becomes a two-tiered system that operates side by side in many African countries. This double standard system works basically because local authorities view the international criteria as too stringent for what is needed in their countries.

This raises the question of whether the high standards required for IAs by international players like the World Bank and others, actually are counterproductive in a developing country context? Have the international EIA and SA requirements, including internal safeguard policies, gone too far in sophistication? Are some of these development providers more concerned about their own reputation than the actual impacts on the environment? If so, is this damaging to the environment and local society? Many developing country officials think so, and so do many task managers in development agencies.

Quality requirements, local capacity, documentation standard, two-tiered system

Who Is an EIA Expert?

Oyaro, Duncan; Pact Kenya, Dennis Prit Road, Box 7745 00100, Nairobi 254 020 Kenya. 2733858. dunoyaro@yahoo.co.uk.

Kenya is in the process of registering EIA practioners/experts. The criteria used in registering EIA practioners requires that one must have a first degree. In which field is not clear. With a second degree with several 5 years of research (does not matter which field) or a doctorate/professorship you qualify to be a lead expert.

This paper attempts to demystify who is an EIA expert. What sort of academic credentials must one have to qualify to be called an EIA expert. The paper is based on Kenya model as a case study in attempting to scrutinize the quality of EIA reports

Do other EIA team members be EIA registered practioners to be called experts?

The composition of EIA, the academic and experience credentials will judge the quality of the study.

EIA Experts, quality, criteria, academic, team, field

CS64. HIA: TOOLS AND PROCEDURES FOR HIA

Health Impact Assessment of Municipality Solid Waste Management in Thailand: A Scoping and Methodology

Charerntanyarak, Lertchai; Faculty of Public Health, Khon Kaen University, 123 Mittrapap Road, Amphur Muang, Khon Kaen 40002 Thailand. 66-(0)43-202398. Fax 66-(0)43-347058. lertchai@kku.ac.th.

Inmuong, Uraiwan; Faculty of Public Health, Khon Kaen University, 123 Mittrapap Road, Amphur Muang, Khon Kaen 40002 Thailand. 66-(0)43-202398. Fax 66-(0)43-347058.

Krongthamachat, Kannitha; Faculty of Public Health, Khon Kaen University, 123 Mittrapap Road, Amphur Muang, Khon Kaen 40002 Thailand. 66-(0)43-202398. Fax 66-(0)43-347058.

Kerdsuk, Vichien; Research and Development Institute, Khon Kaen University, 123 Mittrapap Road, Amphur Muang, Khon Kaen 40002 Thailand.

Ruchuwararak, Patcharin; Research and Development Institute, Khon Kaen University, 123 Mittrapap Road, Amphur Muang, Khon Kaen 40002 Thailand.

Prabpai, Somkid; Faculty of Public Health, Khon Kaen University, 123 Mittrapap Road, Amphur Muang, Khon Kaen 40002 Thailand. 66-(0)43-202398. Fax 66-(0)43-347058.

The study aimed to define the scoping and guideline of methodology for health impact assessment of municipality solid waste management in Thailand. The disposal system was combination designed, consisting of a sanitary landfill and a composting plant; some areas had an infectious incinerator. The study employed the literature review, focus group discussion, interview the stakeholder of solid waste management.

Scoping and methodology for health impact assessment of municipality solid waste management in Thailand can identify as three categories. The first is health impact assessment of population studies (stakeholders): a) municipal solid waste workers, personnel group, b) group of communities, people who live near the disposal site, c) private occupation with solid waste group: scrap merchant, scrap collectors at disposal site, scraper using tricycle (Sa-Leng), and d) the administrative group related to solid waste management and policy. Health impacts cover physical, mental, social and spiritual health such as sickness, stress, self responsibility, worrying, recognition, social relationships, morale, citizen's participation etc. The second is assessment of environmental quality that impacts also to human health. These consider the air, water, soil qualities at the disposal site and the area around 2 km

nearby. At the solid waste discharge point and the transfer station should consider the visual sighting, air quality. And the third is assessment of the linkage of environment and health analysis for decision-making.

In conclusion, the scoping for health impact assessment of municipality solid waste management in Thailand must collect the quantitative and qualitative data from the stakeholders as above. The methodology employed collects positive and negative health impact data and combines the focus group discussion, interviewing, observation and laboratory test.

Scoping, methodology, Health Impact Assessment, municipality solid waste, Thailand

EPHIA: European Policy Health Impact Assessment

Scott-Samuel, Alex; IMPACT, University of Liverpool, Whelan Building, Brownlow Hill, Liverpool, Merseyside L69 3GB UK. + 44 (0) 151 794 5569. alexss@liv.ac.uk.

Abrahams, Debbie; Pennington, Andrew; IMPACT, University of Liverpool, UK

den Broeder, Lea; RIVM, National Institute for Public Health and the Environment, Bilthoven, Netherlands

Doyle, Cathal; Metcalfe, Owen; Institute of Public Health in Ireland, Ireland

Haigh, Fiona; Mekel, Odile; loegd, Institute of Public Health NRW, Germany.

Background

This was a two-year investigation funded under the EC Health Monitoring Programme. The project commenced in December 2001.

Aim

To synthesise a generic health impact assessment methodology for European policy. which could be routinely employed within the EC , EU, and member states.

Methods

Phase 1 involved the synthesis of a generic HIA methodology using existing approaches, and involved developing and applying search and synthesis criteria in order to produce the generic methodology. In Phase 2 policy selection criteria were developed and applied to the EC 2003 work programme and the European Employment Strategy was selected to pilot the synthesised methodology at member state and European levels. Finally in Phase 3, the HIA pilots were evaluated against a defined evaluation framework and the HIA methodology was refined to 'EPHIA'.

Project Findings

We learnt that our new approach - EPHIA - is effective and robust. It can be used for both rapid and comprehensive HIA. It will address distributional impacts (inequalities) as well as overall impacts. We also found several problems with the proposed methodology, which we modified accordingly. The nature and scale of stakeholder participation at the European level is particularly problematic.

EPHIA is the first empirically validated health impact assessment methodology for use with European public policy.

Policy Health Impact Assessment, Europe

A Method to Estimate the Effects of Public Health Interventions on Obesity

Veerman, Lennert; Erasmus Medical Center, Dept. of Public Health, PO Box 1738, Rotterdam, 3000 DR The Netherlands. +31-10-4087732. Fax +31-10-4089449. j.veerman@erasmusmc.nl.

van Beeck, Ed; Erasmus Medical Center, Dept. of Public Health, PO Box 1738, Rotterdam, QLD 4006 The Netherlands. +31-10-4087714. Fax +31-10-4089449. e.vanbeeck@erasmusmc.nl.

Barendregt, Jan; School of Population Health, University of Queensland, Herston Road, Herston, QLD 4006 Australia. j.barendregt@sph.uq.edu.au.

Mackenbach, Johan; Erasmus Medical Center, Dept. of Public Health, PO Box 1738, Rotterdam, 3000 DR The Netherlands. +31-10-4087714. j.mackenbach@erasmusmc.nl.

Background: Obesity is a rapidly increasing public health problem in many countries, including the Netherlands. Therefore, obesity prevention is a priority for the Dutch Ministry of Health, Welfare and Sports. The ministry has engaged in voluntary agreements with the food industry to counter the upward trend in obesity. The sector will

present proposals for action. Our research group advises the stakeholders on the potential impact of these actions on obesity and population health. This presentation focuses on the methods used for this health impact assessment.

Methods: The effect of a specific action by the food industry on average energy intake is estimated on the basis of literature and a Delphi study. This provides input for a mathematical model that describes the energy balance at the population level and links this to the prevalence of overweight and obesity in the population. The model predicts their future prevalence using the current trend in average BMI. It compares two populations: one that is exposed to the current trend for 20 years and one that is exposed to this trend that is modified by an intervention that affects caloric intake (or physical exercise). The difference between the two populations is attributed to the intervention. Population health effects are similarly calculated using a multi-state life table model.

Preliminary results show that when current trends persist until 2024, the prevalence of overweight is likely to remain more or less stable at 50% for men and 33% among women. In contrast, the prevalence of obesity is expected to rise from 11.5% to 21% for men and from 15% to 33% for women. This would result in a loss of life expectancy of 44 days for men and 60 days for women. In our presentation these results will be compared to several policy scenarios.

Health impact assessment, quantitative methods, obesity

A Case Study of The Use of Economic Assessment in Land Use – Health Policy Links in Thailand

Haesakul, Sombat; Health System Research Institute, Department of Mental Health, Minintry of Public Health, Thivanon rd. BangKhuan district.Muangnon, Nonthaburi 11000 Thailand. +66-2951-0117. Fax +66-2591-6587. sombatsh@yahoo.com.

Sukkumnoed, Decharut; Health System Research Institute, Department of Mental Health, Minintry of Public Health, Thivanon rd. BangKhuan district.Muangnon, Nonthaburi Thailand. +66-2951-0117. Fax +66-2591-6587. tonkla@yahoo.com.

Generally, policy makers in developing countries have decided based on financial benefit and cost. It is not included external health and environmental impact affected by policy. In case of land use, policies of land utilization are mainly allocated resources for economic development and reduction effect and impact of the policy.

Since 60 percent of Thai populations are agricultural-based households, land is certainly a very important resource for Thai society and economy. However, despite its importance, Thailand has never implemented a comprehensive land use policy. The policies affecting land use changes are usually defined and formulated as sectoral policies or planning. The most important policy driving forces in terms of land use changes are agricultural policy, industrial and urban development and infrastructure developments (like roads, dams and power plants). Since all these policies have not always been synchronized and usually do not have health as main objectives, the implementation of these policies can lead to undesirable health and environmental impacts in various ways.

Like other environmental issues and other countries, in general, the main idea to apply economic assessment is to internalize the health and environmental costs into the full costs of each land use options in decision-making process. It is obvious that, in Thailand, most of the health and environmental costs are excluded from both private and public decision-making leading to the distortion in land use management towards more health and environmental damaging options.

However, economic assessment is one of decision instrument for policy maker. An assessment of policy helps to design healthy public policy and increase trust and confident of policy implementation.

Healthy public policy, economic assessment, health impact assessment, land use policy

CS65. ENVIRONMENTAL LAW, POLICIES AND PRACTICE 2

Values and Ethics In Enforcement: A Case Study on How Government Can Be Split Over an Environmental File

Tremblay, Jean; Environment Canada, Montreal, Quebec H2Y2E7 Canada. 514-283-0194. jean.tremblay@ec.gc.ca.

Issues relating to values and ethics are of constant concern in the Canadian Public Service and the publication in 2003 of a code for public servants has renewed interest in this question. The code is an essential working tool for all employees who are proud of their work, disposed to serving the public well and intent on gaining citizens' respect.

The values described in the code may be mutually exclusive in different situations. Environment Canada was faced with this reality in 2004, while it was managing an environmental issue involving another federal department. Democratic values ensuring that decisions were made in accordance with the laws in force were in direct conflict with professional values ensuring proper, efficient and effective use of public funds. This duality led to the temporary establishment of two solitudes within Environment Canada and with the department in question.

The purpose of the paper is to present the case, the forces at work in terms of values and ethics, and the positive and negative repercussions inherent in managing this file. While ensuring the anonymity of the groups and individuals involved, the case study will provide a learning opportunity aimed at facilitating the management of similar situations and will reinforce the idea that multiple decisions in the environment field are guided by underlying principles associated with values and ethics.

Values, ethics, environment, government

Understanding the Need for Negotiated Contracts in EA: An Evaluation from the Northwest Territories, Canada

Galbraith, Lindsay; Simon Fraser University, 788 West 8th Avenue, Unit 108, Vancouver, BC V5Z 1E1 Canada. 604-324-4182. leg@sfu.ca.

Bradshaw, Ben; University of Guelph, Department of Geography, Guelph, ON Canada. 824-4120 ext. 58460. bbradsha@uoguelph.ca.

The insatiable demand for diamonds has renewed interest in Canada's, historically vulnerable, northern hinterland among some of the world's largest mining companies. To date, two mines have opened, and a third is in development. While many environmental assessment (EA) practitioners and scholars maintain that conventional EA can adequately reduce negative outcomes associated with these kinds of developments, many others continue to question its usefulness and fairness. This paper contributes to this debate. It presents research findings from an evaluation of the Mackenzie Valley Environmental Impact Review Board (MVEIRB) EA process that is used to review the mining developments in the Northwest Territories (NWT). This case evaluation is particularly insightful given that the MVEIRB EA process has been widely recognized as exemplifying many identified "best practices". Findings indicate that the MVEIRB EA process does meet these best practices. In particular, the co-managed process appears to be more relevant and inclusive to the interests of the impacted public, while cumulative effects assessment is rigorously employed. The process, however, does not provide for post-EA follow-up and is shaped by broader issues of mistrust and inequality. To address the problems that EA does not, ad hoc negotiated contracts (i.e. Impact and Benefit, Environmental, and Socio-Economic Agreements) are now considered to be an expected part of the EA process in the NWT.

Negotiated agreements, best practices, Northwest Territories, diamond mining

The Role of Experts and Public Participation in Developing the Quality Criteria in EIA Reports

Hiiemäe, Olavi; Swedish EIA-centre; Swedish Agricultural University, Akadeemia 4Tartu, Tartumaa 51003 Estonia. + 372 5 278 027. Fax + 372 7 427 432. olavi@envinst.ee.

Wallentinus, Hans-Georg; Swedish EIA-centre; Swedish Agricultural University, Ullsväg 28A, Ultuna, Uppsala, Uppland Sweden. + 46 18 67 19 78. Fax + 46 18 67 35 12. Hans-Georg.Wallentinus@lpul.slu.se.

At least five EIA development stages can be distinguished in Estonian EIA legislation as well as in practice, since year 1991 when EIA was firstly introduced in the Baltic States. Since then, there were at least three new versions of EIA legislation in Estonia and two guidelines introduced for experts to follow.

The aim of the current paper is to analyse the quality development of three EIA reports on harbours over different law development stages in Estonia. The oil terminal in Muuga was the first case where the "modern" EIA report was required, in 1992. The aim was to highlight the newly developed EIA procedure, and was a first joint research, made by the Baltic-Nordic group of EIA specialists.

A second case study is showing the state of EIA reports in the late 90's, and the third case is from year 2002, where a huge cruising ship harbour was planned to be built just in the middle of an important bird area in Saaremaa which belongs to the NATURA 2000 sites, as well as Vilsandi National Park.

The paper will examine the quality of these three EIA reports, and discuss issues like the ethics of EIA experts in report writing versus demands from project developers and decision makers.

EIA report quality, Baltic-Nordic EIA co-operation, EIA on harbours

Greenhouse Gas Reporting: Why Tell The Truth?

Johnson, Eric; Atlantic Consulting, Obstgartenstrasse 14Gattikon, ZH 8136 Switzerland. + 41 1 772 1079. ejohnson@ecosite.co.uk.

With the advent of the Kyoto protocol, many companies are now obliged to report greenhouse gas (GHG) 'accounts'. These could bring significant monetary gain or loss, and at the same time they are by nature rather slippery, far more so than financial accounts. So why should companies not fiddle them to their advantage?

This paper examines that question, drawing on the example of the fluorocarbon industry, which to date has misrepresented its greenhouse gas accounts on a national basis. It analyses the industry's trade-off between: a) reputational risk of being exposed as a liar versus b) a potential cap or ban on production.

The paper also looks at the possible regulatory responses – voluntary compliance, audits and penalties – and it draws parallels to tax reporting and compliance.

Kyoto, compliance, carbon reporting

CS66. DISASTER & CONFLICT: EXTREME IMPACT ASSESSMENT: ETHICAL AND QUALITY CONSIDERATIONS WHEN DEALING WITH CONFLICT, DISASTER, AND OTHER EXTREME EVENTS

International Law for the Protection of the Environment in Situation of Armed Conflicts

Bouchard, Michel Andre; McGill-UNEP Environmental Assessment Collaborating Centre, MacDonald Campus, McGill University, 21, 111 Lakeshore Road, Montreal, Quebec H9X 3V9 Canada. + 1 514 999 6088. michel.a.bouchard@cogeos.com.

Dorsouma, Al-Hamndou; Université Senghor, 1, Place Ahmed Orabi, El Mancheya, BP 21111-415, Alexandrie, Alexandrie Egypt. dalhamdou@yahoo.fr.

EA methods can be used to correctly anticipate environmental impacts of armed conflicts and help in their mitigation. Strategic Environmental Assessment (SEA) can help to anticipate impacts and design Involuntary Resettlement Plan or plan for monitoring of Protected Areas or World Heritage sites. Not much can be done during the actual conflict phase, but a number of International legal instruments do exist that deal with the Protection of the Environment in war times; belligerents should be duly informed and reminded of those as preventive and protective measures of the environment. A number of articles of The Hague Conventions (1907), the Constitution Accord of the Nuremberg Tribunal (1945) and of the Geneva Conventions (1949) altogether indirectly forbid and prevent abusive and destructive behaviours towards environment in the conduct of war. More specifically however, three international « modern » legal instruments directly address the question : 1) the Geneva Protocol I (1977) which attempts to prevent Ecological Wars, defined as the use of methods of combat susceptible to lead to disruption of natural equilibrium and irreversible damages to ecosystems 2) the United Nations Convention on Environmental Modifications (1976), known as ENMOD, which attempts to control or prevent Geophysical Wars since it prohibits the deliberate manipulation for hostile purposes of such natural phenomena as the dynamics and structure of the Earth systems, including the biota, the lithosphere, the hydrosphere, the atmosphere, as well as the extra atmospheric space. 3) Finally, the International Red Cross and Red Crescent Committee Directives (CICR) are intended directly to Military Instruction Manuals of belligerents and they prescribe the Protection of the Environment as part of the Rules of Engagement. Strict applications of those, and eventually prosecution on account of violating those principles and rules should be considered as Mitigation Measures to prevent Environmental Impacts in Armed Conflicts situations.

Post conflict assessment, international laws

Assessment of Post-Conflict Environmental Needs in Iraq

Hamouda, Faouzi; Centre International des Technologies de l'Environnement de Tunis (CITET), Boulevard du Président Arafat1080, Tunis Tunisia. formation@citet.nat.tn.

Hanchi, Belgacem; Centre International des Technologies de l'Environnement de Tunis (CITET), Boulevard du Président Arafat 1080, Tunis, Tunisia. dg@citet.nat.tn.

Nafti, Rachid; Centre International des Technologies de l'Environnement de Tunis (CITET), Boulevard du Président Arafat1080 Tunis, Tunisia. + 216 71 206 721. citet-metap@citet.nat.tn.

Bouchard, Michel Andre; McGill UNEP Environmental Assessment Collaborating Centre, McDonald Campus, McGill University 21, 111 Lakeshore, Montreal, Québec H9X 3V9 Canada. + 1 514 999 6088. michel.a.bouchard@cogeos.com.

Assessment of post-conflict environmental needs in Iraq is based on a survey conducted by the Tunis International Center for Environmental Technology (CITET) in the framework of its regional activities as the EIA centre under the METAP (Mediterranean Environmental Technical Assistance) Program. This self evaluation of the needs in Iraq is a clear reflection of the priority of needs in Environmental Governance in post-conflict situations and may possibly apply in other post-conflict situations elsewhere. Iraqi environmental officers have identified 39 areas of needs for capacity building, 9 specific areas for environmental technology assistance and guidance and 5 areas of institutional and communication assistance. Needs range mostly for Pollution Prevention and Cleaner Production technologies and for Environmental Assessment Capacity Building, both at the individual and institutional levels. Major preoccupations expressed by the Iraqi environmental officers are targeted at Waste Management, Water Treatment, Land Use planning, preservation of Natural Resources and the establishment of solid programs for training and education in Environmental Sciences and Technology. A common preoccupation is also calling for a full and correct assessment of the environmental "state of affairs" in the country as a basis of carefully planning the establishment of a full system of environmental governance.

Post conflict assessment, Iraq

Environmental Assessment of Armed Conflicts in Congo Democratic Republic

Bouchard, Michel André; McGill-UNEP Environmental Assessment Collaborating Centre, MacDonald Campus, McGill University, 21, 111 Lakeshore, Montreal, Quebec H9X 3V9 Canada. + 1 514 999 6088. michel.a.bouchard@cogeos.com.

Shuku Onemba, Nicolas; Association Nationale pour l'Évaluation Environnementale en RDC, 11 Niveau Building Regideso, Commune de la Gombe, Kinshasa RD Congo. 00243.81.510.33.30. shukuonemba@yahoo.fr.

Bashigue, Eulalie; Institut Congolais pour la Conservation de la Nature, BP: 12348, Kinshasa RD Congo. pdg.iccn@ic.cd.

Luku Lusiense, Roger Nestor; Institut Géographique Congolais, Kinshasa RD Congo. rogerlubiku@yahoo.fr.

Muen-Kabeya, Ntombi; Centre de Recherches Géologiques et Minières, Kinshasa RD Congo. ntombi@cedesurk.refr.org.

Nseu Bekeli, Mbomba; Comité Scientifique pour la Conservation, la Recherche et le Développement de la Biodiversité en RDC, Kinshasa, RD Congo. b_bomba@yahoo.fr.

