

Power, poverty and sustainability

The role of impact assessment

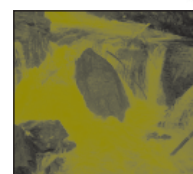
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Paper Abstracts

CS I.1 OIL AND GAS

Snøhvit –A Unique LNG Project in Northern Norway

Fossan, Bjørn; Statoil ASA, Forusbeen 50, 4035 Stavanger, Norway. +47 91602180. bfos@statoil.com

The Snøhvit LNG project includes offshore development in the Barents Sea, pipelines to shore, an onshore LNG plant and shipment of products.

The project was approved by the Norwegian Parliament in March 2002. The project is now under construction and production start is planned to 2007.

The project is unique in many ways. It will be the world's northernmost LNG plant and the first LNG export facility in Europe and utilizes new technologies. It will, i.e., be the first project in the world where CO₂ from the wellstream is separated from the produced gas and reinjected.

The Snøhvit project represents a total investment near 10 billion Am. dollars (50 - 60 billion NOK). The project has changed a serious declining trend in population development regionally, to a positive trend. Local economic activities are expanding. The whole attitude and setting in the Hammerfest region is changed and now far more enthusiastic.

A "Follow-up project" focusing on social, local and regional impacts has been initiated by Statoil in co-operation with the Municipality of Hammerfest and Finnmark County. Results from this project will be presented at the conference as well as some main features of the LNG project.

Health Impact Assessment in the International Oil and Gas Sector

Birley, Martin; Birley HIA, 44 Woodbines Ave., Kingston upon Thames, Surrey KT1 2AY UK. +44(0)2085460823. Martin@BirleyHIA.co.uk www.BirleyHIA.co.uk

Local communities that host very large industrial projects that must inevitably receive major environmental, social, and health impacts, unless these are very skillfully managed. Some of the more enlightened multinational oil and gas producers now recognise that their future business success depends on integrated impact assessments and managed impacts. A similar view is taken by some of the lending banks and is enshrined in the Equator Principles and the safeguard standards and policies of the International Finance Corporation.

Multinational corporations may not undertake environmental, social and health impact assessment in-house, as they may not have the necessary skills. Instead, they use preferred environmental contractors. The contractors usually do not have the competence to undertake health impact assessment and must subcontract. The subcontractors may be nationals of the host country.

Challenges to achieving a good integrated impact assessment include writing good Terms of Reference, using competent contractors and subcontractors, communicating with stakeholders, understanding stakeholder concerns, good communication between the environmental, social, and health teams, and acceptance of a similar principled approach by all the project owners. Some of these challenges will be illustrated based on recent field experience.

Environmental Impact Assessment for Oil Industry in Sudan

Suliman, Widad; KTH, Teknikringen 78, Environmental Engineering and Sustainable Infrastructure, Stockholm, 100 44 Sweden. 0762526470. wedad43@hotmail.com

The Sudan is the largest country in Africa that covers a vast expanse over the Saharan and sub-Saharan region and extends 1000 miles east to west and 1200 miles north to south.

Sudan has proven oil reserves totalling 563 million barrels. Oil industry in Sudan is an important sector in the country's economy, as Sudan has three refineries and imports both refined product and crude oil. But the contribution of this oil field to GNP has never been disclosed to the public, and neither have their negative impacts on the environment.

With this huge oil reserve, the country should have high GNP, but in fact Sudan ranks among the 25 poorest countries in the world.

Environmental impacts of oil industry have been given special consideration. Therefore, environmental impact assessment study has become a prerequisite before the establishing of any oil development project.

Environment impact assessments are usually carried out on projects like the pipeline, but by their nature they have not been conducted in compliance to health, safety and environment. Furthermore, the EIA studies are not effective instruments to reduce or mitigate environmental impacts of oil industry in Sudan.

An Oil and Gas Industry Project Lifecycle Approach to Risk and Impact Management

Witchalls, Ben; BP plc, Maddox Farm, Little Bookham Street, Leatherhead, Surrey, KT23 3BU UK. +44 1932 739 409. witeb1@bp.com

Finney, Rob; BP plc.