Mungala, A. S.; Chaire UNESCO pour la Culture de la Paix, Règlement de Conflit,Droits de l'Homme et Bonne Gouvernance en Afrique Centrale et dans les pays de la SADC, Université de Kinshasa, Kinshasa, RDCongo. chaireunescounikin@yahoo.fr

Mwanambuyu, Kabala; Cellule Environnement, Ministère de l'Environnement, Conservation de la Nature, Eaux et Forêts, Kinshasa, RD Congo. mwakabala@yahoo.fr

Sala, Fuku; , Centre de Recherches en Sciences Humaines du Ministère de la Recherche Sceintifique et Technologique, Kinshasa, RD Congo.

Bitondo, Dieudonné; Département de Géographie, Université de Montréal, P.O.6128, Succurusale Centre Ville, Montréal, Québec, Canada H3C 3J7. bitondo@hotmail.com.

While armed conflicts have been major impediments to sustainable development in numerous African countries, little attention has been given to the use of EA methods in understanding and mitigating their environmental consequences. In addition to well known dramatic human effects, they lead to less well known serious environmental impacts ranging from the degradation of natural resources, such as water, agricultural land, forest and biodiversity to the collapse of environmental governance. Such impacts may seriously affect post conflict rehabilitation and reconstruction and may sustain conditions of civil unrest afterwards. Post-conflict assessment is being implemented in Congo RDC through the concerted efforts of a Consortium of Research established as a result of the Bondeko Accord. According to this Accord, eight institutions spanning from NGO representing the civil society, to university research groups and Chairs representing the learned society, to governmental organisations, some of which are already working on joint UNESCO-funded programs for the protection of (Endangered) World Heritage Sites in Congo DR, have accepted to join efforts in an attempt to fully and correctly lead a comprehensive post-conflict environmental assessment of the numerous conflicts which have affected the country on its eastern border.

Examples of such damages from the most affected provinces of Congo such as Ituri, Maniema, and Province Orientale will be discussed. A number of evaluation and measuring techniques, such as diachronic satellite imagery analysis, field surveys, and other methods are already or are planned to be used to measure the impacts as part of a post-conflict Environmental and Social Impact Study (ESIS), now being attempted in Congo-Kinshasa. Finally Environmental Assessment by the Consortium will be used as a tool in the post-conflict reconstruction planning and operation phases, with a view to quickly and properly re-establish full environmental governance in the affected provinces.

Post-conflict assessment

CS67. INDIGENOUS PEOPLES

Valuing Indigenous Impacts: Environmental Pollution as Cultural Contamination

Edelstein, Michael R.; Ramapo College of New Jersey, 505 Ramapo Valley Road, Mahwah, NJ 07430 USA. 201-684-7745. tabriz@magiccarpet.com.

We have learned a great deal about the impacts of contamination on non-indigenous peoples, but our understanding of impacts for indigenous people is less well developed. Unfortunately, contamination of tribal and native lands and waters is not uncommon, sometimes even occurring as the result of the deliberate siting of hazardous facilities, industrial plants, and waste sites in acts of blatant environmental injustice.

Focused upon impacts on native people's in the United States, this session explores the linkage between impact and remedy. If indigenous victims of contamination are to receive remedies through the American legal and administrative process, a way must be found to help officials, judges, and the public comprehend the nature of their experience of adverse environmental impact. Examining the implications of the historical rejection of native culture and land relationships in the American Legal System, this paper proposes that indigenous cultural, environmental, and community impacts be considered as psychological impacts as a basis for seeking compensation for harm and meaningful action for indigenous victims of environmental contamination and degradation.

Indigenous, psychological impact, cultural impact, legal remedy

Maori and Biodiversity Ethical Issues

Couch, Donald; Te Runanga o Ngai Tahu, Rapaki, 156D Governnors Bay Rd., PO Box 37, Lyttelton, Canterbury 8033 New Zealand. 64-3-328-8200. Fax 64-3-328-8200. rapaki_rep@xtra.co.nz.

An ongoing ethical issue for Ngai Tahu is the need for exercising economic development rights and balancing these with kaitiaki (guardianship) environmental obligations towards sustaining biodiversity. This Maori tribe which is dominant in the South Island of New Zealand, has a large corporate asset base very active in: commercial fishing, property development and tourism. Within the same corporate structure is an Environmental Unit concerned with protecting traditional attitudes, values and practices related to the environment - including Biodiversity and Ecology. The potential for conflicting views on Impact Assessments within the tribal structure is inevitable. This paper will discuss the ethical issues which exist in this situation and through examples illustrate how they are addressed.

Kaitiaki, sustainable development, Ngai Tahu, biodiversity ethics

ESIA/OVOS Process as a Way of Building the Company-Community Relationship in Russia

Khotuleva, Marina; Ecoline EA Center, Valovaya Str. 32/75, office 408, Moscow, 115054 Russia. + 7 095 236 1027. Fax + 7 095 236 1027. mkhotuleva@eac-ecoline.ru. www.eac-ecoline.ru.

Pavel, Filin; Ecoline EA Center, Valovaya Str. 32/75, office 408, Moscow, 119034 Russia. + 7 095 236 1027. Fax + 7 095 236 1027. pfilin@eac-ecoline.ru. www.eac-ecoline.ru.

Vakulin, Andrew; 119034, 8/2, bld 2, Kursovoy per., Moscow, 119034 Russia. + 7 095 777 3155. Fax + 7 095 777 3156. Andrey.Vakulin@russdragmet.ru. www.highlandgold.com.

The paper reviews the ESIA of Mayskoe Gold Mine project starting in Chukotka Region of the Russian Federation. The project is being developed by the Mayskoe Gold Mining Co., which is a subordinate company of the Highland Gold Mining Ltd.

Chukotka is the most remote subject of the Russian Federation. It is located in the North-East of Russia and is separated from Alaska with the Bering straight. The native ethnic groups for this territory are the Chukchas, Evenkae, Etelens and Eskimos involved in reindeer breeding.

Co-operation and mutual understanding is an important factor providing success of projects in the North of the Russian Federation.

The report gives information on different approaches and methods providing positive interaction between the company and the local population (first of all, reindeer breeders) from the very first steps of project realization. The given approaches are directed on revealing of the general interests, joint preparation and subsequent realization of the Community Development Plan (CDP).

These positive approaches will be transformed into a well planned system of interaction with local communities, based on the principles of mutual respect and targeting to reach common goals through joint efforts.

The report also provides an attempt to combine in the most effective way the OVOS carried according to the Russian requirements, and the ESIA carried according to requirements of IFC/WBG. As a fact, Russian EA methods and legal requirements are significantly different from that of international organizations and institutions; overlapping of the procedures always creates a certain problem. The scheme offered in the report eliminates overlapping and uses the strong sides of both Russian and International approaches to environmental assessment.

Mayskoe Gold Mine, Russia, Chukotka, reindeer breeding, ESIA/OVOS

CS68. CAPACITY DEVELOPMENT: THE MARRAKECH DECLARATION AND ACTION PLAN

Capacity Enhancement Funding for Impact Assessment in Developing Countries – The World Bank Contribution

Mercier, Jean-Roger; World Bank, 1818 H Street NW, Washington, DC 20433 USA. 202-473-5565. Fax 202-477-0565. jmercier@worldbank.org.

This presentation will review and discuss the tools available for capacity enhancement funding through the World Bank.

Impact assessment extended progressively in the 1980s and 1990s to developing counties. The World Bank, in its six operational vice-presidencies has funded Impact Assessment capacity building using various tools.

The presentation will present these tools:

- investment lending (as a component, e.g. in infrastructure lending)
- technical assistance (in environment or in economic sectors)
- environmental adjustment lending
- Analytical and Advisory Activities (AAA)
- training (World Bank Institute)
- trust-funds (ad hoc, networking)

The presentation will also explore future arrangements and partnerships with other agencies of official development assistance.

Capacity development for impact assessment, Marrakech Declaration and Action Plan, perform

Capacity Enhancement for Impact Assessment in Developing Countries – A Summary of Seven Regional Studies

Leonard, Peter; Hydro-Québec International, 75, boul. René-Lévesque ouest, 10e étageMontreal, QC H2Z 1A4 Canada. (514)289-2211. Fax (514) 289-5038. leonard.peter@hydro.qc.ca.

This presentation will review and discuss a draft report undertaking for the World Bank Group with the collaboration of IAIA.

Impact assessment extended progressively in the 1980s and 1990s to developing counties. Today more than 135 countries have their own environmental impact assessment (EIA) laws and regulations. However, recently there have been increasing calls from different sources to assess its effectiveness as a process and as a decision aid. And many are asking how IA could be streamlined to better respond to development needs without watering down its goals and objectives.

Furthermore, In recent years, impact assessment has been going through a continuous process of change to respond to emerging development challenges, such as sustainable development and the World Summit on Sustainable Development (WSSD) Plan of Implementation and the UN's Millennium Development Goals (MDGs). New approaches and tools, of which strategic environmental assessments, integrated assessments and sustainability assessments are at the forefront, are being developed and refined to respond to the challenges. However, the effectiveness of basic EIA processes in many developing countries is increasingly being questioned. Evidence is mounting that the performance of even the most comprehensive EIA legislation is limited, if it is not combined with a strong institutional framework and the required capacity.

The report provides an overview of lessons learned in the areas of impact assessment and capacity development. The approach chosen was to summarized a limited number of case studies or study reports and then, wherever possible, to draw a series of general conclusions with a view to contributing to the drafting of the Marrakech Action Plan.

Capacity development for impact assessment, Marrakech Declaration and Action Plan, perform

CS69. ENVIRONMENTAL CAREERS SEMINAR AND PANEL DISCUSSION

CS70. BIODIVERSITY: TREATED PROPERLY IN IMPACT ASSESSMENT? WETLANDS AND DATA

Impact Assessment of Invasive Species Control - EIA on Beneficial Projects

Grassetti, Richard; Grassetti Environmental Consulting, 7008 Bristol Drive, Berkeley, CA 94705 USA. Phone/fax (510) 849-2354. gecons@aol.com.

In the late 1990's scientists realized that an invasion of non-native cordgrass (Spartina) species was occurring in the San Francisco bay esturary, and that this invasion could threaten the entire estuary ecosystem. But the invasive species also provided excellent habitat for a federally-designated Endangered bird species. A joint State/Federal EIA was conducted to asssess the potential impacts of a toolbox of potential control measures. The EIA had to be flexible enough to allow adaptive management yet specific enough to fully inform citizens groups and regulators that the project would minimize impacts to endangered species. A creative approach was developed to meet these potentially conflicting requirements.

Ecosystem, programmatic, EIA, biodiversity, NEPA

The 'Place' of Wetland Management in Impact Assessments Studies

Ohimain, Elijah; Rohi Biotechnologies Ltd, Suite 227 NIPOST Headquarters Building, 10 Station Road, Port Harcourt, Rivers Nigeria. 234-80-23166796. Fax 234-84-320622. eohimain@yahoo.com.

Wetlands are ecosystems adapted to wet conditions. Wetlands provide both economic and ecological functions such as provision of breeding grounds for fisheries, feeding grounds for migratory birds, control of flooding through water retention and filtration/trapping of contaminants. In addition, coastal wetlands protect shorelines from sea waves/storms. Tropical coastal wetland particularly mangrove filters turbid river and overland run off before the water enters the ocean, to prevent the smothering of coral reefs. The rising seawater levels as a consequence of global climate change makes the role of tropical coastal wetlands more relevant in shoreline protection. Unfortunately many of these wetlands are impacted by anthropogenic activities particularly dredging, sand filling and wood logging. Many large cities and associated coastal activities such as seaport and industries are located in wetlands. In many developing countries such as Nigeria, solid waste and sewage are released freely into wetlands. The discovery of oil in many of these tropical coastal wetlands have increased pressures on these important resources, hence oil drilling platforms, oil wells, pipelines, refineries etc are also located within wetlands. Considering the enormous activities in these wetlands, there are indications that many of these wetlands may have been approaching their tolerance limits (or are under serious threat). Few organization such as Society for Wetland Scientist (SWS), Estuarine Research Federation (ERF) and International Society for Mangrove Ecosystems (ISME)

focus on wetland issues mostly independent of IA practitioners like the IAIA. In many projects, IA practitioners with limited knowledge of wetland peculiarities are often engaged in EIAs preparation. This paper therefore focuses on exploring synergies between impact assessment and wetland management just as it is currently been done for biodiversity. Wetland biodiversity should therefore be given a special attention in impact assessment.

Wetlands, mangrove, dredging, dredged materials/spoils, Niger Delta

The Place of Ecotechnology (Wetlands) in Restoring the Impacts on the Lakes' Biodiversity

Ugochukwu, Collins Norberth Chinedu; Brandenburg Technical University Cottbus, Germany, Karlstrasse 28, Cottbus, Brandenburg 03044 Germany. +49 160 94468227. Fax +49 355 694778. ugochcol@tu-cottbus.de. www.tu-cottbus.de.

Lakes support all life forms through extensive food webs and biodiversity. But the lake ecosystem is constantly being threatened by some natural and anthropogenic forces which affect its biodiversity. These forces are in the form of eutrophication and acidification. As eutrophication positively affects the flora components of the lakes by enhancing primary production, it also impacts negatively on the fauna components, enhancing depletion of dissolved oxygen, fish kills and pollution problems. While the acidification problems are as a result of acidic precipitations, acid mine drainage in the case of mining lakes. These types of lakes have high levels of heavy metals and are highly acidic and therefore exert very negative effects on their biodiversity. These negative effects on the lakes' biodiversity can therefore be mitigated by the use of wetlands, which is one of the cost-effective ecotechnological methods employed in reducing the nutrient loadings and removal of heavy metals from eutrophied and acidic lakes respectively. This is an on-going research work; it is being applied in conjunction with some development planning and restoration of some natural and mining lakes in the Lausatia region of Germany. During the session; we shall discuss in detail the application of this ecotechnological method, its effectiveness and some case studies.

Ecotechnlogy, wetlands, biodiversity, impact, restoration, development planning

Bioaccumulation of Polychlorinated Biphenyls in White-Tailed Deer (Odocoileus Virginianus) Near a Magnesium Smelter

Tolley, C.

A magnesium refining facility located in Asbestos, Quebec, is a known point source of persistent organic pollutants, namely polychlorinated biphenyls (PCBs), dioxins and furans (PCDD/Fs) and hexachlorobenzene which are produced as by-products in the production process. These compounds persist in the environment for years, are resistant to degradation, and have a tendency to bioaccumulate in the food chain. The primary objective of this study is to determine whether or not the smelter is a significant source of organochlorines to the local environment. This was investigated by measuring contaminant concentrations in the fat tissue of local white-tailed deer which take-up these compounds through an air-vegetation-herbivore pathway. The risk involved for the human population in consuming local game is assessed by applying contaminant levels to consumption guidelines.

Sampling has been a joint effort between the community and university researchers, an approach that promotes transparency and local empowerment. The collection of deer tissue began in 1999, one year before the smelter opened, and continued each year until 2002 with the assistance of local hunters. Based on studies reporting small home range sizes (approximately 1km2) of deer populations in close range to Asbestos, sites where deer were shot are thought to be representative of their feeding grounds and thus exposure area. Preliminary results show a substantial increase in PCB concentrations from 1999 to 2002 and select PCB congeners show significant decreases in concentration with distance from the smelter. Safe consumption levels are also discussed in accordance with guidelines stipulating the tolerable daily intake (TDI) levels from Health Canada and The World Health Organization (WHO).

CS71. CULTURAL HERITAGE IN EIA

Improving the Quality of the Cultural Component in EIA and SEA

Fleming, Arlene; Consultant at the World Bank, 9122 Maria Avenue, Great Falls, Virginia 22066 USA. 703-759-3701. Fax 703-759-6671. halandarlene@msn.com; afleming1@worldbank.org.

Campbell, Ian; Consultant at the World Bank, 1668 Avon Place, N.W., Washington, District of Columbia USA. icampbell@worldbank.org.

Environmental Impact Assessment (EIA) and Strategic Environmental Assessmet (SEA) are intended to provide an integrated assessment of the biophysical, social and cultural impcts of development projects or strategies. Methods for identifying and considering biophysical and social conditions and impacts are well advanced, and information is generally available, as are experienced professionals. The cultural aspect of investigations lags behind for several reasons, including: a lack of understanding of the importance of cultural issues in influencing human behavior, and thus environmental condition and change; a concern that attention to cultural assets will impede needed development; a lack of appreciation for the value to society of cultural heritage resources; a shortage of published data on cultural heritage; the scarcity of methods and tools to treat cultural heritage in EIA or SEA; and a lack of experienced professionals. The complete separation of the cultural and enviornmental authorities in most governments and the lack of contact between professionals in the two fields compound the problem.

These difficulties are not insurmountable, and it is time to make a concerted effort to strengthen the cultural component of EIA and SEA by bridging the gap. Participants in the Workshop will consider strategies, including the optimal use of two tools recently developed at the World Bank. These are: a Handbook offering guidance for identifying and considering physical cultural resources within EIA; and Physical Cultural Resources Country Profiles which provide basic information on important aspects of cultural resource typologies, location, regulations and expertise in developing and middle-income countries.

Workshop participants will include: two EIA practitioners; two cultural resource experts; and two government officials in the fields of cultural resource management and EIA.

Cultural resources in impact assessment: IA, EIA, SIA, SEA

The Planarch 2 Project and the Quality of Cultural Heritage Coverage in Environmental Assessment in NW Europe

Slinn, Paul; University of Manchester, Oxford RoadManchester, M13 9PL United Kingdom. +44 (0)161 275 6881. Fax +44 (0)161 275 6893. paul.slinn@manchester.ac.uk. www.manchester.ac.uk.

The Planarch 2 project brings together a range of public, private and academic bodies across northwestern Europe with a view to the furtherance of the protection and management of the historic environment, particularly archaeology, through its greater integration in spatial planning. It is a unique transnational partnership working to review current approaches to the assessment and protection of the cultural heritage resource and to address operationally the need for common approaches to good practice. The density of population in the region and consequent pressure for development is increasingly placing historic heritage at risk and, once lost, it can not be replaced.

Environmental impact assessment is a key mechanism for the recognition and evaluation of threats to the historic environment, and a major component of Planarch has been a review of environmental assessment practice in respect of cultural heritage in the different jurisdictions across the region. Through a number of parallel studies in the participating regions, a large sample of environmental statements has been independently reviewed and the quality of the coverage of cultural heritage issues analysed. As a result, elements of good and bad practice have been identified and commonalities and differences in practice identified across the study regions, which are all subject to the overarching framework provided by the European Union Directive on environmental assessment.

This paper will present an overview of the activities and findings of the Planarch project, focusing in particular on aspects that relate to the quality of the environmental assessment process in respect of cultural heritage issues, and on elements that point the way towards the development of a system of good practice.

Environmental assessment, cultural heritage, quality, historic environment, Europe

CS72. PUBLIC PARTICIPATION 7

Comparative Case Study on Participatory Arena and Procedure in Decision Making Process of Wind Farm Siting in Japan

Baba, Kenshi; Central Research Institute of Electric Power Industry, 1-6-1 Ohte-machi, Chiyoda-ku, Tokyo 100-8126 Japan. +81 3 3201 6601. Fax +81 3 3287 2805. baba@criepi.denken.or.jp.

Kimura, Osamu; Central Research Institute of Electric Power Industry, 1-6-1 Ohte-machiChiyoda-ku, Tokyo 100-8126 Japan. +81 3 3201 6601. Fax +81 3 3287 2805. o-kimura@criepi.denken.or.jp.

Suzuki, Tatsujiro; Central Research Institute of Electric Power Industry, 1-6-1 Ohte-machi, Chiyoda-ku, Tokyo 100-8126 Japan. +81 3 3201 6601. Fax +81 3 3287 2805. tatsu@criepi.denken.or.jp.

Development of wind farm which contains a number of wind power turbines often causes conflicts between two environmental issues; addressing global warming and preserving local environment such as birds, sand dunes and landscape. Therefore participatory arena and procedure are needed for diversified actors to make a decision collaboratively. EIA process has a possibility to provide these opportunities in general, however there are no institutional requirements for EIA on wind farms in Japan. Though in fact wind farm developers carry out EIA voluntarily in many cases, it is uncertain how the authorities treat the DEIS and FEIS. Only in the case of siting in natural parks, the authorities are forced to hold council formally according to the law and local ordinance to discuss pros and cons. We compare participatory arena and procedure in decision making process of two cases on wind farm siting in natural parks in Japan which made contrasting decision around the same time. In Hisai case local government permitted construction in semi-national park and in Sakata case local government did not permit construction in prefecture natural park. The results from council minute analysis and interview surveys on two cases suggest the following. The agenda setting is limited to landscape issue in principle in the formal process according to institutional requirement; however, in fact the both cases are different. Sakata clung to this principle whereas Hisai expanded the issue to bird survey for which there was concern in the council. Sharing and integrating expert knowledge such as the result of EIA and local knowledge such as local resident's intention support mutual understanding among developer, experts and the public. Hisai conducted questionnaire to the public and park visitor whereas Sakata inquired lower-level council within quite limited time according to the ordinance.

Wind power, environmental impact assessment, decision making, public participation

A Workshop on the Potential Effects of the Construction and Operation of Subsea Pipelines on Lobster Movement and Behavior

Ellsworth, Steve; ENSR International, 1835 S. Bragaw, Suite 490, Anchorage, Alaska 99508 USA. (907) 561-5700. Fax (907) 273-4555. sellsworth@ensr.com.

Gardella, Mark; ENSR International, 11 Phelps Way, P.O. Box 506, Willington, CT 77046 USA. (860) 429-5323. Fax (860) 429-5378. mgardella@ensr.com.

Auriemma, John; El Paso Corporation, 9 Greenway Plaza, Suite 571, Houston, Texas 77046 USA. (281) 493-5100 x515. JAuriemma@pbsj.com.

El Paso Corporation is proposing to build a 1,100-mile subsea pipeline to transport natural gas from Nova Scotia to New York/New Jersey. Portions of the proposed route are within areas fished for lobster. The lobster fishery is the most economically important fishery in Canadian waters traversed by the route and significant in U.S. waters. The most significant questions raised by fishing communities during the project's Stakeholder Outreach Program were: 1) Could the pipeline act as a physical barrier to lobster movement and, in turn, affect lobster survival, reproduction, or catchability? and 2) Could noise, vibrations, or increased water temperatures in the vicinity of said operating pipeline influence lobster movements?

To address these questions, the project team held a workshop to bring together experts on lobster behavior including scientists, professional fishermen and representatives of fishing industry groups, and regulatory agency representatives. The workshop proved an effective tool to inform stakeholders about the project and subsea pipeline construction, identify issues, gather data, and provide blueprint for future research that would yield data needed for project design, impact evaluation, and permitting.

Sixty persons attended the two-day meeting, including 15 keynote speakers who had been provided preliminary engineering information on the project and asked to address the state of knowledge on various aspects of lobster movement, behavior, and fisheries. Several technical sessions addressed the project and subsea pipeline construction, lobster life history fisheries, and lobster movements and migrations. The second day was devoted to three moderator-led open discussions concerning the group's identification of the most significant issues; the most effective ways to mitigate potential impacts to lobsters; the most significant data insufficiencies; and future research priorities.

Subsea, pipelines, lobster, workshop, impact

Relying on a Procedure: Understanding Environmental Impact Assessment in its Contemporary Context

Sirg, Kadri; Pace Law School, 3804 Greystone Avenue F5New York, New York 10463 the U.S. 9143165546. Fax 9144224261. ksirg@law.pac.edu.

Environmental impact assessment (EIA) is a procedure relied upon for analyzing proposed activity's impact on the natural resources and other interests in numerous countries since its advent in the National Environmental Policy Act (NEPA) of 1969 in the U.S. I argue in my paper that for the protection of biodiversity the structure of EIA is still relevant and necessary, the U.S. recent innovations on adaptive management, streamlining and collaboration will not necessarily enhance the EIA application and the formal public participation and informal deliberations in the consent process are becoming increasing important in understanding and applying EIA. While the basic provisions of EIA are very similar in most of the countries, some original requirements in NEPA like the discussion on the proposed activity's need and purpose, assessment of alternatives and mitigation measures have been often overlooked as is the case in the European Union respective directives. Moreover, because of EIA's unique characteristics to engage public into identifying, clarifying, analyzing and disseminating knowledge in the structured process that will provide input into a decision-making, innovation in its application should be encouraged. Adaptive management, streamlining and collaboration, however, are likely to undermine essential features of EIA like early scoping, discussion of alternatives and proposals for mitigation and public participation. Referring to examples from the historic preservation discipline I argue that a formal and informal public participation in the consent giving process provides an increasingly important forum for a consent building. EIA in its current form is still a valid tool for discussing competing values, but to understand its potential processes that surround it should also be carefully studied.

Public participation, minimum requirements for EIA

Institutionalizing Intergovernmental Collaboration: the Bureau of Land Management's Cooperating Agency Initiative

Winthrop, Robert; USDI Bureau of Land Management, 1849 C Street, NW, Mail Stop 1050 LS, Washington, DC 20240 USA. 202-785-6597. Fax 202-452-5112. robert_winthrop@blm.gov. www.blm.gov/planning.

In America's federal system, different spheres of government—national, state, local, and tribal—have their respective areas of responsibility, authority, and expertise. In few areas is the need for intergovernmental cooperation more critical than in the management of public lands and resources. This paper describes an initiative at the Bureau of Land Management (BLM), an agency of the U.S. Department of the Interior, intended to move beyond consultation to create effective intergovernmental collaboration at both policy and technical levels. Under the cooperating agency initiative, BLM field managers are directly responsible for integrating representatives of interested government entities (tribal, state, and local, as well as other federal agencies) into the work groups preparing BLM's resource management plans and environmental impact statements.

The BLM has significant responsibilities, managing 264 million acres (107 m ha) of America's lands, and 700 million acres (283 m ha) of its mineral estate, from Alaska's North Slope to the open space surrounding many rapidly growing western cities. The agency manages this portfolio on behalf of all Americans, while acknowledging the significant local and regional consequences of its actions. The systematic involvement of cooperating agencies is an institutional strategy for building common ground between national, regional, and local resource management agendas.

The cooperating agency initiative is intended to improve BLM's planning and impact analysis in several ways: expanding available scientific and policy expertise; bringing agencies with often conflicting policies into collaboration; facilitating more effective public involvement; identifying trans-jurisdictional effects; incorporating local knowledge; capturing easily neglected systemic effects (such as changes to a "way of life"); encouraging joint fact finding over contested data and analyses; and increasing the credibility of both process and outcomes for concerned publics.

Collaboration, governance, local knowledge, participation

CS73. PUBLIC PARTICIPATION 8

A Theoretical Framework of Making the Arena for Environmental Consensus Building-ESH Model and its Application

Harashina, Sachihiko; Tokyo Institute of Technology, G5-9, 4259 Nagatsuta, Midori-ku, Yokohama, Kanagawa 226-8502 Japan. +81 45 924 5550. Fax +81 45 924 5551. sahara@depe.titech.ac.jp.

Consensus building among the public is essential in the policy making process for creating sustainable societies. There are two kinds of situation of disputable and peaceful in environmental decision-making. The consensus

should be built on the base of the rational and fair judgment. To fulfill this, it is required to conduct scientific analysis for rational decision-making and democratic process for the fair decision.

But in the situation of a dispute is at an impasse, it is very difficult to have an arena for consensus building. It is also not easy to collect people to such arena in very peaceful situation as they don't feel the necessity of attending at such arena. It, therefore, is crucial how to collect people to the arena. A theory of consensus building and a model for the configuration of the arena is made.

The theory of consensus building is a process based on very transparent panel meetings by selected people. Those are representatives of stakeholders and experts. There are three conditions for the process, i.e. 1) Setting the arena, 2) Transparent discussions and 3) Provision of sufficient information. The model for the configuration of the arena is comprised of experts and stakeholders. The author calls it as the ESH Model. This is a panel model, which is composed of experts (E) and stakeholders (S) hybrid (H).

The rational of the model is examined and some examples of the application of the model are illustrated. The original case was that for consensus building process of site selection of waste treatment facilities in a region of Japan. Then the model was applied to such much wider areas as making new EIA guidelines for international cooperation by collecting major experts from academics and consultants and stakeholders from NGOs, national governments, industries and so on.

Consensus building, public participation, transparency, decision-making

The Challenges of Public Consultation in Military Nuclear Decommissioning: Case Study in Northwest Russia

Smith, Elizabeth; European Bank for Reconstruction and Development, One Exchange SquareLondon, London EC2A 2JN United Kingdom. +44-207-338-6504. Fax +44-207-338-6848. smithe@ebrd.com. www.ebrd.com.

Blank, Lutz; European Bank for Reconstruction and Development, One Exchange Square, London United Kingdom. +44-207-338-7431. Fax +44-207-338-6848. blankl@ebrd.com. www.ebrd.com.

The former Soviet Union built 250 submarines, warships and icebreakers, containing over 450 naval nuclear reactors. Subsequently, the Russian Federation reduced the size of the nuclear fleet, withdrawing approximately 140 submarines, surface ships, support and maintenance vessels from service in the Northwest region of Russia. This has resulted in significant amounts of spent nuclear fuel and radioactive waste accumulated in poor storage conditions in the region, causing considerable risk to workers, local populations and environment, and concerns to the international community.

The Russian Federation requested assistance to plan a strategy and set priorities for decommissioning the fleet. The international community, through the Northern Dimension Environmental Partnership, is assisting the Russian Federation by developing a Strategic Master Plan (SMP) and incorporating a Strategic Environmental Assessment (SEA) as part of the programme.

In accordance with the EBRD's Environmental Policy, a strong programme of public consultation was built into the framework of the SEA, including the principles of the UNECE Espoo and Aarhus Conventions. The programme will help provide a forum for information flow, feedback from local and international stakeholders, and develop an on-going information programme.

The discussion will elaborate on the challenges of working with previously restricted information, providing sensitive information to the public, building relationships and trust. The results of a series of scoping meetings, and preliminary results from the consultation on the SEA will be presented. The combination of sensitive technical information, combined with significant risk to the environment and the population, is a challenge for any public participation programme. It is critical to develop trust and to provide accurate information, and to identify where limitations restrict the public involvement to clarifications and provision of information. The presenters will discuss with the audience how to maximise effectiveness of public consultation on sensitive projects where options are limited.

Public consultation, participation, SEA Russia

Use of the Workshop for the Planning Process in Japan

Nishikizawa, Shigeo; Tokyo Institute of Technology, 4259-G5-9 Nagatsuda-machi, Midori-ku, Yokohama, Kanagawa 226-8502 Japan. +81-45-924-5550. Fax +81-45-924-5551. snishi@depe.titech.ac.jp.

Harashina, Sachihiko; Tokyo Institute of Technology, 4259-G5-9 Nagatsuda-machi, Midori-ku, Yokohama, Kanagawa Japan. +81-45-924-5550. Fax +81-45-924-5551. sahara@depe.titech.ac.jp.

Public participation including multi-stakeholders in the planning process is fundamental factor to make plan feasible. Public Participation has already become popular procedures in the planning process in Japan. Especially, workshop, which is one of the methods of forums, is becoming a noticeable way at present. Then, it is the next issue how to guarantee the quality of the public participation to get the power for decision making.

This study focused on the use of workshop to be valid for planning system and aims to reveal this role based on the planning process of urban master plan for municipalities in Japan as case studies. Also this paper considered the measures to build up a closer connection with arenas which have decision making capabilities.

The main results are summarized as follows; (1) Valuable information was collected by several methods of workshop such as town watching and outreach activities. (2) Participants could make alternative plans in the workshop at the divided groups. Furthermore, alternatives could be valid not only to build consensus but also to discharge their accountabilities to local residents for their decisions in the workshop. (3) Some key persons who belonged both of forum and arena filled the leading role to get the power for decision making.

Thus, workshop took important role for planning process to support consensus building. However, it should be cleared the further measures to guarantee the quality of public participation.

Workshop, public participation, planning process

CS74. SIA: THE PRACTICE OF SIA FROM AN INTERNATIONAL PERSPECTIVE

Social Impact Assessment in South Africa

Aucamp, Ilse; EIMS, 18 Louie Ave, PO Box 915751, Faerie Glen, Pretoria, Gauteng 0043 South Africa. 011789 7170. Fax 011 7873059. ilse@eims.co.za.

Aucamp, Pieter; University of the Northwest, 365 Vista Drive, PO Box 915 751, Faerie Glen, Pretoria, Gauteng South Africa. 012 365 1025. Fax 012 365 1025. pjaucamp@iafrica.com.

South African legislation is amongst the most progressive in the world. When a new Government was elected in 1994, South Africa was in the position to review some of the existing legislation. Most new legislation after 1994 focus strongly on sustainable development. The message that the government is encouraging the development of human potential is reflected in numerous acts. In spite of this, the only Act having specific requirements for the social environment is the new Minerals and Petroleum Resources Development Act (Act 28 of 2002) that requires Social and Labour plans. SIA have been done in South Africa for a while, despite not being legally required. There are no official guidelines for SIA in South Africa. The result of this is that the quality of the reports and the information included in the reports varies. Very often SIA reports are not compiled by social scientistsand many SIA reports in South Africa are as a result merely an interpretation of statistics. In some instances the community has not been consulted at all. Reference to current SIA literature is also lacking. SIA reports are being reviewed by officials of the Department of Environmental Affairs with no social science background, and because the quality of the reports is so varied there is no benchmark. Current literature indicates that there is a need for SIA to be done through all the phases of the project life cycle, but is not the practice. A desktop study done by the author indicated that SIA is usually treated as a once-off snapshot assessment. It is recommended that SIA should be initiated as early in the planning process as possible, and be conducted throughout the project life cycle. Proposals on how SIAs need to be handled in South Africa will be presented.

Social impact assessment, social development,sustainability, project life cycle, South Africa

Community Impact Assessment Practice in the U.S. Transportation Industry

Lane, Leigh; Center for Transportation and the Environment, North Carolina State University, Centennial Campus, Box 8601, Raleigh, NC 27695-8601 USA. 919-515-8041. Fax 919-515-8898. lblane@ncsu.edu. http://itre.ncsu.edu/cte.

Kragh, Brenda; Office of Planning, Federal Highway Administration, 400 Seventh Street, SW, HEPP-20, Room 3301, Washington, DC 27695-8601 USA. 202-366-2064. Fax 202-366-3409. brenda.kragh@fhwa.dot.gov. http://itre.ncsu.edu/cte.

Townsend, Teresa; Center for Transportation and the Environment, North Carolina State University, Centennial Campus, Box 8601Raleigh, NC 27695-8601 USA. 919-515-9351. Fax 919-515-8898. tltownse@ncsu.edu. http://itre.ncsu.edu/cte.

Community Impact Assessment (CIA) is parallel in concept to Social Impact Assessment (SIA). Supported by major Federal regulations, statutes, policies, technical advisories, and Executive Orders, the Federal Highway Administration views CIA as a process to evaluate the effects of transportation programs, policies or activities on a community and its quality of life. The CIA process is applied to all functional areas of transportation decision-making.

This paper will describe the CIA process developed by the Federal Highway Administration and overlay that process on planning and project development activities. An explanation of the process steps including community visioning, identifying need and study area, developing a data bank, preparing a community characteristics inventory, assessing community effects and identifying solutions will be presented in this paper. Community outreach and participation as well as documentation are instrumental throughout each process step. The CIA key issue areas to be evaluated as part of the CIA process include mobility, safety, socio-cultural effects, economic effects, sensory (aesthetic) effects, land use, and displacement effects. These issues areas will be described to aid community (social) analyst in their endeavors to fully evaluate the effects of (transportation) actions upon a community's quality of life.

Finally, the paper will examine the critical role the community (social) analyst plays in ensuring that the consequences to the social fabric of an area are given consideration with other environmental impacts. This paper will examine the responsibility of the transportation professional throughout transportation decision-making to rigorously look for solutions that balance effects to the natural and human environment.

Community Impact (Social) Assessment, Public Involvement, Socio-cultural, Economic Effect

Use of Social Science in Support of Environmental Management

Cluck, Rodney E.; U.S. Department of the Interior, Minerals Management Service, Environmental Division, 381 Elden Street, Herndon, VA 20170 USA. (703) 787-1087. Fax (703) 787-1026. Rodney.Cluck@mms.gov.

Luton, Harry; U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico Region, Social Science Unit, 1201 Elmwood Park Boulevard, New Orleans, LA 99503 USA. (504) 736-278. Harry.Luton@mms.gov.

Williams, Dee; U.S. Department of the Interior, Minerals Management Service, Alaska Region, Environmental Studies Section, 3801 Centerpoint Drive, Suite 500, Anchorage, AK 99503 USA. (907) 334-5283. Fax (907) 334-5242. Dee.Williams@mms.gov.

The Minerals Management Service (MMS) is charged with the orderly development of offshore energy and mineral resources, with safeguarding the environment affected by this development, and with the effective collection of revenues generated from mineral leases offshore and on Federal and Indian lands throughout the country.

The Agency's responsibilities include assessing the effects of OCS activities on natural, historical, and human resources and the appropriate monitoring and mitigating of those effects. The Environmental Studies Program (ESP) is required by the Outer Continental Shelf Lands Act, as amended in 1978 (OCSLAA) to provide information for sound decisionmaking and management. The ESP conducts research across the spectrum of the physical, biological and socioeconomic areas of inquiry that constitute the "human environment," as defined by the OCSLAA and the National Environmental Policy Act of 1969 (NEPA).

The purpose of this document is to provide background on how MMS uses social science in support of environmental management. This document communicates the general direction of MMS social science research and the challenges that the program faces.

Minerals Management Service (MMS), Outer Continental Shelf (OCS), offshore leasing

Geographical Distribution of Social Impact of Construction Projects in East-Iceland

Olafsson, Kjartan; University of Akureyri Research Institute, Borgum v/NordurslodAkureyri, Akureyri IS-600 Iceland. + 354 460 8902. Fax + 354 460 8919. kjartan@unak.is.

Eythorsson, Gretar; University of Akureyri Research Institute, Borgum v/NordurslodAkureyri, Akureyri Iceland. + 354 460 8901. Fax + 354 460 8919. gretar@unak.is.

March 2003 marked the beginning of the single largest construction project in Icelandic history. Consisting of a new 322.000 t. aluminum smelter plant and the Kárahnjúkar hydro-electric power plant. At the same time the Icelandic

parliament agreed on a resolution stating that a research project be carried out in order to monitor the actual effect of the construction projects in East-Iceland. The monitoring work has now begun and is carried out by social scientists at the University of Akureyri in Iceland. This paper describes the first findings from this monitoring project which rely amongst other things on an extensive survey in areas adjacent to the construction sites. The first part of the project focuses on things such as defining the actual impact area and the geographical distribution of effects (positive and negative).

Social impact, Iceland

CS75. EVALUATION AND EVOLUTION OF NATIONAL SIA SYSTEMS 2

Ensuring an Ethical and Quality Approach to Environmental Impact Assessment (EIA) in a Climate of Political Change and Rapid Service Delivery: A South African Perspective

Freeman, Mark; Bohlweki Environmental (Pty) Ltd, PO Box 11784, Vorna Valley, Midrand, Gauteng 1686 South Africa. +27 11 466-3841. Fax +27 11 466-3849. markf@bohlweki.co.za. www.bohlweki.co.za.

South Africa is a country blessed with a wide range of biophysical resources, environments and ecosystems. These require careful management to ensure these resources are sustained for future generations. At the same time, despite successful gains over the first decade of democracy, many of South Africa's people still await the provision of basic services and infrastructure such as clean drinking water, sanitation, electricity and access to surfaced roads.

The need to still deliver these basic services to a large number of people remains one of the driving forces of the current South African government. This places presssure on politicians, bureaucrats and decision makers to rapidly approve and implement projects aimed at uplifting communities still grappling with the legacy of apartheid.

In order to facilitate access to funds and accelerate delivery, many new large scale infrastucture projects are being established as Public-Private-Partnerships, whereby projects are fast tracked through the involvement of the private sector in a bidding process to design, construct and operate facilities. This process provides particular challenges for EIA practitioners in terms of ethics and quality.

In contrast, popular and potentially lucrative development trends, such as the widespread provision of "elite", secure residential golfing estates, is provoking debate around the role that EIA should play as an instrument to guide land use and development, manage resources and promote equity.

This paper explores these issues and conflicts within a South African perspective, using local case studies, and offers a perspective on how EIA might evolve to address them, especially within the emerging concepts and principles of sustainability, and in a changing legislative environment.

Ethics, quality, environmental impact assessment, sustainability, South Africa

Environmental Assessment Crisis in Canada? Reputation versus Reality

Barnes, Jeffrey; Jacques Whitford, 711 Woodstock Road, P.O. Box 1116, Fredericton, New Brunswick E3B 5C2 Canada. 506-457-3243. Fax 505-452-7652. jeff.barnes@jacqueswhitford.com.

Leeder, Colleen; Jacques Whitford, 607 Torbay RoadSt. John's, Newfoundland B3B 1W8 Canada. 709-576-1458. colleen.leeder@jacqueswhitford.com.

Federico, Robert; Jacques Whitford, 3 Spectacle Lake Drive, Dartmouth, Nova Scotia B3B 1W8 Canada. 902-468-7777. robert.federico@jacqueswhitford.com.