OGP ESIA Taskforce

The international community is demanding increasingly rigorous environmental and social performance of planned developments by international operators. 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 the delivery of high quality environmental and social impact management processes.

The OGP ESIA Integration in Projects Taskforce has twelve active company members. They have created an industry resource facilitating the attainment of a consistently high standard by all operators, aligned with international expectations. The aim is to add both 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 offers a high degree of flexibility in its application. Environmental, Social, Health, Risk and Impact Management Process (E-shrimp) is a "Toolbox" based on agreed "good practice." There is a strong focus on value added by starting early and making use of the existing project decision making process. It maps key environmental and social management activities with project activities, defining deliverables and checklists at each project stage. This is seen to offer greater potential than a more rigid process.

CSI.2 HYDROELECTRIC ENERGY

River Protection or Hydropower Development – The Vefsna River in Norway – An Example of Both? An Evaluation of a Preplanning Process Aimed at Combining Both Protection and Development

Thaulow, Haakon; Norwegian Institute for Water Research, P.O. Box 173, Oslo N-0411 Norway. (47) 22 18 51 00. Fax (47) 22 18 52 00. haakon.thaulow@niva.no www.niva.no

Selvig, Eivind; Civitas Consultants, Henrik Ibsens Gate 11, Oslo, N-0179 Norway. (47) 22 94 24 20. Fax (47) 22 94 24 21. eivind.selvig@civitas.no www.civitas.no

Arge, Njål; Civitas Consultants, Henrik Ibsens Gate 11, Oslo, N-0179 Norway. (47) 22 94 24 20. Fax (47) 22 94 24 21. njal.arage@civitas.no www.civitas.no

The key questions: How can an EIA process play a constructive role in bringing conflicting stakeholder interests together? How to encourage decision makers to make better use of EIA? The Norwegian Energy Company Statkraft wanted to include the River Vefsna in its upgrading and expansion of the Røssåga power plant. Statkraft aimed at finding a balance between hydropower development, environmental concerns and local acceptance.

After a few years of dialogue and cooperation with municipal political leaders and local communities, Statkraft in 2003 presented an impact study including both protection and development options. The impact study included an open and structured process, and created a sufficient basis to choose among the alternatives. There was a relatively broad participation, but those opposed to development of Vefsna decided not to participate.

Statkraft's "new approach" showed a potential for a better balance and broader consensus than the "old approach" and a potential for the combination of both river protection and hydropower development of Vefsna. The study resulted in a decision by the Parliament in 2004 to consider this combination.

However, the new government decided in 2005 to include Vefsna in the National River Protection Plan and further planning was stopped.

Lessons From 30 Years of Environmental Impact Assessment in Quebec: The Case Study of Hydroelectric Dams

Bouvier, Anne-Laure; GEIGER, Université du Québec à Montréal, CP 8888 Succ. Centre-Ville, Montreal, Québec H3C 3P8 Canada. 514 987 3000 8908#. Fax 514 987 6784. bannelaure@hotmail.com

Waaub, Jean-Philippe; GEIGER, Université du Québec à Montréal, CP 8888 succ. Centre-Ville, Montreal, Québec H3C 3P8 Canada. 514 987 3000 8908#. Fax 514 987 6784. waaub.jp@uqam.ca

The Law on Environmental Quality of the Quebec province was promulgated in 1974 and established, among others, regulations on environmental impacts assessment (EIA). Thirty years later, we can wonder what has been done and what is still to be done. The analysis focuses on hydroelectric projects. Three time periods are established (1970-1985, 1985-1996, 1996-2005) based on a specific set of norms, rules, regulations and practices. For each of them, two hydroelectric projects are selected according to the size of the project, the type of dam (with or without reservoir), the amount of energy produced, and the data available. The analysis is based on the following categories (World Commission on Dams, 1997): process, external communication, project costs, watershed used, reservoir, social dimension and follow-up. These case

studies allow showing a number of changes that happened since the 1970s as well as how they contributed to sustainable development. Evolution is noticed regarding a few dimensions such as the increase in social consideration in the EIA, especially with the involvement of local populations, or an increase in the follow-up. This study allows us to make a number of recommendations for the future EIA practices in Quebec.