Canada has a well-deserved, worldwide reputation as a leader in Environmental Assessment (EA). Despite this reputation, EA in Canada is inefficient, of poor quality and often fails to meet its basic objective as a key tool of sustainable development. Many inter-related factors are contributing to this situation, one that is increasingly becoming an impediment to investment in Canada. The federal legislation is fraught with jurisdictional challenges and uncertainties. Founded on the principles of self-assessment, various federal authorities must, for each EA, figure out who is involved and in what capacity. EAs are frequently managed by inexperienced or untrained administrators, which find themselves in the role of responsible authority. There is a lack of emphasis on training, quality, and peer review. Contributing to these problems is the duplicative nature of overlapping EA processes that are required by various federal, provincial, Aboriginal and municipal governments. Harmonization agreements between some jurisdictions are beginning to help, but mask the reality of inefficiency. The resulting disorganization is an impediment to investment in Canada. EA often does not lead to value added from an environmental protection

perspective. A number of potential changes and improvements are suggested to get EA in Canada back on the rails. Suggestions include the establishment of a national EA body to manage all federal EA in Canada, reversing the problematic self-assessment principle and providing an opportunity for consistency and higher quality review and administration. Harmonization with and substitution by other jurisdictions is a clear priority for change. Amendment to legislation needs to include measures that reduce the number of unnecessary project assessments on small projects of little or no environmental consequence and providing for more comprehensive strategic EA (regional and sector) to support consideration of cumulative environmental effects. Increased emphasis on transparency and quality assurance is required.

Environmental assessment, Canada, quality, self-assessment, peer review, transparency

The Quality in EIA Concerning Detailed Development Plan (DDP)

Olausson, Inger; Swedish EIA Centre, P.O. Box 7012SE-750 07 Uppsala, Uppsala SE-750 07 Sweden. +46 (0)18-67 26 62. Fax +46 (0)18-67 35 63. inger.olausson@lpul.slu.se. www-mkb.slu.se.

Oscarsson, Antoienette; Swedish EIA Centre, P.O. Box 7012SE-750 07 Uppsala, Uppsala Sweden. +46 (0)18-67 26 42. Fax +46 (0)18-67 35 63. antoienette.oscarsson@lpul.slu.se. www-mkb.slu.se.

In this Swedish study the quality of Environmental Impact Assessments (EIA) of Detailed Development Plans (DDP) was reviewed. The quality varies strongly and a large number of shortages were identified. Among other things the descriptions of impacts and alternative locations and design were missing or briefly considered. A program for auditing and monitoring is almost non-existing and we found no descriptions of cumulative or indirect impacts. The DDP has a strong legal status and is binding, but the EIA is not. The proposed mitigation measures in the EIAs were seldom transcribed into the DDP document and therefore not binding. The study was carried out by the Swedish EIA Centre and The National Board of Housing, Building and Planning (Boverket), and included about 30 municipalities.

Every year approximately 700 EIAs concerning DDP are made in the Swedish municipalities. There are no strict regulations for EIA in the Planning and Building Act and the municipalities are free to create their own EIA routines. An EIA has to be conducted if the plan permits land use, which might give considerable impact on the environment, but some municipalities have as a policy to conduct an EIA of all DDP without prior screening. The National Board of Housing, Building and Planning recommends an improved screening and scoping process to decrease the numbers and increase the quality of EIA to defend "best practice" in EIA. The size of the municipality is related to the quality of the EIA, but more important to improve the methods of working with EIA issues in the municipality is the commitment of individual officials.

EIA, Sweden, quality in EIA, municipality, planning

Socio-Economic Differences in Environmental Impacts in the Netherlands

Kruize, Hanneke; National Institute for Public Health and the Environment, P.O. Box 1, A. van Leeuwenhoeklaan 2, Bilthoven, Utrecht 3720 BA The Netherlands. +31 30 2743599. hanneke.kruize@rivm.nl.

Driessen, Peter; Copernicus Institute, University of Utrecht, P.O. Box 80115, Heidelberglaan 2, Utrecht, 3508 TC The Netherlands. p.driessen@geog.uu.nl.

Glasbergen, Pieter; Copernicus Institute, University of Utrecht, P.O. Box 80115, Heidelberglaan 2, Utrecht, 3508 TC The Netherlands. p.glasbergen@geog.uu.nl.

van Egmond, Klaas; National Institute for Public Health and the Environment, P.O. Box 1 A. van Leeuwenhoeklaan 2, Bilthoven, The Netherlands.

In Dutch environmental policy legal standards are a leading principle, used to offer all residents healthy and safe living conditions. No specific attention is paid to the environmental impacts in various socio-economic subpopulations. The question is: is this leading principle sufficient to offer all residents a satisfying environmental quality in practice, independent of their socio-economic background, and even in urban regions with a high spatial pressure?

We performed a study in the Netherlands and two specific regions with a high spatial pressure in which we analysed socio-economic disparities in environmental impacts and the role of policy. We performed quantitative analyses including traffic noise, NO2, safety risks, and availability of public green areas as environmental indicators, and income as socio-economic indicator. In addition, we interviewed different stakeholders to analyse the role of policy.

The results of our study indicate that most Dutch residents are indeed protected from simultaneous exceedance of environmental standards, at least for the indicators included in this study. However, lower income categories are more often exposed to levels of NO2 and railroad noise above the standards than higher income categories. In addition, they have less often access to environmental amenities such as public green areas, for which no legal standards exist in the Netherlands.

It might be questioned if this situation is considered to be fair. In addition, we would like to discuss with the audience if it is necessary to pay special attention to socio-economic subpopulations in environmental policy and environmental impact assessments.

Environmental policy, equity, socio-economic differences in environmental impacts

CS76. SEA: NEW APPROACHES TO SEA

Communicating Values, Managing Risks

McCommon, Carolyn; Rio Tinto, 6 St. James Sq., London SW1Y 4LD UK. +44 207 753 2381. carolyn.mccommon@riotinto.com.

The article considers the application of SEIA from a private sector perspective and its value as a management tool for informing technical business decisions alongside ensuring social and environmental performance. Rio Tinto is one of the largest global multinational mining companies with on-going project development in a wide range of regulatory, social, and environmental contexts. With project capital costs often reaching $1 billion dollars, prudent consideration must be given to both short and long-term social and environmental factors.

Against this backdrop, the company has drawn on the conventional EIA framework in building an integrated Social and Environmental Impact Assessment process as part of internal decision-making surrounding project development. This approach is distinct in that social and environmental impact assessment of new mining projects has been more typically associated with meeting external legal requirements for project approval. There has been far less appreciation on its potential for informing life-of-mine development, from conception through operation to closure.

The article looks at Rio Tinto's guidance for an integrated S&EIA process and its application as used in recent projects. Social and environmental principles are integrated at the outset with the SEIA process used to inform risk management, technical selection, and sustainable development considerations. The process communicates values both internally and externally and, through a business perspective, identifies opportunities for managing risk that not only address public concerns but also optimise business advantage and real value to stakeholders.

The Challenge of Nuclear Decommissioning in Northwest Russia: The Role of SEA in the Planning Process

Blank, Lutz; European Bank for Reconstruction and Development, One Exchange SquareLondon, London EC2A 2JN United Kingdom. +44-207-338-7431. Fax +44-207-338-6848. blankl@ebrd.com. www.ebrd.com.

Smith, Elizabeth; European Bank for Reconstruction and Development, One Exchange SquareLondon, London EC2A 2JN. +44-207-338-6504. Fax +44-207-338-6848. smithe@ebrd.com. www.ebrd.com.

The former Soviet Union built 250 submarines, warships and icebreakers, containing over 450 naval nuclear reactors. Subsequently, the Russian Federation drastically reduced the size of the nuclear fleet and initiated a large scale decommissioning programme. In the North West region, approximately 140 submarines, surface ships, support and maintenance vessels were withdrawn from service.

Significant amounts of spent nuclear fuel (SNF) and radioactive waste (RW) have accumulated in facilities in the regions of Murmansk and Arkhangelsk. Storage conditions are not in accordance with international standards, and the situation has degraded over time. This situation is a considerable risk to workers, local populations and environment, and is of concern to neighbouring countries and international community.

Facing the complexity and the cost of the decommissioning programme, Russia requested international assistance. Ten countries set up the Northern Dimension Environmental Partnership (NDEP, Nuclear Window) to assist Russia in developing an overall decommissioning strategy for the region, providing analysis on the existing situation defining long-term objectives and setting priorities.

To complement and enhance the development of a Strategic Master Plan (SMP), the European Bank for Reconstruction and Development (EBRD) initiated a Strategic Environmental Assessment (SEA) of the SMP. The use

of SEA as a planning tool for such a complex issue has been a learning process. Not only was it new to the Russian authorities with which the NDEP worked, but was also unfamiliar to the public. The scoping process helped to identify concerns of local stakeholders and neighbouring countries, but also was used to explain the purpose of SEA at the planning stage. Following the drafting of the SEA, another series of public meetings will be held in Russia for stakeholder comments. The design of the SEA for this highly complex technical and social challenge will be presented and preliminary results discussed.

SEA, nuclear decommissioning, stakeholder, international

Dealing with Principles and Reality in SEA: A Plan for an Industrial Complex, Venezuela

Sebastiani, Mirady; Universidad Simòn Bolìvar, Pabellòn II, Departamento de Estudios Ambientales, Caracas, Miranda, Venezuela. 058212-906-3036. Fax 058212-906-3036. mirasebv187@cantv.net.

Alvarez, Haymara; Universidad Simòn Bolìvar, Pabellòn II, Departamento de Estudios Ambientales, Caracas, Miranda, Venezuela. 058212-906-3036. Fax 058212-906-3036. halva@usb.ve.

In 2003, a government agency chooses the Simón Bolívar University to carry out the SEA of a plan for a national high priority industrial complex.

The purpose of this paper is to present the most relevant issues regarding: the SEA process, the principles for the assessment and the lessons learned.

In relation to the SEA process, it was necessary to incorporate a "setting-principles" phase to set a common working ground for the eleven professionals in charge of the assessment regarding the:

- Venezuelan constitutional mandates to be considered,
- Criteria-basic aims, objectives and potential indicators to guide sustainability considerations and
- Framework to organize actions.

The main lessons learned in doing this SEA were:

- Although government agencies could be interested in SEA, they might not be interested in results that contradict their expectations.
- The consultant takes the role of watchdog of the proposal. This can intimidate the proponent because it might feel that it is being tested, and
- SEA should not have as much detail as an EIA. However, early on it must provide relevant information, at an appropriate scale, to decide whether an initiative should proceed.

SEA, setting principles phase, sustainability considerations

CS77. TRAINING IN IMPACT ASSESSMENT

Principles of Environmental Impact Assessment Review: Training Independent Reviewers, An Essential Step Toward Securing Ethics and Quality in Environmental Impact Assessment

Wasserman, Cheryl; U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW, MC 2251-A , Washington, D.C. 20460 United States of America. 1-202-564-7129. Fax 1-202-564-0070. wasserman.cheryl@epa.gov. www.epa.gov/oeca/ofa.html.

The function of the "independent reviewer" is essential to uphold standards of quality and ethical principles in the practice of environmental impact assessment. This is true whether an independent review function is within a governmental organization, financial institution or a non-governmental organization. Nevertheless, little is written about the role of the reviewer, and even less debated and discussed on the principles of effective environmental impact assessment review. This paper highlights core principles, road maps, tools and techniques presented in EPA's international training course "Principles of Environmental Impact Assessment Review". The "Road Maps" developed for the course, drawn from the experience of EPA reviewers over three decades, offer a kind of "best professional practice" to ensure the reviewer does not get lost in the overwhelming detail of EIAs and can maintain professionalism and focus. The exercises explore fundamental questions of both what it means to do a good job in reviewing an EIA document but also, what are the expectations one should have of environmental impact assessments. The course recognizes EIA as both a decision making process and the document that supports it.

Therefore the training addresses not only whether an environmental impact assessment is "complete" and "accurate" for a range of situations and contexts but also stresses issues of "significance", "integrity" and "consistency" and whether the EIA and the review will have "influence" to support opportunities for sound decisions and environmental results. Four actual draft and final environmental impact assessment documents provide a realistic and varied experience in the task of the reviewer. Course materials are meaty, with tools such as checklists, abstracts on typical methodologies, information on many different types of resources and the kinds of issues that a reviewer needs to be ready to explore.

Independent review,integrity, completeness, accuracy, signficance, road maps, principle

Teaching Impact Assessment

Edelstein, Michael R.; Ramapo College of New Jersey, 505 Ramapo Valley Road, Mahwah, NJ 07430 USA. 201-684-7745. tabriz@magiccarpet.com.

For some twenty years, the author has taught a senior capstone course in Environmental Assessment in the Environmental Studies Program at Ramapo College of New Jersey. The course uses a real life assessment project for which a complete DEIS/FEIS is demanded of a student firm created for the semester. This paper presents the pedagogical approach, describes project work and reports outcomes for this effort to train future impact assessment professionals.

Teaching, training

Environmental Impact Assessment Education in Portugal

Joanez de Melo, João; New University of Lisbon, Faculty of Sciences and Technology, Department of Environmental Sciences and Engineering, Caparica, 0 2829-516 Portugal. + 351 212948374. Fax + 351212948374. jjm@fct.unl.pt. http://gasa.dcea.fct.unl.

Ramos, Tomás; University of the Algarve, Faculty of Marine and Environmental Sciences, Campus de Gambelas, Faro 8005-139 Portugal. + 351 289800900 ext: 7235. Fax + 351 289818353. tramos@ualg.pt. http://gasa.dcea.fct.unl.

Cecílio, Teresa; University of the Algarve, Faculty of Marine and Environmental Sciences, Campus de Gambelas, Faro 8005-139 Portugal. + 351.289800900 ext: 7462. Fax + 351.289818353. tcecilio@ualg.pt. www.ualg.pt/fcma.

Environmental impact assessment (EIA) education has been a reality for years in many graduate and undergraduate programs worldwide. As EIA grew as a widely accepted environmental policy tool, several professions tried to incorporate these skills in their academic background. The aim of this paper is to make a contribution to the understandings of the key factors related with EIA education. The Portuguese reality is analysed as a case study. The research performed examined approaches and corresponding outcomes reported from a variety sources, including government publications, environmental agencies reports and academic papers. Results show that, in Portugal environmental engineering undergraduate programs are the ones that have integrated EIA for longer. More recently, many other programs, both graduate and undergraduate, have also taken up EIA courses. New knowledge and practices, legislation and public policies are fundamental drivers of EIA application. The paper goes on to identify the key aspects of education and training on EIA, needed to create qualified professionals in the field.

Environmental impact assessment, education, undergraduate and graduate courses

Long-term Evaluation of IA Training: Results of a Case Study in Mexico

Deming, Mary; Southern California Edison Company, 2244 Walnut Grove Avenue, Rosemead, CA 91770 USA. 626-302-9528. Fax 626-302-9730. Mary.Deming@sce.com.

Montañez-Cartaxo, Luis; Comisión Federal de Electricidad, Blvd. Adolfo Ruiz Cortines 4156, piso 5, Col. Jardines del Pedregal, México City, D.F. H2L 4P5 Mexico. + 52(55) 5229-4400, x44300. Fax + 52(55) 5229-4400, x44007. lmontanez@cfe.gob.mx.

Hébert, Jean; Hydro-Québec, 855, rue Ste-Catherine est (9e étage)Montréal, Québec H2L 4P5 Canada. (514) 840-3000, x 3615. Fax (514) 840-3933. hebert.jean@hydro.qc.ca.

Díaz-Perea, Javier; Comisión Federal de Electricidad, Blvd. Adolfo Ruiz Cortines 4156, piso 5 Col. Jardines del Pedregal, México City, D.F. 01900 Mexico. + 52(55) 5229-4400, x44115. Fax + 52(55) 5229-4400, x44007. fdp82764@cfe.gob.mx.

Aguinaco-Bravo, Vicente; Comisión Federal de Electricidad, Blvd. Adolfo Ruiz Cortines 4156, piso 5, Col. Jardines del Pedregal, México City, D.F. 01900 Mexico. +52(55) 5229-4400, x44000. Fax +52(55) 5229-4400, x44007. vaguinaco@cfe.gob.mx.

Training to improve environmental impact assessment is challenging to implement and to evaluate. When that training crosses national boundaries and focuses on organizational capacity to conduct environmental impact assessment in a comprehensive and consistent way, it is even more challenging. The training entity and the target audience may operate in significantly different regulatory contexts, with different internal organizational frameworks, speak different languages, and respond more favorably to different learning approaches.

Beginning in 1994, the E7 Network of Expertise for the Global Environment, the training organization, and Comisión Federal de Electricidad (CFE), the national electric utility of Mexico which requested the training, worked together to deliver several workshops on facility planning. The purpose of the last workshop in 1998 on "Environmental Assessment for Power Line Projects" was to explore the integration of environmental impact assessment at all stages of power line project development, from planning to construction monitoring. E7 and CFE took this opportunity to plan and evaluate the training delivered to over 100 people from the utility company, their stakeholders in Mexico, and their counterparts from neighboring utilities.

An extensive evaluation of E7 training programs was conducted in 2000 in Mexico and in two other countries, and both CFE and E7 have continued to document lessons learned in recent years. The follow-up project adapted the Kirkpatrick Model to evaluate longer-term effectiveness: assessing levels of satisfaction (reaction), learning, use of the knowledge gained (behavior), and results for the organization.

The paper will summarize the training approach, the evaluation approach, and the results for trainers, participants, and their institutional partners. Issues to consider in planning cross-national training will be identified, along with the main findings and recommendations from the evaluation of post-EIA capacity-building projects at CFE and other beneficiary utilities.

Cross-national training, impact assessment training, program evaluation

CS78. HIA SPECIAL WORKSHOP: HIA AS AN INSTRUMENT FOR HEALTH PROMOTION: THE CASE OF OBESITY

HIA as an Instrument for Health Promotion: The Case of Obesity (Introduction)

Schuit, Jantine; National Institute for Public Health and the Environment, A. van Leeuwenhoeklaan 9, P.O. Box 1, Bilthoven, Utrecht 3720 BA Netherlands. +31 30 2749111. Fax +31 30 2744450. jantine.schuit@rivm.nl. www.rivm.nl.

den Broeder, Lea; National Institute for Public Health and the Environment, A. van Leeuwenhoeklaan 9, P.O. Box 1, Bilthoven, Utrecht 3000 DR Netherlands. +31 30 272735. Fax +31 30 2744450. lea.den.broeder@rivm.nl. www.rivm.nl.

Veerman, Lennert; Erasmus University Medical Center Rotterdam, P.O. Box 1738, Rotterdam, Zuid-Holland 3000 DR Netherlands. +31 10 4087732. Fax +31 10 4089449. j.veerman@erasmusmc.nl. www.erasmusmc.nl/mgz.

Rutter, Harry; SEPHO and SEPHG, 4150 Chancellor Court, Oxford, England OX4 2JY United Kingdom. +44 (0)77 73 319 192. harry.rutter@uhce.ox.ac.uk. http://www.sepho.org.uk.

Health impact assessment is often viewed as a way of protecting human health from negative influences caused by policies, projects or programs in other policy sectors.

However, many activities or policies from a range of sectors may also have beneficial health effects.

In this workshop we will discuss the opportunities and barriers of using HIA as an instrument for health promotion, using obesity as a case study.

There has been a rapid worldwide increase in obesity, and with it non-communicable diseases. Much of the public debate on the international obesity epidemic relates to how different actors – e.g. government, the food industry, interest groups – determine the availability, accessibility and affordability of healthy foods, and shape how the environment enables people to remain physically active. Yet the health sector is left struggling with how to best support people to increase exercise levels and eat a well-balanced nutritious diet, that will reverse these worrying disease trends.

In public health and health promotion it is recognised that actions and policies from many sectors outside the health field are needed to help support population changes in diet and physical activity. Key actors include the agriculture sector, the food retail sector, the transport sector, housing and spatial planning sector.

How can HIA help in ensuring the contributions of these sectors to tackle the increasing obesity trend?

After a number of short presentations we will discuss this matter in depth.

The workshop aims at defining opportunities and limitations of HIA as a health promotion instrument.

Health Impact Assessment, health promotion, obesity

Health Impact Assessment of the EU Agricultural Policy on Fruits and Vegetables

Veerman, Lennert; Erasmus Medical Center, Dept. of Public Health, PO Box 1738, Rotterdam, 3000 DR The Netherlands. +31-1-4087732. j.veerman@erasmusmc.nl.

Barendregt, Jan; School of Population Health, University of Queensland, Herston Road, Herston, 3000 DR Australia. j.barendregt@sph.uq.edu.au.

Mackenbach, Johan; Erasmus Medical Center, Dept. of Public Health, PO Box 1738, Rotterdam, 3000 DR The Netherlands. +31-1-4087732. j.mackenbach@erasmusmc.nl.

Background: Consumption of fruits and vegetables is protective against cardiovascular disease and cancer. Less than half of the Dutch population adheres to the WHO guideline of a consumption of 400 g/day, while consumption is disproportionally low among groups with lower socio-economic status. Public health is best served with low prices to stimulate consumption. In contrast, the EU Common Agricultural Policy (CAP) supports artificially high prices by purchasing and destroying fruits and vegetables when production is high. We assessed the potential health gain for the Dutch population of discontinuing this withdrawal support.

Methods: The maximum increase in total consumption of fruits and vegetables was estimated on the basis of the amount of fruits and vegetables withdrawn in recent years. We estimated the effect of this increase on population health using a multi-state life table model in which consumption was linked to incidence of ischaemic heart disease, stroke, and cancer of the oesophagus, stomach, colorectum, lung and breast. Uncertainty was quantified by bootstrapping.

Results: The reform would maximally increase the average consumption of fruits and vegetables by 1.80% (95% certainty interval: 1.12 to 2.73) and increase life expectancy by 3.8 (2.2 to 5.9) days for men and 2.6 (1.5 to 4.2) days for women in the Netherlands.

Conclusion: Ending EU withdrawal support for fruits and vegetables could have modest effects on the health of the Dutch population. A more comprehensive study of the health effects of the EU agricultural policy by health experts and agricultural economists could help to ensure health is properly considered in decision-making.

Health Impact Assessment, quantitative methods, fruits and vegetables

Transport Policy and Obesity

Rutter, Harry; South East Public Health Observatory, 4150 Chancellor Court, Oxford Business Park South, Oxford, Oxon OX4 2JY UK. +44 1865 334714. Fax +44 1865 334715. harry.rutter@uhce.ox.ac.uk. www.sepho.org.uk.

There is a growing epidemic of obesity in the developed world. The changes in transport patterns over recent decades have seen a vast growth in motorised travel at the expense of active travel, with a resultant decrease in the opportunities for people to lead physically active lives. This presentation explores the links between transport policies and the development of obesogenic environments, and makes suggestions for ways of tackling these problems.

Physical activity, transport, obesogenic

Health Impact Assessment, Housing, and Overweight

den Broeder, Lea; RIVM, PO Box 1Bilthoven, Utrecht 3720 BA Netherlands. +31 30 2742735. Fax +31 30 2744450. lea.den.broeder@rivm.nl. www.rivm.nl.

If housing policies are to contribute to protect and improve public health they need to incorporate the evidence about their health impacts. In some cases this has been succesfully done , e.g. in regulations aiming at the

promotion of a healthy indoor climate. However in other cases it seems much harder for planners and policymakers to take health aspects into account. One example is the relation between housing, including the built environment, and healthy lifestyles preventing overweight.

Health Impact Assessment could be helpful in bringing in the perspective of overweight prevention into housing policies. Most important is a focus on physical exercise. Studies have shown that integrating physical exercise in daily routines is more effective than offering sports facilities. Therefore it is important that neighbourhoods stimulate physical exercise through aspects like: supervisable and attractive playgrounds; sufficient and safe public transport facilities; greenery; nearby shops and other services; bicycle shelters; crime prevention by space design, and traffic safety. An example of influence on policy through HIA is an HIA performed on the Dutch Housing Strategy, which led to increased attention to this aspect of urban planning at the ministry of Housing, Spatial Planning and the Environment (den Broeder L, Penris M, Varela Put G, 2003). The RIVM developed a handbook for municipalities providing recommendations for safe and exercise-promoting neighbourhood design. It was piloted in 2004 and will be implemented in 2005.

The results of this and other HIA work on housing and overweight may be a starting point for an HIA checklist focusing on this topic.

Overweight, housing, health impact assessment

CS79. DISASTER & CONFLICT: EXTREME IMPACT ASSESSMENT: ETHICAL AND QUALITY CONSIDERATIONS WHEN DEALING WITH CONFLICT, DISASTERS AND OTHER EXTREME EVENTS 2

The Economic Impact of Shelter Assistance in Post-Disaster Settings

Hill, Richard; CHF International, 8601 Georgia Avenue, Suite 800, Silver Spring, Maryland 20910 USA. 301-587-4700. rhill@chfhq.org. www.chfinternational.org.

CHF International has recently completed a 16-month study of the economic impact of shelter assistance programs. The study addresses the impact of emergency shelter programs in the development of post-relief economies and in building incomes of affected populations. It provides (1) a review and analysis of the available literature relevant to understanding the economic impact of emergency shelter programs, (2) additional research conducted by CHF International on income development of beneficiaries of emergency shelter programs, and (3) the first steps toward rigorous and accurate measurement of impact of these programs on the incomes of beneficiaries.

CHF conducted household surveys at three sites where some form of emergency shelter was provided to households during the past 3 years in Sri Lanka, El Salvador, and Colombia. Survey data included information on incomes before and after the emergency that necessitated the provision of shelter, and information on both households that received shelter assistance and households that have not.

For the data samples collected in each country, two models were created for a multivariate analysis: (1) a simple linear model that relates the percentage increase in household income to shelter assistance, household size, the age of the head of household, and an assessment of household vulnerability: and (2) a model that examines the logarithm of the increase in income to the dichotomous variables (such as shelter and vulnerability status) and the logarithm of other variables (such as household size or age of the head of the household).

The analysis suggests that investments in emergency shelter provision provide significant returns, and that shelter assistance post-disaster is significant in increasing incomes of the beneficiaries at a rate much larger than increase of non-beneficiaries.

Disaster, shelter, economic, emergency, conflict

Limiting Negative Environmental Impacts in Emergency Locust Operations

Lagnaoui, Abdelaziz; The World Bank, 1818 H Street NW, Washington, DC 20433 USA. 1 202 458 2806. Fax 1 202 477 0565. alagnaoui@worldbank.org.

Kristensen, Peter; The World Bank, 1818 H Street NW, Washington, DC 20433 USA. 1 202 473 4789. Fax 1 202 614 1235. pkristensen@worldbank.org.

Jordy, Denis Jean Jacques; The World Bank, 1818 H Street NW, Washington, DC 20433 USA. 1 202 473 6809. Fax djordy@worldbank.org.

Swarms of Desert Locusts spread throughout the Central, Western and Northern region of Africa this year. These swarms destroyed crops on their path, threatening serious food crises. Over the years, affected countries relied on various chemical pesticides to control the plague. These chemicals ranged from persistent organic pollutants (i.e. Dieldrin) to newer compounds (i.e. Fipronil) with organophosphates still the most commonly used products (i.e. Malathion and Chlorpyrifos). The emergency nature of these operations presents some special circumstances in terms of safeguard policies. The challenge is to control the locust plague while minimizing the negative environmental impact of pesticide-based management programs.

The lack of preparedness and the lack of a minimal capacity during the long remission phases leave a weakened system unable to respond in a timely fashion to prevent the locust upsurge. Furthermore, the rationale for triggering the control operations is not always based on realistic assessments of risks, but rather on political grounds. Locust control operations are deemed necessary to avoid food shortages, but experience showed us that these emergency operations are neither economically efficient nor environmentally sound. The major environmental risks related to locust control derive from inadequate pesticide management and use during locust invasions; unsuitable products or packaging: poor product specifications, unavailability of required application equipment, labels in foreign languages, lack of trained personnel, donation or purchase in excess of need, inadequate storage facilities, and lack of monitoring of pesticide impact on human health and environment. Excessive supplies of pesticides under declared emergency situations often contribute to the build up of stockpiles of obsolete pesticides. In this paper, we will address the potential environmental impacts, the guidance to assess impact, the prevention measures and the promotion of alternatives to toxic chemical pesticides.

Locust emergency, Integrated Pest Management, pesticides, risk assessment, impact assessment

Getting Better With Age? Rethinking Rapid Environmental Impact Assessment in Disasters

Kelly, Charles; Benfield Hazard Research Centre, c/o 3225 Oliver St NW, Washington, DC 20015 USA. 13016763301. Fax 72734.2412@compuserve.com.

A crude methodology to quickly identify the critical environmental impacts and links during disasters was initially conceived in 1996. Over the past 10 years, the initial Rapid Environmental Impact Assessment in Disasters (REA) concept has developed and expanded into a formal documented methodology which has been tested and applied in a number of major disasters, most recently the tsunami in South Asia. After a decade of development and application it is useful to ask whether the REA has become a useful tool with staying power. This question is considered in the context of (1) the level of general use of the REA, (2) the impact of REA outputs on disaster operations and, (3) the level of overlap or complementarity between the REA and similar assessment tools. Intended as a critical review, the presentation highlights ways in which the usefulness and application of the REA can be improved.

Disasters, rapid environmental impact assessment

The Impact of Nigeria's Regional Security Interventions: Issues on Quality Capability

Offu, Peter; Dept of Int'l & Strategic Studies, University of Malaya, Dept of Int'l & Strategic Studies, University of Malaya, Faculty of Arts and Social Sciences, Kuala Lumpur, Kuala Lumpur 50603 Malaysia. +60122790327. Fax +60379675483. poffu@perdana.um.edu.my.

The role and impact of Nigeria in West African regional security framework draw essentially from the centrality of and focus on her African regional policies. It manifests Nigeria's struggle to strengthen and build an African response capacity to intervene in African problems. Such regional capacity-building is imbued on the conviction and resolute efforts to enhance the peace and stability of the region as the benchmark for speeded regional economic growth.

Remarkably, geostrategic study of the African regional security posture broadly shows a tri-dimensional security issue

1) African regional in/security increasingly draws legitimacy from the increasing illegitimacy of regime politics, lack of political will of most African leaders, civil wars, national security militarism, and continued presence of the military in political arena.

2) It evolves questions on indirect control patterns, neocolonialism, external influences and determinants, overarching trade patterns and consequent debt effects etc.

3) The threat of humanitarian interventions, poverty, starvation, diseases and natural disasters. Security Issues of Quality Capability: Nigeria's Regional Experience

Redefining capability in terms of sustainable and resilient economic and political cultural development of the people and nations, the paper shall assess the impact of the security issues of Quality Capability based on Nigeria's regional experiences. Has Nigeria the resilient and sustainable political and economic capability needed for such procedural quality management of regional affairs?

How rightly has such interventions benefited and/or strengthened regional democratization efforts? How can justified intervention lead to responsible democratic dispensation? How has Nigeria's regional intervention undermined her internal security or influenced good national democratic culture in priority sectors? Who takes the disadvantages of whom and at whose territorial rights?

Security issues on quality capability: Nigeria's regional experience

CS80. TESTIFYING AS AN EXPERT WITNESS

CS81. DISSEMINATION OF EIA-INFORMATION AND EIA CENTRES: EXPERIENCES IN THE (FUTURE) NEW EU MEMBER STATES

Veeken, Jan; DHV Environment and Transportation, Laan 1914, no. 35, Amersfoort, Utrecht 3818 EX Netherlands. +31 33 4682978. Fax +31 33 4682801. jan.veeken@dhv.nl. www.dhv.com.

Martins Dias, Luis; DHV Environment and Transportation, Laan 1914, no. 35, Amersfoort, Utrecht Netherlands. +31 33 4682604. Fax +31 33 4682801. luis.martinsdias@dhv.nl. www.dhv.com.

In the field of EIA one of the great challenges in the (future) new EU member states is the dissemination of new information to the different stakeholders. This information is much needed because of the recent implementation of EU EIA directives in the national laws.

The workshop will have 3 presentations:

1) Recent EU Phare training programme in 10 (future) EU Member States. In Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia, Bulgaria and Romania, EIA workshops and trainings have been executed during 2004 and 2005. This was part of a large EU Phare programme with regional public officers as the main target group. In several countries the establishment of an EIA centre was recommended.
2) General principles of an EIA Centre. An overview will be presented of the main activities of an EIA centre: Education and training, Information and advisory, Research. Each activity will be more elaborated in respect to a needs analysis, existing activities, strategy and implementation. Attention will also be given to the role of networking for an EIA Centre and which guiding organisational principles are desirable.
3) Recent experience in Turkey of establishing an EIA Centre. The current project consists of establishing an EIA Training and Information Centre for the execution of training, advisory services and overall coordination of EIA studies.

We would like you to discuss the next items in subgroups:

Examples and reasons of failures of EIA Centres.

Need and function of an EIA Centre.

- Is an EIA Centre needed?
- Which function is most important?
- Only practical advice, or also advice to government on new legislation?
- Should it play a role in reviewing?

Filling in the gap without an EIA Centre

- How to fill in the gap (by who)?
- Which minimum functions should be executed?

Information dissemination, EIA Centre, training, EU, Turkey

CS82. ISSUES IN METHODS AND QUALITY

EIA for the "La Yesca" Hydroelectric Dam Project in Western Mexico: A Methodology for Impact Identification and Evaluation

Palerm, Juan; University of Guadalajara, Centre of Exact Sciences and Engineering, Apdo. Postal 5-737, Col. Chapalita, Zapopan, Jalisco 45042 Mexico. + 52.33.38364500. Fax + 52.33.38364502. juan_palerm@yahoo.es.

Contreras, Segio; University of Guadalajara, Centre of Biological and Agricultural Sciences, Franciso Labastida 618, Col. Jardines Alcalde, Guadalajara, Jalisco 45090 Mexico. + 52.33.38238679. Fax + 52.33.38235780. scontrer@megared.net.mx.

Clausen, Javier; ITESO University, Periférico Sur Manuel Gómez Morín 8585Tlaquepaque, Jalisco 45090 Mexico. + 52.33.36693434 Ext. 3135. Fax + 52.33.36693505. jclausen@iteso,mx.

A methodology is proposed to identify the potential significant environmental impacts of the "La Yesca" hydroelectric dam project in Western Mexico, for the Mexican Federal Electricity Commission (CFE). This methodology responds to the requirements of the Mexican EIA system and to the sectoral guidelines provided by the Mexican Ministry of Environment (SEMARNAT), but also integrates international best practice approaches as well as the experience of the CFE in previous EIAs for hydroelectric projects. The design of the methodology had to meet the challenge of finding a balance between the marked preference in Latin systems for quantitative approaches (which is generally accompanied by a discredit of qualitative approaches) and the use of qualitative approaches which the authors consider more efficient for the identification and evaluation of certain impacts (when quantifications become meaningless or even misleading), as well as responding to the particularities of an EIA for a large dam, which may be considered as a semi-linear project (due to the impacts along the river course upstream and downstream).

The resulting methodology is a mixture of the use of matrices, semi-quantified impact characterisation summary sheets (for all potential significant impacts), networks and overlays. Impacts are to be evaluated according to quantitative or qualitative criteria-as deemed best by the project team-through the use of pre-defined transformation functions, and all evaluations are to be translated into a 0-1 environmental quality index in order to ensure consistency throughout the EIA (evaluation of the environmental baseline, impact identification, impact evaluation and assessment of the efficiency of the mitigation measures). In order to respond to the semi-linear nature of the project, a distinction is made between the upstream and the downstream impacts.

Environmental impact assessment, large dams, hydroelectric development

On Dealing with Exceedances of Ambient Air Quality Limit Values in the Environmental Impact Assessment (EIA)

Brandl, Klara; Federal Environment Agency, Spittelauer Lände 5, Vienna, Austria 1090 Austria. + 43-1-31304-3310. Fax + 43-1-31304-3700. klara.brandl@umweltbundesamt.at. www.umweltbundesamt.at.

Nagl, Christian; Federal Environment Agency, Spittelauer Lände 5, Vienna, Austria 1090 Austria. + 43-1-31304-5866. christian.nagl@umweltbundesamt.at. www.umweltbundesamt.at.

Kurzweil, Agnes; Federal Environment Agency, Spittelauer Lände 5Vienna, Austria 1090 Austria. + 43-1-31304-5554. agnes.kurzweil@umweltbundesamt.at. www.umweltbundesamt.at.

The uncertainty encountered in EIA practice about the suitability for authorisation of projects in areas where ambient air quality limit values under the Austrian Air Quality Protection Act are likely to be, or have already been, exceeded gave rise to the preparation of a guidance document. The aim of this guidance document was to assist competent authorities in decision making. In the course of discussions with representatives from the authorities and experts in the fields of air quality control and transport, it turned out that it would be expedient to focus on the following topics: scope of the Air Quality Protection Act, marginal exceedances of limit values, definition of the area under investigation, uncertainties of projections and the efficiency and feasibility of measures.

Thus the actual facts regarding application, that is, the requirements for authorisation under the Air Quality Protection Act and the relevant plant authorisation regimes of the federal government, were explained. Furthermore, the local range of application with regard to protection of human health and ecosystems as well as vegetation was defined, and the overall conditions were discussed that are required, from a timely aspect of application, to establish suitability for authorisation if limit values are expected to be exceeded.

Existing concepts on dealing with, and on the application of, marginal exceedances of limit values were discussed and an approach suitable for Austria to the evaluation of consequences and the definition of the area under

investigation was described. The complex subject of forecast uncertainty was considered and links between impacts and the necessary requirements for transparent and well-founded applicability were established. Measures for reducing emissions and for effecting changes in the spreading of pollution were described.

The presentation includes the major findings of the guidance document in the light of the overall Austria-specific conditions and requirements.

Environmental Impact Assessment, ambient air quality, limit values

The Effects of Context on Environmental Impact Assessment

Alaoui Mdaghri, Zineb; University of Montreal, 7816 Lajeunesse, Montreal, QC H2R2J4 Canada. 514-495-9139. z.alaoui.mdaghri@umontreal.ca.

Jacobs, Peter; Faculty of Environmental Design, C.P. 6128, Succursale Centre-ville, Montreal, QC Canada. 514-343-7119. Fax 514-343-6104. peter.jacobs@umontreal.ca.

Following the establishment of EIA some decades ago, its applications in several activities and different domains throughout many countries in the world have expended, in some cases quite rapidly. Projects proposals for transportation infrastructure, energy, manufacturing plants and mines that affect increasingly diverse communities, including indigenous peoples, have contributed to the diversification of the clientele concerned with EIA.

While it is possible that a general consensus regarding the role that EIA plays in achieving operational aspects of sustainable development, questions emerge with respect to scientific objectivity and applications required of these assessments. Faced with an increasing number of methodologies required to respond to accuratly to increasingly complex project proposal, the question arises: is it possible to use the same methodology for projects for a same or similar nature in different social, biological and economical contexts. A comparative study of the EIA of a mine in an Inuit community in Northern Quebec and one in North Africa will be used to illustrate the importance of contextual variables and to explore the impact of these variables on the dichotomy between the principles and practices of EIA.

EIA's principles and practices, context, mine

EIA/SEA – A Challenge to Decision-making, Planning and Policy-Making?

Hedlund, Anders; Swedish EIA Centre, Box 7012, Uppsala, County of Uppsala SE-750 07 Sweden. + 46-(0)18 67 25 31. Fax + 46-(0)18 67 35 12. anders.hedlund@lpul.slu.se. http://www-mkb.slu.se.

Söderbaum, Peter; Mälardalen University, Box 883, Västerås, County of Västmanland Sweden. + 46-(0)21 10 14 93. Fax + 46-(0)21 10 14 80. peter.soderbaum@mdh.se. http://www-mkb.slu.se.

The purpose of EIA and SEA is to assure that environmental aspects are taken into account in planning and decision-making. But there is more to it: the procedures of EIA and SEA both have certain characteristics which are of interest from perspectives of ethics and science as well as planning theory and decision-making philosophy.

We claim that EIA/SEA stands for an interdisciplinary, open-ended, disaggregated learning process with participation and interaction between actors, stakeholders and the public as key activities. The focus is to identify and assess significant negative impacts caused by an actual plan, programme or project. In this way, EIA/SEA supports planning and decision-making in cases when complex and adverse impacts are at stake. In itself EIA/SEA is not, and should not be, a planning tool or an instrument to implement overriding plans and policies. In practise, however, EIA/SEA tends to play an ambivalent role. At least in Sweden EIA/SEA sometimes is a closed process focusing on the assessment of compliance with environmental policy, objectives for environmental protection, and comprehensive plans and programmes. By this there is a risk that EIA/SEA becomes a instrument of top-down policy-making – at the expense of an open, transparent process and participative qualities.

We believe that EIA/SEA, by putting emphasis on its characteristics, offers an approach that can significantly influence planning and decision-making to make it both more transparent and democratic and more compatible with sustainable development. In this paper, underlying ethical and scientifical perspectives (and ideologies and philosophies) are illuminated in order to understand prerequisites and mechanisms for effective and effiecient use of EIA/SEA. EIA/SEA is also discussed in relation to cost-benefit analysis, multi-criteria approaches and positional analysis.

EIA, SEA, decision-making, planning, policy-making, cost-benefit analysis, multi-criteria

Impact Assessment: Is Quality Determined by the Document, the Processes, or the Outcome?

Onyango, Vincent; Brandenburg University of Technology, Wilhelm Kulz Str., 50Cottbus, Brandenburg 03046 Germany. 0176-24565868. vin_onyango@yahoo.com.

The "quality" of an impact assessment (IA) is of significant practical importance in terms of its utility value during decision-making, and also of theoretical significance because it informs the backdrop against which the IA can be evaluated, either for ranking in event of competing IAs or for litigation.

Since the objective of IA is to provide information for decision making, the question of which among the entities of document, the process or IA outcome determines the quality is complex; and must first be disaggregated and simplified, before finally reconstituted to arrive at a judgment. Since "quality" depends on several factors, and may be highly subjective, quality of an IA can be defined by an aggregation of weighted values of the empirical and normative qualities of the IA, in reference to objectives of the IA, and in reference to the document, process and the outcome of the IA report itself. A multi-criteria matrix analysis can provide a comprehensively integration of the parameters to be evaluated. Another way of determining quality, the Single Entity Analysis, which assumes that each entity is independent of the other and hence on its own determines quality, suffers conceptual inadequacy and is therefore not very useful.

Finally, the answer might lie on who answers the question. To a developer, only the outcome might be important. To the Environmental Authority, the document and the linkage between the process, document and outcome of the IA may determine the quality. Based on societal interest, such comprehensive model that aggregates the three entities may offer the best quality determinant.

Impact assessment, quality, document, process, outcome

Integrity Impact Assessment

Osuagwu, Chimdindu Eben; S.P. S Ltd., No 1-2 Okpara Ave, GRA., Umuahia, Abia State. 440001 Nigeria. 234-8055176567. chimdindu@yahoo.com.

Study after study yields evidence that integrity adversities such as "systemic corruption" and 'inequlity' are never development neutral. Where integrity is the 'sail' of sustainable development, corruption and inequality are the "ethical tsunamis" spawning waves of adverse local and global impacts. Innovative "integrity impact assessment" is therefore necessary for evaluating the qualitative and quantitative impacts of corruption and inequality on environment development. Employing corruption perception data (Transparency International's CPI scores), it was possible to derive an integrity sustainability index (ISI): equation [ISI] = [2CPI/GINI] for Gini values > = 20. This is by denominating transparency scores with the corresponding exfoliated inequality values(20-100). Believing that genuine human development must account for environment's ethical integrity, a model equation which couples the integrity sustainability index (ISI) with the human development index (HDI) yield a new holistic "Development Sustainablity Index" as[DSI] = 0.25 [3HDI + ISI]. A simple corellation analysis show that cross- country benchmark performances on education, incomes, life expectancy, rule of law, regulatory quality, sanitation and voice and accountability are strongly corellated to the country integrity sustainability index. These indicators in turn are more strongly corellated with the development sustainability index (DSI) than they are with the HDI. The result prove that optimum integrity (high transparency-low inequality) and sustainable development are mutually inclusive. The reverse is also true. Countries that mismanage their ethical integrity proportionally mismanage their environment's development. The search for other "integrity impact assessment" indicators is hereby provoked. Sustainability depends on integrity impact.

Impact assessment, quality, document, process, outcome

CS83. CAPACITY DEVELOPMENT: THE MARRAKECH DECLARATION AND ACTION PLAN 2

Posters

Participative Social Impact Assessment in the Planning/Decision Process

Burdge, Rabel; Western Washington University, PO Box 4056, Bellingham, WA 98227-4056 USA. 1-360-676-9892. Fax 1-360-715-0985. burdge@comcast.net. www.socialimpactassessment.

This poster illustrates the use of SIA at the community and project level to help planners, change agents, elected officials and concerned citizens understand future change in their community as a result of project implementation or policy change.

After a brief definition of SIA and a history of its use in the planning process, the basic Social Assessment Model is laid out. I provide visual examples of how an SIA matrix can be used in a variety of project and policy settings. Next the SIA scoping process is outlined as the way to identify likely social impacts (issues) based on past research and assessments of similar project and policy changes.

The content of the social assessment (analysis) is made up of 28 social impact assessment variables (social science indicators) used to explain change in a variety of project/policy settings. These indicators have been extracted from completed EIAs and SIAs and social science research on rural and urban communities. Next is a definition and ways of measuring and analyzing selected SIA variables, followed by demonstrations of significance and procedures for reducing the number of SIA variables to fit a project setting. The use of different data sources for social assessments is also shown.

The presentation includes a ranking procedure for the selection of significant SIA variables. Once identified, these SIA variables become the basis for mitigation and enhancement of the social change process. Examples of mitigation and enhancement alternatives are displayed for a representative project. The poster concludes with an outline for presenting the analysis and the SIA key citation index.

Social impact assessment, SIA variables, scoping, public involvement

Effectiveness of Environmental Impact Assessment in Finland – Presentation of the EFEIAProject

Hokkanen, Pekka; University of Tampere, Department of Political Science, Tampere, FIN-33014 Tampereen yliopisto, Finland. +35814697286. pekka.hokkanen@ymparisto.fi.

Pölönen, Ismo; University of Joensuu, Department of Law, P.O. Box 111, Joensuu, FIN-80101 Joensuu, Finland. +358132513656. ismo.polonen@joensuu.fi.

Kuitunen, Markku; University of Jyväskylä, Dept. of Biological and Environmental Science, Jyväskylä, FIN-40014 Jyväskylän yliopisto Finland. +358142602301. Mkuitune@bytl.jyu.fi

Hirvonen, Kimmo; University of Jyväskylä, Dept. of Biological and Environmental Science, Jyväskylä, FIN-40014 Jyväskylän yliopisto Finland. +358142601211. kimmo.hirvonen@jyu.fi.

Despite their innovative aspects, Finnish EIA legislation and practices contain several gaps that weaken the preventive effect of the instrument. The main objective of the EFEIA project is to analyze and improve the effectiveness of environmental impact assessment. In addition, it is our objective to provide structured information about the legal framework and case law related to the environmental impact assessment. Further, we aim to increase our understanding of the mechanisms and the functions of the instrument and provide a comprehensive overview of the various effects of the EIA. EIA is seen in our study as a modern environmental policy instrument, which means that the role played by EIA in the field of environmental policy control will be located and analyzed.

The approach to be used in the research is multidisciplinary, since the research subject will be approached from the perspectives of the legal, political and natural sciences. The core task of the EFEIA project will be to define the problems of EIA and to address these problems by means of versatile measures that draw on all three of the environmental sciences. The foundation of the environmental impact assessment is multidisciplinary. The effectiveness of the instrument is not based solely on the legal-administrative regulation but also essentially on the other factors as well, which are in part related to the transparency and participatory functions of the EIA process. Only applying a diversified methodology and a multidisciplinary approach can identify these factors and mechanisms. The research will produce a new kind of comprehensive information on the mechanisms and effectiveness of EIA. The outcomes of the EFEIA project will together form an extensive scientific basis for more

effective EIA legislation and assessment practises to improve quality of the environment. An overall picture of research project will be presented in this poster.

Environmental impact assessment, effectiveness, multidisciplinary, evaluation

The Health Impact Assessment for Healthy Public Policy: A Case Study of "Garden City Project" Yala City, Thailand

Rodsawad, Jittima; Sanitation and Health Impact Assessment Division, Department of Health, Tiwanon Road, Muang District, Nonthaburi 11000 Thailand. 66 25 90 43 43. Fax 66 25 90 43 59. r_jittima@hotmail.com.

Boonyakarnkul, Theechat; Sanitation and Health Impact Assessment Division, Department of Health, Tiwanon Road, Muang District, Nonthaburi 11000 Thailand. 66 25 90 43 42. Fax 66 25 90 43 59. tchat@health.moph.go.th.

Wilainirund, Duangkhae; Sanitation and Health Impact Assessment Division, Department of Health, Tiwanon Road, Muang District, Nonthaburi 11000 Thailand. 66 25 90 43 43. Fax 66 25 90 43 59.

Isaramalai, Sangaroon; Faculty of Nursing, Prince of Songkhla University, Hadyai, Songkhla 90110 Thailand. 66 74 28 88 94. Fax 66 74 21 29 01. isangaru@ratee.psu.ac.th.

The purpose of Health impact assessment is to evaluate the positive and negative impacts of the Yala Garden City project on the people health and to propose recommendations to further develop the project. The methodologies consist of 1) Identifying the scope 2) Conducting the health impact assessment 3) Analysis of the data and the report results. 4) Public review of the HIA report 5) Policy recommendations. The results for the physical health impacts found that positive changes reported by users were the increase in physical strength and a decrease of fatigue. Few people reported any positive change to their use of routine medications, to mild health problems, or the frequency of visiting a physician. The mental health impacts found that an increase in happiness and reduction in irritable feelings. The social health impacts found most users having more opportunity to join with friends and to meet people, however, less reported the chance to participate in social activities in the parks and gardens, such as cultural shows and traditional entertainment programs. The spiritual health impacts found that having changed their values of public property and of being proud of the city symbols. However, less gained any sense of belonging to the group, or club. This study includes recommendations for enhancing community participation by forming networks that support public health policy development. The HIA strategy was widely accepted among both the public and policy makers who were involved in the project. It was proposed that the process be used for all projects in the city. The policy makers have taken the public recommendations for project development into account and assigned responsible authority persons. In addition, local experts and specialists have formed a multidisciplinary research and development network to continue impact assessments for the sustainable development of local healthy public policy.

Health Impact Assessment, Healthy Public Policy, Garden, sustainable development

Health Impact Assessment of Excreta Management

Duangmontree, Piyamaporn; Sanitation and Health Impact Assessment Division, Department of Health, Tiwanon Road, Muang District, Nonthaburi 11000 Thailand. 66 25 90 43 43. Fax 66 25 90 43 59. pia4003@hotmail.com.

Boonyakarnkul, Theechat; Sanitation and Health Impact Assessment Division, Department of Health, Tiwanon Road, Muang District, Nonthaburi 11000 Thailand. 66 25 90 43 42. Fax 66 25 90 43 59. tchat@health.moph.go.th.

Pitiseree, Kesinee; Sanitation and Health Impact Assessment Division, Department of Health, Tiwanon Road, Muang District, Nonthaburi 11000 Thailand. 66 25 90 4343. Fax 66 25 90 43 59. kesi@health.moph.go.th.

Charerntanyarak, Lertchai; Department of Epidemiology, Khon Kaen University, Maliwan Road, Muang District, Khon Kaen 40002 Thailand. 66 99 40 42 94. Fax 66 43 34 70 58. lertchai@kku.ac.th.

Prabpai, Somkid; epartment of Epidemiology, Khon Kaen University, Maliwan Road, Muang District, Khon Kaen 40002 Thailand. 66 17 08 62 80. kid4003@hotmail.com.

Health impact assessment (HIA) is a process to identify, predict and evaluate the human health impact of a proposed policy, plan, program or project. The purpose of health impact assessment is to alert decision-makers to possible health impact that could be eliminated or reduced. The purpose of this paper was to assess the health impact of human excreta management at Udonthani Municipality (UM). The study involved focus group discussion, interviews, questionnaires and a literature review to collect data from key sources of information, and stakeholders that are involved in human excreta management (i.e., collection, transportation and disposal) in order to establish a scoping framework to identify and evaluate physical, mental, and social health impacts. The study showed that UM owned one vehicle with vacuum pumps, and leased 15 operational vehicles with vacuum pumps from the regulated

private sector and showed that the municipality had inadequate disposal facilities. Most of the impacts result from nightsoil collection, such as accidental injuries caused by a lack or poor usage of personal protective equipment, and carelessness. The local population were pleased to have private sector excreta collection regulated, because it standardized nightsoil collection fees and ensured a quality and competitive service. Excreta treatment processing affected people and the environment for those who live nearby, especially contamination by wastewater that occurred during the rainy season and from bad odours in the winter evenings. In addition, some collectors did not dispose of the nightsoil at the treatment plant and therefore, may spread pathogens to the environment. This paper includes recommendations for enhancing the positive and reducing the negative impacts of human excreta management.

Health Impact Assessment, excreta, management, udonthani, municipality

Anticipating Socioeconomic Effects of Louisiana Coastal Restoration Projects

Green, Broderick; University of New Orleans, Center for Hazards Assessment, Response and Technology, 2000 Lakeshore Drive, Suite 320, CERM Building, University of New Orleans Research & Technology Park, New Orleans, LA 70148 USA. 504-280-4025. bgreen@uno.edu.

Kappel, Bill; University of New Orleans, Center for Hazards Assessment, Response & Technology, 2000 Lakeshore Drive, Suite 320, CERM Building, University of New Orleans Research & Technology Park, New Orleans, LA 70504 USA. 504-280-4025. wkappel@uno.edu.

Gramling, Bob; Center for Socioeconomic Research, P.O. Box 43530, Center for Socioeconomic Research, University of Louisiana – Lafayette, Lafayette, LA 70504 USA. 337-482-5375. gramling@louisiana.edu.

Laska, Shirley; University of New Orleans, Center for Hazards Assessment, Response and Technology, 2000 Lakeshore Drive Suite 339, CERM Building, University of New Orleans Research & Technology Park, New Orleans, LA 70148 USA. 504-280-5760. slaska@uno.edu.

This poster illustrates a process to identify and analyze the socioeconomic effects of five completed coastal restoration projects and from these data anticipate the potential impacts of two proposed projects. Despite being well thought out from an engineering/ecological/geologic perspective, many coastal restoration efforts have been challenged by inadequate prior assessment of the ways in which they would affect the human communities that live within the impact area (Laska et al., 1992). The result has been socioeconomic impacts that were unrecognized and recognized impacts that were unresolved. Litigation and excessive settlements arising from the unmitigated impacts of restoration projects are themselves lessons that predicting the likely social and economic effects of the projects should be a priority because response of a purely reactionary nature is no longer an effective option.

While many Louisiana residents are aware of the significant wetland loss that occurs along the state's coastal zone, there is little agreement among concerned community stakeholders, and local, state and federal government officials on the best method to address the problem. Interviews and document examinations have led to the conclusion that river diversion projects are the most likely type of project to bring about major social changes and thus are also the most likely type of project to result in controversy. The alarming rate of coastal land and resource losses prompted attempts to address the problem with large-scale projects that would potentially provide the greatest impact to the widest area possible. However, such projects also increase the possibility of greater social impacts to the human communities living within the impact area. These impacts, both positive and negative, should be identified and a mitigation plan developed prior to project implementation in an effort to maximize positive and minimize negative socioeconomic effects of coastal restoration projects.

Coastal restoration, Social Impact Assessment

Assuring Quality in Baseline Studies of Impacts of Developmental Projects on Fish Assemblages

Hogge, Gavin; ICF Consulting, 33 Hayden Avenue, Lexington MA 02421 USA. 713-445-2003. ghogge@icfconsulting.com. www.icfconsulting.com

Armah, A.K.; Darpaah, G.A,; Department of Oceanography & Fisheries, University of Ghana, Legon, Ghana.

Ababio, Selorm; Lamptey, Emmanuel; Environmental Solutions (Gh) Limited, P.O. Box LG 239, Legon, Ghana. esl_ghana@yahoo.com

Quaartey, Sam; Marine Fisheries Research Division, P.O. Box BT 62, Tema, Ghana.

A thorough understanding of the affected marine environment is a vital component of any impact assessment of offshore development. Work in the marine environment however poses special physical challenges for the field

researcher. Large scale linear projects, such as undersea pipelines, add to the complexity due to issues of scale and differences in habitats. All of this and more must be overcome to ensure the quality of the data acquired.

While the assessment must develop a sampling and analysis approach consistent with the project goals, it must also provide a robust scientific characterization of the potentially affected environment. Often, the methodology used for ichthyofaunal studies is flawed by an overemphasis on commercially viable species; however, the design of the sampling should not overlook the comprehensive "food web." Consistency in the sampling, recording, and analysis of data is also important. To ensure overall data quality, the field team should build consensus on the many details of a work plan prior to data collection. Working closely with the local scientific and regulatory bodies can incorporate local expertise and verify that studies are consistent with regional practices. Providing a consistent basis for the sampling efforts will assure data quality as well as provide a basis for long term monitoring of the affected environment.

This poster will present the practical application of quality elements that are at times, overlooked, in fish studies. These will be discussed in the context of a case study of the environmental baseline survey work involving two seasons of high quality fish population data collected by a multinational team of scientists. The studies were conducted to support the impact assessment of the West Africa Gas Pipeline project, a 600 kilometer gas pipeline that will be constructed in the Gulf of Guinea off the coast of West Africa.

Fish, biological survey, demersal stock, gas pipeline, field sampling

EIA Course as E-learning

Eriksson, Inga-Maj; Swedish Road Administration, Röda vägen 1, S-781 87, Borlänge, Sweden Sweden. + 46 243 75131. inga-maj.eriksson@vv.se.

Lingestål, Irene; Swedish Road Administration, Röda vägen 1, S-781 87, Borlänge, Sweden Sweden. + 46 243 75544. irene.lingestal@vv.se.

A computor based course was prepared in order to reach many participants with basic knowledge.

The course was prepared by IT-consultants in cooperation with EIA-experts at the Swedish Road Administration and based on a new handbook.

It was a challenge to combine two different types of specialised competences for producing a new type of course within a very limited time.

We would like to give a view of some of the modules´pages and explain some of the experience and results.

Test-participants liked the course very much but had difficulties in interpreting many of the questions in the connected test. The work to construct these questions was totally underestimated and caused a need for correction work after the delivery of the course.

Public Consultation and Political Interferences During Environmental Impact Assessment Process

Hernandez-Alvarez, Francisco; Comisión Federal de Electricidad, Rio Mississipi 71 9°Piso, Col Cuahutemoc, Mexico, D.F. 06500 Mexico. 52 (55) 52 29 44 00/6928. Fax 52 (55) 52 29 44 00/2673. francisco.hernandez@cfe.gob.mx.

Zuniga-Gutierrez, Guillermo; Comisión Federal de Electricidad, Rio Mississipi 71 9°Piso, Col Cuahutemoc, Mexico, D.F. Mexico. 52 (55) 52 29 44 00/3366. Fax 52 (55) 52 29 44 00/2673. guillermo.zuniga@cfe.gob.mx.

Since 1988, in Mexico for constructing new development project an environmental impact assessment must be carried on. Environmental regulations provide that an Environmental Impact Statement (EIS) must be submitted to the Ministry of Environment (Secretaría del Medio Ambiente y Recursos Naturales) for obtaining the authorization for developing the project.

During the last two decades, in the National Power Company of Mexico (Comisión Federal de Electricidad - CFE) in accordance to its environmental policy, the environmental analysis of the projects have been improved to satisfy the new legal requirements and to incorporate the technical and scientific advances for identifying and assessing the environmental impacts. The results and recommendations contained in the EIS are considered for designing the project, planning the constructive process and developing the programs for avoiding and compensating the adverse impacts due to project execution.

In the last years the public has been more involved with the major development projects and the public opposition to them is harder. The Mexican law provides public participation during environmental impact process when stakeholders require more information about the project and its environmental repercussions. However there have

been troubles for establishing an authentic dialogue among the promovente, public and the authority. In the case of the Hydroelectric Project "La Parota" the public opposition was based on incorrect or improper information about the project and its social and environmental effects and the discussion was not focused on the environmental and social repercussions of the project.

We discuss our experience during the environmental impact assessment process developed for the new Hydroelectric Station "La Parota."

Assessment of Regional Atmospheric Environmental Capacity for Total Air Pollution Emission Control

Jang, Young-Kee; Dept. of Environmental Engineering, University of Suwon, Bongdam-eup, Hwaseong-si, Kyonggi-do 445-743 Korea. +82-31-220-2147. musim@suwon.ac.kr.

In Korea, the Seoul metropolitan area takes up only 12 % of the total national land, but account for 46 % of the total population and vehicles. So the pollution level in this region marks 1.7 – 3.5 times higher than the pollution levels in other major cities globally. To cope with this serious problem, Korean government led to the legislation of the Special Act on Metropolitan Air Quality Improvement in December 2003. One of the major measures of this act is total air pollution emission management system. To make the new system work, a calculation of the atmospheric environmental capacity and a policy to control the amount of air pollution discharge are necessary.

In this study, the atmospheric environmental capacity of shiheung and ansan area, which is one of the industrial complexes in the Seoul metropolitan area is calculated by the regional NOx emission data and air quality modeling. The methodology for calculation of the atmospheric environmental capacity is reviewed, and the levels and effects of NOx concentration in shiehung and ansan area from various sources and vicinity areas are analyzed. The culpabilities by emission sources in these area are calculated and the amount of emission to be reduced is estimated for air quality target; annual average NO2 concentration 22 ppb in 2010.

Atmospheric environmental capacity, total emission control, NOx emission

Environment and Health Impact Assessment of Agricultural Pesticides Application for Policy Decision Support

Pookajorn, Plengsak; Sanitation and Health Impact Assessment Division, Department of Health, Tiwanon Road, Muang District, Nonthaburi 11000 Thailand. 66 25 90 43 43. Fax 66 25 90 43 59. plengsak7@hotmail.com.

Agricultural pesticides have become an important problem that affects both heath and environment in Thailand. In order to multiply the yields of agricultural products to compete with other countries, there is an increasing amount of pesticides used by Thai farmers. However, the lack of knowledge is still a big problem among these farmers, and consequently leads to an abuse of the chemical materials. This mistreatment can both directly and indirectly affect the farmers themselves as well as the environment. Ineffective laws and regulations are another important factor that causes an unsuccessful control over the use of pesticides, and accordingly results in many problems both in a community level and a national level. The aim of this project is to gather information to develop methods and tools necessary for decision making. The study consisted of 4 steps: (1) reviewing laws, policies, and knowledge base required for decision support, (2) summarizing the knowledge bases in order to study a correlation between the use of pesticides and impacts on health and environment, (3) existing methods and tools were developed and adapted, and (4) methods and tools for field trials were tested and applied. A proposal for an amendment of the existing policy about health and environment protection was proposed by an intersectoral alliance of many relating organizations and offices.

Environment and health impact assessment, agricultural pesticides

Health Impact Assessments in Canada - Values and Indigenous Considerations

Davis, Jeff; Health Canada, 2720 Riverside Dr., Ottawa, Ontario K1A 0K9 Canada. 613-948-8297. Fax 613-941-8921. jeff_davis@hc-sc.gc.ca.

This poster presentation will consider the incorporation of ethics and values into health impact assessment (HIA). Based on the Canadian experience, the presenter will look at stakeholder values and indigenous knowledge and how they can be better included in environmental impact assessment.

Health Canada, through the Federal/Provincial/Territorial Committee on Environmental and Occupational Health has produced an updated Canadian Handbook on Human Impact Assessment (HIA) to assist practitioners on how to include human health issues in environmental assessments. The handbook is intended for EA practitioners, project

proponents, government, academia and others to understand the methods and disciplines involved in health assessment both at the project and strategic levels.

Some of the key concepts and issues that are included in the newly revised HIA Handbook that have not been adequately considered within the context of health impact assessment include consideration of stakeholder values and indigenous HIA.

Stakeholder Values

Values-based analysis can provide a good foundation for building consensus or solving public policy issues and provide the framework for evaluating the worth or merit of projects under assessment. Values allow us to differentiate between costs and benefits and play an essential role in decision-making. Deciding on whether to proceed with a given project will therefore depend on how the values of the project's stakeholders are factored into the decision-making process.

Indigenous HIA

Naturalized knowledge systems (NKS) are an essential part of indigenous HIA and focus on the importance of environmental knowledge of First Nations communities and the complexity of traditional approaches to environmental systems. NKS are based on the principles of respect, equity, and empowerment , all essential to form even-handed partnerships and to stimulate First Nations' involvement in decision-making and in environmental health initiatives.

Health impact assessment, values, indigenous knowledge

The EIA Improvement Project in Shell Nigeria

Dada, Oritsetimeyin; Shell Petroleum Development Company of Nigeria, Old Aba Road, Port Harcourt, Rivers State Nigeria. 234-084-4-24039. oti.dada@shell.com.

The Shell Petroleum Development Company (SPDC), Nigeria submitted her first EIA report to the Federal Ministry of Environment (FMEnv) for approval in 1997. Since then, she has received approval for 96 EIAs. A study of the comments from FMEnv panel review of these EIAs however revealed deficiencies in the quality of the social and health aspects of the EIA.

In 2000, SPDC embarked on an EIA Improvement Project primarily to address these deficiencies. In addition, the project was also expected to deliver better quality EIAs that meet business requirements, obtain formal regulatory permits and 'informal social license' from project communities.

The key result of the EIA Improvement Project was a new EIA study process. The revised process laid emphasis on the quality of the social and health baseline data, the quality of the social and health impact assessment, a team approach to EIA execution, full involvement of project team and increased community participation. In addition, the process also laid out steps for process documentation, capacity building, production of guidelines, integration of the contracting process and change in the internal staff structure.

At present, seven EIAs have been initiated using the improved process and two have obtained regulatory approval. The various improvement measures and activities are explained in detail.

EIA Improvement Project, Federal Ministry of Environment

Transparency – A Tool for Quality and Ethics in the Process

Sandwall, Johanna; Swedish Radiation Protection Authority, Solna strandväg 96, Stockholm, Stockholm SE-171 16 Sweden. + 46 8 7297112. Fax + 46 8 7297108. johanna.sandwall@ssi.se. www.ssi.se.

Löfgren, Tomas; Swedish Radiation Protection Authority, Solna strandväg 96, Stockholm, Stockholm Sweden. + 46 8 7297263. Fax + 46 8 7297108. tomas.lofgren@ssi.se. www.ssi.se.

The Swedish Radiation Protection Authority (SSI) is a regulatory body with mandate to issue regulations. During the last ten years the site selection process of a final repository for spent fuel and radioactive waste has been intensified. The principle of the site selection process is the voluntarily participation of municipalities in the aggregation of feasible sites.

A large number of municipalities have been involved in the process, and it became obvious that there was a need for finding procedures to be able to communicate and exchange information and to stimulate an open discussion

between the parties involved, not only between the implementer and the involved municipalities, but also the authorities. EIA- forums were established at regional and local level.

Transparent decision-making and communication is important in order to achieve high quality documents where ethical principles are determined in the process. The quality of the process sets the standards of the documents. In Sweden it is the primary task of the implementer to run the EIA-process. For the stakeholders it is important to be confident in that there are no hidden agendas between the competent authorities and the industry.

One important tool to increase transparency in the EIA-process has been the initiative from SSI to involve the concerned public in the work of developing General Advices on fulfillment of SSI regulations on final management of spent fuel and radioactive waste. In this way the concerned publics' values has been incorporated in the legal framework. The General Advices not only complement the regulations but will also influence the ongoing EIA-process. This will increase transparency since the implementer has to show compliance with the requirements, which will not only gain quality but also ethics in the process for the final management of spent fuel and radioactive waste.

Environmental Impacts and Mitigation of Rock Quarry Exploitation - Stream Sediment and Benthic Macroinvertebrate Community Structure in Lotic Systems

Kim, Ji Young; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyong-gu, Seoul, N/A 122-706 Korea. +82 2 380 7677. Fax +82 2 380 7744. mythe@kei.re.kr.

Ro, Tae Ho; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyong-gu, Seoul, N/A 151-747 Korea. +82 2 380 7671. Fax +82 2 380 7744. thro@kei.re.kr.

Lee, Yong Il; School of Earth and Environmental Sciences, Seoul National University, Shillim-9-dong, Gwanak-gu,, Seoul, N/A 151-747 Korea. +82 2 880 6736. Fax +82 2 871 3269. lee2602@plaza.snu.ac.kr.

Lee, Sung Jin; Korean Entomological Institute, Korea University, Anam-dong, Sungbuk-gu , Seoul, N/A 136-701 Korea. +82 2 3290 4260. Fax +82 2 3290 3623. ephemerakr@yahoo.co.kr.

Lim, Hyoun Soo; Research Center for Humanities, Mokpo National University, Dorim-ri 61, Chungkye-myun, Mokpo, Chonnam 534-729 Korea. +82 61 450 6296. Fax +82 61 453 2958. tracker@nate.com.

Park, Jae Heung; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyong-gu, Seoul, N/A 122-706 Korea. +82 2 380 7757. Fax +82 2 380 7744. jhpark@kei.re.kr.

This study was focused on environmental impacts of quarry development upon sediment accumulation and lotic ecosystem. In the study, four sites were selected to survey and elucidate characteristics of sediments and changes in aquatic macroinvertebrate community affected by rock quarry development and exploitation. The results showed that quarry development induced serious influences on water quality and benthos of the adjacent river basin. Aquatic ecosystem was completely destroyed by disappearing all sorts of benthic invertebrates in the region adjacent to the quarry and was gradually restored as the distance from the contaminant source increased. This is characteristically different from the environmental impacts caused by the other non-point contamination sources where some species selectively survive, and community structure is still maintained.

Fine rock fragments from rock quarry exploitation were primarily deposited on the nearby stream. The primary sediments were disturbed by rainfall and then dispersed into a long-distance, resulting in expansion of an environmental impact area. This study clearly showed how rock quarry and related processing plants such as batch plant of ready-mixed concrete and cutting-and-polishing plant for building materials continuously affect the aquatic ecosystem. To reduce environmental impacts of quarry exploitation, EIA of all development plans should describe their supply plans of earth material for construction. Considering geographic and ecological conditions, it is also necessary to avoid breakage of ridgelines and/or green networks that may affect regional environment. Above all, it is strongly recommended to keep sufficient distance between rock quarry and lotic systems to prevent inflow of inorganic materials.

This study suggests that establishment of well-planned pollution prevention system could minimize adverse environmental impacts, and proper maintenance can effectively prevent environmental impacts induced by quarry exploitation. The results are expected to contribute to the improved management tactics for environmental-friendly quarry development.

Rock Quarry Exploitation, sediments, benthic invertebrate community, management tactics

Hydroelectric Development: Factors to Consider in Methylmercury Risk Assessment and Management

Côté, Chantale; Health Canada, 1001 St-Laurent O, Longueuil, Québec J4K 1C7 Canada. 450 646-1353. Fax 450 928-4269. chantale_cote@hc-sc.gc.ca.

Deborah, Schoen; Health Canada, 1001 St-Laurent O, Longueuil, Québec K1A 0L2 Canada. 450-646-1353. Fax 450 928-4269. deborah_schoen@hc-sc.gc.ca.

Feeley, Mark; Health Canada, Banting Building, Tunney's Pasture, Ottawa, Ontario K1A 0L2 Canada. 613 957-1314. Fax 613 957-1688. mark_feeley@hc-sc.gc.ca.

A important environmental impact associated with the creation of reservoirs for hydroelectric development is the increase in methylmercury bioaccumulation associated with the microbial decomposition of flooded terrestrial organic material. The resulting methylmercury concentrations in subsistence and sport fish can be substantial and potentially lead to health impacts depending on the quantities and kind of fish ingested.

Health Canada acts as an expert department under the Canadian Environmental Assessment Act (CEAA) and therefore has a key role to play in reviewing methylmercury risk assessment and management for hydroelectric projects triggering CEAA.

This poster describes the development of Health Canada toxicological reference values for methylmercury, comparing these with exposure from hypothetical fish consumption scenarios. For the purpose of this comparison, exposures are based on consumption of two fish meals per week, a dietary intake associated with cardiovascular benefits. Fish mercury levels are based on data from the James Bay Region, a region with extensive hydroelectric development.

Two possible approaches to methylmercury risk management are outlined. One approach is to determine fish consumption guidelines solely on the basis of the TRV and measured fish mercury levels, thereby specifying the recommended number of meals per month for a given species. A second approach is to provide information on both risks and benefits, including data on mercury levels in different species, information on ways to reduce methylmercury exposure, and recommendations for minimum fish consumption (e.g. at least 2 fish meals per week). Exposure surveillance, through hair or blood analysis, can provide data on the real methylmercury exposures, and allow risk managers to evaluate the effectiveness of the public health messages.

In light of the nutritional but also the physical, social and cultural benefits of fishing and eating fish, new hydroelectric development should strive to limit additional mercury exposure resulting from the creation of reservoirs.

Methylmercury, hydroelectric reservoirs, fish, health impacts, risk assessment

Context Sensitive Solutions: A New Decision Making Paradigm in the U.S. Transportation Industry

Lane, Leigh; Center for Transportation and the Environment, North Carolina State University, Centennial Campus, Box 8601, Raleigh, NC 27695-8601 USA. 919-515-8041. Fax 919-0515-8898. lblane@ncsu.edu. http://itre.ncsu.edu/cte.

Bednar, James; CH2MHill, 5775 Perimeter Drive, Suite 190, Dublin, OH 27695-8601 USA. 614-734-7140. Fax 267-675-4596. jbednar@ch2m.com. http://itre.ncsu.edu/cte.

Townsend, Teresa; Center for Transportation and the Environment, Centennial Campus, Box 8601, Raleigh, NC 27695-8601 USA. 919-515-9351. Fax 919-515-8898. tltownse@ncsu.edu. http://itre.ncsu.edu/cte.

The Context Sensitive Solutions (CSS) movement grew out of the public's interest and concern with the cultural, historic, and other values that define a community. Americans have become more aware of the social and cultural fabric of their communities and they are demanding that transportation solutions recognize and honor their distinctiveness.

The Federal Highway Distraction (FHWA) views CSS as an opportunity to connect with communities, develop innovative transportation solutions, and improve interagency coordination. FHWA has identified CSS as a critical element of meeting its Environment Vital Few Objective: to improve the environmental quality of transportation decision-making in all 50 States, the District of Columbia, Puerto Rico, and the Federal Lands Highway (FLH) Divisions by September 30, 2007. FHWA has adopted the following principles to represent a CSS mindset:

- Develop projects through a collaborative process that actively engages communities and other stakeholders early and often.

- Balance safety, mobility, economic goals with the preservation of environmental, scenic, aesthetic, historic, and cultural values.
- Build projects that add lasting value to and minimally disrupt communities.
- Implement a flexible design process that is sensitive to project goals, timelines, and the environment.
- Exceed the expectations of designers and stakeholders.

CSS recognizes that transportation features are part of the community and can have far reaching effects beyond its traffic or transportation function. This poster session will illustrate the CSS decision making process and present challenges and opportunities associated with institutionalizing a new way of thinking about transportation planning, project development, construction, operations and maintenance. It will provide insight into how the industry is reacting to this new way of thinking including liability concerns as well as cost and time constraints.

Community values, quality of life, public involvement, design choices, environmental issue

Patzcuaro Lake, An Environmental Education Program As a Mitigation Measure

Ducoing, Edmundo; Universidad Autonoma Metropolitana, Av. San Rafael Atlixco 186, Col Vicentina, Iztapalapa, Mexico, D. F. 09340 Mexico. 0155 58044747. Fax 0155 58044738. edch@xanum.uam.mx.

Ramirez-Romero, Patricia; Universidad Autonoma Metropolitana, Av. San Rafael Atlixco 186, Col Vicentina, Iztapalapa, Mexico, D. F Mexico. 0155 58046493. Fax 0155 58044738. patt@xanum.uam.mx.

Lakes dry after thousands of years naturally; however, Patzcuaro Lake is drying at an accelerated rate due to human activities in its watershed. For more than 5 years we have been monitoring the water quality in the lake and the results are conclusive: the water quality is decreasing year after year. However, KSIM simulations of environmental change, still indicate the possibility of slowing down the loss of the lake and of the watershed characteristics. For this to be possible it is necessary to apply immediately all the identified mitigation measures on the environmental attributes, plus an environmental education program that encourages attitude changes in the watershed population. This program includes, among others, topics like: environmental restoration of the watershed, fishing, urban and rural planning, and education for governing.

Watershed, simulation model, environmental restoration

Nature Is Our Client

Ducoing, Edmundo; Universidad Autonoma Metropolitana, Av San Rafael Atlixco 186, Col. Vicentina, Iztapalapa, Mexico, D. F. 09340 Mexico. 0155 58044747. Fax 0155 58044738. edch@xanum.uam.mx.

Ramirez-Romero, Patricia; Universidad Autonoma Metropolitana, San Rafael Atlixco 186, Col Vicentina, Iztapalapa, Mexico, D. F. Mexico. 0155 58046493. Fax 0155 58044738. patt@xanum.uam.mx.

This work is an analysis of the importance of not losing site of the reason why environmental impact assessments are performed. The work as environmental consultants (assessors) is of great complexity because there are a couple of paradigms that lead our labor: on one hand we have to preserve nature (in any condition it may be), and on the other hand we most not stop a project that may result in benefits for society. Sometimes we lose sight of our place in nature (we are a part of it) and we tend to protect any human activity at any cost. Examples of this can be found in Mexico, in the construction and operation of the Oil, Electricity and Water Industries that have taken place without giving too much weight to the environmental impacts, because the financial, economic and social gain are put in front. In our country we have suffered a number of "natural disasters" that once analyzed are nothing more than human errors for not taking into account some environmental aspects. At the end of the 90s there was a series of floods that were officially cataloged as natural disasters but in reality today it is known that they were caused by errors in the environmental impact assessments. In December 2004 there was an oil spill in the Coatzacoalcos River and its effects were more severe due to the fact that there was no contingency plan and furthermore, this project lacks an environmental assessment. The most important conclusion is that, for the results of an environmental impact assessment, to be convincing it is necessary not to loss sight of our client, because otherwise it will always will make us remember our errors through "natural disasters."

Nature, natural disaster, contingency plan

Alternative Activities for the Sustainable Development of Punta Abreojos, Baja California, Mexico

Ducoing-Chahó, Edmundo; Universidad Autonoma Metropolitana, Av. San Rafael Atlixco No. 186, Col. Vicentina, Mexico, D. F. 04230 Mexico. 5255 5804 4747. Fax 5255 5804 4738. edch@xanum.uam.mx.

Ortiz-Gamboa, Edith; Universidad Autonoma Metropolitana, Av. San Rafael Atlixco No. 186, Col. Vicentina, Mexico, D. F. 04230 Mexico. 5255 5804 6474. Fax 5255 5804 4738. edith_gamboa@hotmail.com.

This work studied the environmental and social impacts of the project "Escalera Nautica" in Punta Abreojos Bay, which is a small fishing community located in the Biosphere Reserve of El Vizcaino. Environmental impact assessment techniques (check lists, matrices and networks) as well as personal interviews were used to gather and analyze information. The results showed very little benefit for the community and serious problems with the natural resources. However, the information gathered also allowed us to identify development alternatives that use and not abuse the natural beauty and resources of the area; among them a botanical garden / nursery for the production of endemic plants like cactus for the direct sale to visitors and for exportation. The area also allowed the proposal of various ecotourism activities: trips for birth watching in La Bocana Creek where the visitors will learn not only about the birds but also about this unique environment. Also the closeness of San Ignacio Lagoon, San Ignacio Oasis and the San Francisco Hills is an opportunity for hiking, bicycling, whale watching and visits to ancient cave painting and XVI century missions. All these activities will be offered by the community people, who right now lack working options, but most importantly they will acquire more knowledge of their natural resources and will be able to educate the visitors.

Environmental education, sustainable development, ecotourism, Mexico

Current Use of GIS for Project EIA and SEA

Joao, Elsa; Graduate School of Environmental Studies, University of Strathclyde, 50 Richmond Street, Level 6 Graham Hills Building, Glasgow, Glasgow G1 1XN Scotland. + 44 141 548 4056. Fax . elsa.joao@strath.ac.uk.

Fonseca, Alexandra; Instituto Geográfico Português, Rua Artilharia Um,107, LISBOA, LISBOA Portugal. (351) (21) 3819600 ext.47. Fax (351) (21) 3819699. afonseca@igeo.pt.

6his poster will present the first results of a review on the current use of Geographical Information Systems (GIS) for both project EIA and SEA. This review updates the similar survey that the authors carried out 10 years ago - that was presented at the IAIA'94 conference in Portugal and then published in 1996 in the journal "Impact Assessment" with the title "The role of GIS in improving environmental assessment effectiveness: theory vs. practice". The use of GIS is evaluated in terms of data preparation, analysis/modelling, and result presentation for the following different stages of the EIA/SEA process: screening, scoping, description of the project or strategic action, baseline conditions, identification of impacts, predicting impact magnitude, assessing impact significance, impact mitigation & control, public participation, monitoring, and auditing & review. The research evaluates the benefits/advantages and the problems/disadvantages in using GIS for project EIA and SEA. The poster will be designed with an interactive aspect so participants of IAIA'05 can contribute with their own opinion and experience.

GIS, project EIA, SEA

Environmental Assessment of the Dismantling of 12 Russian Nuclear Submarines

McAllister, Andrew; Foreign Affairs Canada, 125 Sussex Drive, Ottawa, Ontario K1A 0G2 Canada. 613-944-5248. Fax 613-944-0432. andrew.mcallister@international.gc.ca.

Washer, Michael J.; Foreign Affairs Canada, 125 Sussex Drive, Ottawa, Ontario M5G 1X6 Canada. 613-944-0142. michael.washer@international.gc.ca.

Gerchikov, Mark; Nuclear Safety Solutions Ltd., 700 University Avenue, 4th Floor, Toronto, Ontario M5G 1X6 Canada. 416-592-7000. mark.gerchikov@nuclearsafetysolutions.com.

Moffett, Duncan; Golder Associates Ltd., 2390 Argentia Road , Mississauga, Ontario L5N 5Z7 Canada. 905-567-4444. dmoffett@golder.com.

Craig, Pete; Golder Associates Ltd., 2390 Argentia Road, Mississauga, Ontario L5N 5Z7 Canada. 905-567-4444. pcraig@golder.com.

Kulikov, Konstantin; NIPTB Onega, 12 Mashinostroiteley Prospect, Zvezdochka Shipyard, Severodvinsk, Arkhangelsk Russia. 8184-525-552. kkulikov@onega.star.ru.

The International Project to Dismantle 12 Out-of-service Nuclear Submarines ("the dismantling project") consists of all operations and activities that are required for the defuelling and recycling of 12 Russian nuclear submarines at Zvezdochka shipyard in Severodvinsk, northwest Russia. The dismantling began in September 2004 and will continue over the next four years. The $115 million dismantling project is a component of Canada's contribution to the broader Global Partnership Initiative among G8 nations against weapons and materials of mass destruction. Foreign Affairs Canada (FAC) is responsible for the project and administers funding. FAC determined that an Environmental Assessment (EA) Screening Report must be prepared, pursuant to the Canadian Environmental Assessment Act and the Projects Outside Canada Environmental Assessment Regulations.

The EA was conducted over a two month period in 2004, including a study team visit to the dismantling site. Potential effects were methodically assessed and opportunities for environmental performance improvement and mitigation identified. Methods and procedures for conducting EAs on Canadian nuclear projects were applied in this challenging international project. The EA also included identification of follow-up activities to verify the assumptions and conclusions of the EA. An Environmental Management Plan has been developed in support of follow-up activities and is currently being implemented.

The dismantling project will secure the highly-enriched spent nuclear fuel currently onboard the 12 submarines by re-incorporating it into the Russian nuclear fuel cycle, thereby combating the proliferation of weapons and materials of mass destruction. In addition, the project will enhance the Arctic environment through the removal of a threat of radioactive and chemical pollution from deteriorating submarines stored afloat.

Russia, nuclear submarine dismantling, environmental assessment, Foreign Affairs Canada

Doing it Better: Opportunities for Improving HIA Practices in Western Canada

Alleyne, Carl; Health Canada, 3155 Willingdon Green, Burnaby, British Columbia V5G 4P2 Canada. 604-666-4693. Fax 604-666-3149. carl_alleyne@hc-sc.gc.ca. www.hc-sc.gc.ca.

Assessment of the impacts on human health is a regulatory requirement for environmental assessment approvals of development projects in Canada. Notwithstanding this longstanding requirement, the methodologies for human impact assessments are not as established as those for assessing the impacts of projects on the physical environment. Factors contributing to this situation include the inexperience of some EA practitioners and project proponents in conducting HIAs, and the paucity of best practices and "how-to" guides. One of the few comprehensive reference documents in this field is the Canadian Handbook on Human Impact Assessment, which provides guidance on how to include human health issues in environmental assessments. This handbook was recently updated by Health Canada, the Federal Department of Health and will be available on their website. The practice of human impact assessments continues to be an evolving art due to the diverse range of health determinants and assessment methodologies. These factors may come into play in any given project. This poster takes a critical look at how some health impacts were addressed in recent development projects in Western Canada by examining the methodologies used in the HIAs. For example, an interesting application of social impact indices was used to assess the socio-community impacts of a rapid-transit project. This involved a framework for presenting the positive and negative impacts of alternative design parameters from a social perspective. Another example includes the health impact assessment of noise in highway projects using the ISO 1996-1:2003 guideline to estimate "percent highly annoyed" as a surrogate indicator for the health impacts of noise. A particular challenge in one highway/bridge project was addressing the noise impacts on outdoor cultural activities of an aboriginal community located in the shadow of the project with appropriate cost-effective mitigation measures.

Health, impact assessment, social, noise

Swedish EIA Centre

Oscarsson, Antoinette; Swedish EIA Centre, P.O. 7012, Uppsala, Uppsala SE-750 07 Sweden. +46(0)18672642. antoienette.oscarsson@lpul.slu.se. www-mkb.slu.se.

Kjellander, Cecilia; Swedish EIA Centre, P.O. 7012, Uppsala, Uppsala SE-750 07 Sweden. +46(0)18672641. cecilia.kjellander@lpul.slu.se. www-mkb.slu.se.

The Swedish EIA Centre was established in 1999. The Centre is situated at the Swedish University of Agricultural Sciences (SLU) in Uppsala.

The main purpose of the Centre is to enhance quality of EIA and SEA and be the national centre for further education, information and research in Sweden. The Centre organizes a network in which more than 1000 EIA

professionals take part. The Centre also functions as adviser to authorities, non governmental organisations and developers.

Education

The Swedish EIA Centre gives undergraduate EIA courses on several levels, including master theses, both at SLU and other universities. Furthermore, the Centre gives a postgraduate training course for EIA professionals.

The Centre arranges open seminars and conferences on EIA/SEA related topics. Customized training courses and seminars are also provided.

Sida EIA Helpdesk

The Swedish EIA Centre, provides an EIA Helpdesk for Sida/Asdi. The helpdesk offers guidance regarding EIA/SEA issues for Sida/Asdi and Swedish embassy staff.

The assignment includes for example:

- review EIA documents for Sida-supported projects;
- advice on terms of reference for EIA;
- support national or regional EIA centres in Sida partner countries;
- assemble information in the area of EIA/SEA, and
- provide EIA training courses.

Research and development

The Swedish EIA Centre is disseminating information about research as well as doing own research. The research regards for instance:

- SEA in comprehensive and early planning processes in Sweden;
- SEA of the use of abandoned farmlands in Estonia;
- indicators for EIA and future eco tourism in Nicaragua, and
- cumulative effects in EIA.

The development work comprises a wide field including for example:

- upgrade EIA competence among university teachers;
- establish guidelines for environmental monitoring of roads and railways;
- integrate SEA into regional development planning, and
- advice on the EIA of nuclear waste treatment.

EIA Centre, Sida/Asdi, Sweden, research, education

Capacity Building for Biodiversity and Impact Assessment

Treweek, Jo; CBBIA, Chancery Cottage, Kentisbeare, Cullompton, Devon EX15 2DS UK. +44 1884 266798. Fax 0870 7622963. jo@treweek.fsnet.co.uk.

Tiapo, Napoleon; IAIA CBBIA, 1330 23rd Street South, Suite C, Fargo, ND USA. +1 701 297 7912. Fax +1 701 297 7917. project@iaia.org.

This poster introduces IAIA's 'Capacity Building for Biodiversity and Impact Assessment' (CBBIA) program. CBBIA is an initiative funded by the Dutch Government which is in its second year. CBBIA is engaged in regional training and capacity building activities in Southern Africa and S/SE Asia and has also allocated a number of small grants for activities around the World. The poster will provide an update on these activities.

CBBIA, biodiversity, capacity building

Fostering Sustainable Community Development by Assessing the Impacts of New Industry - Using Impact Assessments to Encourage Sustainable Growth

Terrell, Philip; Environmental Health, Inc., 7 Riverside Dr., Dover, MA 02030 USA. 508.785.2258. Fax 508.785.2258. 3terrell@comcast.net.

Small municipal governments often lack the methods, understanding and tools necessary to evaluate new industry wishing to build new factories in their communities. They desire commercial and industrial enterprises that will bring good-paying jobs and prosperity. They wish to exclude companies that will bring pollution, nuisance, traffic problems, excessive injuries or those that will disrupt neighborhoods. In other words, they wish to encourage sustainable growth and discourage growth that will harm their localities. This can be facilitated by doing effective impact assessments.

Recent attention has been focused in planning for sustainable development on the state or national level. Most of that effort is aimed at voluntary efforts on the part of companies or individuals. However, in some ways, sustainability can often best be addressed on a local level by local decision makers with input from the community.

One of the ways cities and towns (C&T) can accomplish this is through carefully assessing the potential impacts of the new business development prior to issuing permits to build or expand. Through the permitting process, applicants that don't meet sustainable criteria can be either denied or required to submit remedial plans to address their shortcomings.

Sustainable development, impact assessment, conditional permitting

Dyeing Factories in Bangladesh and Related Health Problem

Al-Amin, Mohammad; Progress, Khan Plaza, 3rd floor, 32/1, Mirpur Road, Dhanmondi, Dhaka 1205 Bangladesh. 8802-8610236. Fax 8802-8616313. alamin1963@yahoo.com.

Ahmed, Azimuddin; Progress, Khan Plaza, 3rd floor, 32/1, Mirpur Road, Dhanmondi, Dhaka, Bangladesh. 8802-8612345. Fax 8802-8616313. alamin1963@yahoo.com.

Environmental, health and safety related concerns for the textile wet processing units primarily stem from use of hazardous chemicals and dyes, inappropriate handling, storage and long term exposure.

Health Issues related to Formaldehyde

Health Effects of Formaldehyde Studies have shown that even low levels of formaldehyde can have health effects.

- Cause dry and sore throat, inflammation and swelling of lungs and bronchial tubes and other breathing problems. Formaldehyde can also cause asthma-like reactions when workers become sensitized to the chemical. This can happen after a short time or it can occur suddenly after years of apparently problem-free exposure.

Skin Problems

- Skin dries out skin becomes red and cracked skin blisters fingernails turn brown and soft irritations worsen with heat and sweat These problems are caused by direct contact with formaldehyde-treated materials and are called contact dermatitis.

Eye Irritation

- Eye irritation may occur from formaldehyde in the air or when workers who have been handling formaldehyde-treated cloth or other material rub or touch their eyes. Irritation may include itchy, watery eyes, runny nose and cold-like symptoms.

The Occupational Safety and Health Administration's formaldehyde standard includes the following provisions:

Permissible Exposure Limit (PEL): .75 parts per million (ppm) averaged over an eight-hour day. This means an average over the day of .75 parts of formaldehyde for every million parts of air is allowed on jobs Action Level: 0.5 ppm, triggers certain OSHA regulations.

Precaution:

- Perform air monitoring to determine how much formaldehyde is in the air
- Provide results of this air testing to workers

- Formaldehyde is being used but is below OSHA air levels
- Provide training to workers on health hazards of formaldehyde
- Air levels of formaldehyde are above 0.5 ppm,

Dyeing factories, formaldehyde, health effects

Establishment of EIA Training and Information Centre in Turkey

Albayrak, Ali; Ministry of Environment and Forest, Eskisehir Yolu 8. km A Blok 1.kat, 1 Nolu Oda, Ankara, Ankara 06530 TURKEY. +90 312 2879963/2209. Fax +90 312 2852910. albayrakali@yahoo.com. www.cevreorman.gov.tr.

Martins Dias, Luis; DHV Environment and Transportation, Laan 1914, no. 35, Amersfoort, Utrecht The Netherlands. +31 33 4682604. Fax +31 33 4682801. luis.martinsdias@dhv.nl. www.cevreorman.gov.tr.

EIA has been implemented in Turkey since 1993. Turkey is a large country and has almost all types of Annex I and Annex II projects. After being a candidate country for the European Union (EU), Turkey has increased her efforts in the transposition of the environmental acquis, including the EIA Directives. Several projects have been implemented during the past years and the Turkish EIA Regulation has been amended twice during this period. Current EIA Regulation is procedurally in line with the EU EIA Directives' requirements, except for transboundary issues and some public participation requirements.

After having an (procedurally) accepted Regulation, the Ministry of Environment and Forest (MoEF) has decided to improve the implementation of the Regulation. The main need was to have common understanding of the Regulation by all stakeholders and the best way to achieve this result was to have a body responsible from providing necessary EIA training, preparing sectoral guidelines and acting as documentation and information centre. This need resulted in a new project supported by the Dutch Government, the establishment of an EIA Training and Information Centre. The project will be carried out by a consortium led by DHV. Other partners are the Regional Environmental Center for Central and Eastern Europe (REC), the Netherlands' Independent EIA Commission and the Turkish partner ENCON.

During the project life cycle, an EIA Training and Information Centre will be established, a training and research strategy developed, 12 sectoral guidelines prepared and the current EIA Handbook updated, as well as a communication strategy developed. A stakeholder analysis will be carried out and the functions of the Centre decided. This poster will detail these project results and present the desired development of the Centre. Participants to the conference are invited to reflect on the project approach and results and to provide 'best practices'.

EIA Training Centre, Turkey, stakeholder analyses,functions of the centre

Cumulative Assessment of the Impacts of Growth on the Ramapo River Watershed

DiLemme, Anthony; Ramapo River Assessment Project, 57 East Union St., Bordentown, NJ 08505 USA. 609 280 1318. antdilemme@comcast.net.

The Environmental Assessment course at Ramapo College of New Jersey undertook for its spring 2005 project the study of the cumulative effects of growth on the Ramapo River watershed. The Ramapo River is the source of water for millions of residents of New York and particularly New Jersey. Massive growth throughout the watershed has created impacts that must be understood in order to be managed. The study emphasizes cumulative and generic impacts and is oriented toward identifying sustainable outcomes for the bioregion and growth impacts can be mitigated accordingly.

Cumulative bioregional assessment and sustainability

Analyzing Demographics of Land Port of Entry Communities Using Geographic Information Systems

Bradac, Mark; US-VISIT Program (Michael Baker Corporation), 1616 North Fort Myer Drive, Arlington, VA 22209 USA. 202-298-5252. mark.bradac@dhs.gov.

Symes, Hassan; US-VISIT Program (Michael Baker Corporation), 1616 North Fort Myer Drive, Arlington, VA 22209 USA. 202-298-5006. hsymes@mbakercorp.com.

Mahoney, Lisa; US-VISIT Program, 1616 North Fort Myer Drive, Arlington, VA 22209 USA. 202-298-5245. lisa.mahoney@dhs.gov.

There are 165 Land Ports Of Entry (LPOE) into the United States of America. These LPOEs are spread across various locations on the northern border with Canada and the southern border with Mexico. In general, there are substantial differences between the demographics of the population living close to the northern border and the southern border. Furthermore, differences exist between the population demographics for each LPOE. With the onset of new U.S. Department of Homeland Security initiatives to enhance security such as the US-VISIT Program, understanding differences between the populations at each of the LPOEs is an important consideration before taking any action. Geographic Information Systems (GIS) provide an ideal way to store demographic data and to analyze any trends in the data.

This poster presents a comprehensive examination of the demographic characteristics for the communities surrounding LPOEs using GIS technology. The primary source of demographic information is from the United States Census Bureau. Analysis of this data was conducted using several different methods with Environmental Science Research Institute (ESRI) software to flesh out any spatial trends in the data. The project provides a solid baseline for planning purposes related to any potential infrastructure changes to the LPOEs as a result of the US-VISIT Program.

GIS, demographic, census

Strategic Environmental Appraisal for the Department of Homeland Security's US-VISIT Program

Mahoney, Lisa; US-VISIT Program, 1616 North Fort Myer Drive, Arlington, VA 22209 USA. 202-298-5245. lisa.mahoney@dhs.gov.

Bradac, Mark; US-VISIT Program (Michael Baker Corporation), 1616 North Fort Myer Drive, Arlington, VA 20002 USA. 202-298-5252. mark.bradac@dhs.gov.

Clark, Ray; The Clark Group, 503 Capitol Court NE, Suite 200, Washington, D.C. 20002 USA. 202-544-8200. rayclark@clarkgroupllc.com.

Gale, Larry; Michael Baker Corp., 5088 W. Washington Street , Charleston, WV 25313 USA. 304-769-2114. lgale@mbakercorp.com.

McFayden, David; Michael Baker Corp., 100 Airside Drive, Moon Township, PA 15108 USA. 412-269-2004. dmcfayden@mbakercorp.com.

Symes, Hassan; US-VISIT Program (Michael Baker Corporation), 1616 North Fort Myer Drive, Arlington, VA 22209 USA. 202-298-5006. hsymes@mbakercorp.com.

The U.S. Department of Homeland Security's US-VISIT Program, Office of Facilities and Engineering is tasked with assuring environmental compliance for the program. A broad based planning tool was needed to determine what resources may be necessary to assure environmental compliance for the US-VISIT Program. This tool would be useful for identifying large scale environmental issues, aid decision makers and stakeholders in identifying any potential consequences, provide planners with information, and allow targeting of resources to enhance efficiency. The Strategic Environmental Appraisal (SEA) approach is a process of considering the potential natural, physical, and human environmental consequences of a proposed program in a broad context.

The U.S. is an ecologically and culturally diverse country. There are 165 Land Ports of Entry (LPOE) located along the northern and southern borders. Because of the wide geographic distribution of the LPOEs, they are situated in a number of diverse ecological and cultural contexts. Thus, a nationwide context for the SEA Analysis could well "dilute" and obscure important regional considerations of effects. Therefore, a smaller "region of analysis" was required. The "region of analysis" used was the U.S. Fish and Wildlife Service (USFWS) ecosystem, as well as the Level III U.S. Environmental Protection Agency ecoregions contained within each USFWS ecosystem. This poster presents the methodology that went into the SEA as well as the results from the appraisal.

SEA, homeland security

Monitoring the Socio-Economic Impact of Construction Projects in East-Iceland

Olafsson, Kjartan; University of Akureyri Research Institute, Borgum v/Nordurslod, Akureyri, Akureyri IS-600 Iceland. + 354 460 8902. Fax + 354 460 8919. kjartan@unak.is.

Eythorsson, Gretar; University of Akureyri Research Institute, Borgum v/Nordurslod, Akureyri, Akureyri Iceland. + 354 460 8901. Fax + 354 460 8919. kjartan@unak.is.

March 2003 marked the beginning of the single largest construction project in Icelandic history. Consisting of a new 322.000 t. aluminum smelter plant and the Kárahnjúkar hydro-electric power plant. The project is gigantic in

Icelandic context with about 2.5 billion U.S. dollars investment and about 6.300 man years of work in a nation of little under 300 thousand inhabitants. Apart from heated debate on the environmental effects the project and especially the Kárahnjúkar power plant has, many have also been suspicious about the proposed positive effects the project is supposed to have. This aplies both to effects on the Icelandic economy and effects on the local community in East-Iceland where the project is situated.

In March 2003 the Icelandic parliament agreed on a resolution stating that a research project be carried out in order to monitor the actual effect of the construction projects in East-Iceland. The monitoring work has now begun and will be carried out by social scientists at the University of Akureyri in Iceland. This poster describes the monitoring project, both data collection and the expected gain from such a monitoring project.

The importance of the monitoring project is expected to be threefold. Firstly the construction projects in East-Iceland pose a unique opportunity to collect data for research that with out a doubt will be extremely useful in estimating the effects of possible similar projects in the future. Secondly a research of this kind has the possibilities of having an internationally scientific relevance as well as strengthening the Icelandic research community as regarding regional matters. Thirdly, and perhaps most importantly, the research project will hopefully contribute to limiting the negative effects of the construction projects and supporting the positive ones.

Social impact, Iceland

Mechanisms for an Operational Corporate Social Responsibility in Conflict Areas

Pinilla Urzola, Luz Angela; Free University of Brussels, Pleinlaan 2, 1050, Brussels, Jette Belgium. +32-2-477.42.81. lupinill@vub.ac.be.

Colombia is a South American country suffering from one of the worst security records in the Americas. The attacks come from several sources: drug traffickers, para-military forces and leftist rebels. In consequence, companies are microcosms of all the conflicts of the social responsibility issues.

This study examines the commitment of a Trans National Corporation (TNC) to contribute to sustainable economic development, working with employees, their families, the local community and society in Colombia. Emphasis is made on analysing the contribution to sustainable development and how best to maximise that contribution in the country. Under the concept of Corporate Social Responsibility(CSR), the study analyses the relationships between the environmental management system and the social and political systems in Colombia.

In addition, the study looks at the social, economic and environmental impacts of a Trans National Corporation (TNC) in Colombia and identifies the participation of the stakeholders in ensuring an acceptable level of CSR in the company. Analysis is focused on establishing whether the incorporation of CSR practices has contributed to sustainable development and the welfare of the community.

Environmental initiatives and conflict areas, Corporate Social Responsibility

Environmental Assessment of the Impacts of the World Trade Center Disaster on the Local Residential Community in Manhattan

Lamb, Scott A.; Ramapo College of New Jersey, Environmental Studies, 505 Ramapo Valley Road, Mahwah, New Jersey 07430-1680 USA. +1 201 779 9291. slamb@ramapo.edu.

In the Spring of 2004 Ramapo College offered the course Environmental Assessment, its project of study being on the cumulative effects of the World Trade Center Disaster of September 11, 2001 and the subsequent clean-up and reconstruction, on the local residential community. The disaster and recovery efforts impacted, and continue to impact, millions of people. The cumulative and general impacts identified in the Environmental Assessment led to an understanding of what mitigations and other actions would be required to create a (more) sustainable urban community in the wake of the disaster, and in light of future reconstruction efforts.

The Environmental Assessment of Railroads in Korea

Yoo, Heonseok; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul, 122-706 Korea. +82 2 380 7680. Fax +82 2 380 7744. hsyoo@kei.re.kr. http://www.kei.re.kr.

Lee, Young-Joon; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul, 122-706 Korea. +82 2 380 7763. Fax +82 2 380 7744. yjlee@kei.re.kr. http://www.kei.re.kr.

Lee, Hyun-Woo; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul, 122-706 Korea. +82 2 380 7768. +82 2 380 7744. hwlee@kei.re.kr. http://www.kei.re.kr.

In pursuit of active economic development during the late 20th century, Korean government has generally focused on development of the automobile-based transport system. However, the national railroad system remained relatively unchanged until the 1990s, which led to serious environmental damage and high social cost emerging from automobile-oriented transportation infrastructure.

Recognizing the shortcomings with the automobile-oriented transport system, the government began to pay more attention to the railroads in formulation of the national transport policies, mandating more railroads to be built around the nation. Accordingly, the number of railroad construction projects required for environmental assessment have significantly increased. Also, the government's adoption of new budget threshold in the screening criteria for Preliminary Environmental Review System has increased the number of items subject to environmental assessment in railroad construction plans. Against this background, establishing appropriate evaluation methods and guidelines for railroad construction projects became highly required.

In order to advance our understanding into the environmental effects involved in environmental assessment, two types of transport infrastructures - railroads and vehicle roads, have been compared in terms of environmental valuation, such as energy efficiency and social cost. The results of the research revealed that railroads are more effective than vehicle roads in terms of overall environmental costs. This indicates that the environmentally-friendly characteristics of railroads can be a foundation to establishing national transport infrastructure, as well as in stimulating the investment programs.

Moreover, the characteristics of environmental impacts of railroad construction and vehicle road construction have been compared based on some environmental indicators in the Environmental Impact Statements. The results revealed that railroad construction brings about significantly smaller amount of geomorphological and ecological changes compared to vehicle road construction. This research also discusses prospects of the environmental assessments of railroads in Korea, as well as future directions for related researches.

Korea, railroad, EIA

Index by Author

International Association for Impact Assessment
International Headquarters (HQ)
1330 23rd Street South, Suite C
Fargo, ND 58103 USA
+ 1.701.297.7908 Phone
+ 1.701.297.7917 Fax
info@iaia.org
www.iaia.org