Tackling the Social Issue in Hydropower

Hiort-af-Ornas, Anders; Centre for Rural Economic Development Research, Thay Ho Street, Lane 11, House 3A, Hanoi, Vietnam. 84 904 906794. andershiort2004@yahoo.com

This study targets social consequences in hydropower projects. It draws on the author's experience about how to identify and address key issues during the past decade. The projects selected have by and large had Sida (Swedish) support in Angola, Kenya, Lesotho, Namibia, Nicaragua, and Vietnam, but also other locations. Lessons learnt about approach and methodology are given, from selection of key issues and applying cost effective screening techniques. They are presented under the following headings:

- Hydropower in social life. Experience of key issues
- Constructing the social catchment; data, information and participation
- Electrification consequences for regional development and poverty reduction
- Development and surprising futures; participatory models with hydropower station staff
- Stakeholders analysing, and analysing stakeholders

Conclusion: The study attends key areas for hydropower project development and formation of quantitative and qualitative data through a partnership process and in a cost efficient manner. One key issue is how to balance economic and technical considerations with environmental and social consequences, and what kind of a knowledge base is required for sustainable development indicators instead of solely technical and economic ones.

Human Impact Assessment of the Mackenzie Gas Project

Dunn, Carolyn; Health Canada, Room 5-042, AL 4905B, 269 Laurier Ave W., Ottawa, Ontario K1A0K9 Canada. 613-948-2875. Fax 613-941-8921. carolyn_dunn@hc-sc.gc.ca www.hc-sc.gc.ca/ehas

Grabowecky, Rick; Safe Environments Programme, 510 Lagimodière Blvd, Winnipeg, Manitoba R2J 3Y1 CANADA. (204) 984-8318. Fax (204) 984-0461. rick_grabowecky@hc-sc.gc.ca

The Wuskwatim hydroelectric project is a 200 MW project which will flood approximately 0.5 square kilometres of land in the north-central part of Manitoba, Canada. The environmental impact assessment of this project is complex, involving two environmental assessment regimes, and involving a partnership with the local aboriginal nation.

This paper will focus on the assessment of effects on people: the effects of the project on health and socio-economic conditions in a remote area of Canada. This will include effects on traditional foods, both their

potential contamination (such as methylmercury in fish) and accessibility to the foods harvested. An important consideration is the risks of potential contamination versus benefits of consuming country foods.

Socio-economic concerns include effects on local populations (such as boom and bust economic effects, landscape aesthetics and culture).

Finally, an interesting aspect of this case study is the perception of the project due to past hydroelectric developments in northern Manitoba, and the outcomes of those projects. The stakeholders' view of the Wuskwatim project is coloured by fears of past human health effects. This will be considered in the presentation.

CS I.3 WIND POWER AND OTHER RENEWABLE ENERGY

Wind Energy and the Natural Heritage in Scotland

Keller, Arthur; Scottish Natural Heritage, Caspian House, Clydebank Business Park, Glasgow, G81 2NR Scotland. 01419510853. Fax 01419518948. arthur.keller@snh.gov.uk

There has been an enormous push for the development of renewable energy in Scotland with the help of government incentives. These developments are located in areas which are sensitive to impacts on landscape and biodiversity. Scottish Natural Heritage (SNH), a statutory wildlife and countryside agency, has sought to advise decision-makers on how to accommodate this development whilst avoiding damage to the natural heritage.

SNH has sought to influence the process at strategic and local levels, with varying degrees of success. The paper will explain how SNH has issued Strategic Locational Guidance, undertaken landscape capacity studies, and input to development plans and EIAs in order to guide such development.

This programme has been resource intensive for SNH. It has succeeded in discouraging development in more sensitive areas, and in reducing impacts of major projects, although some controversial projects have proceeded.

The degree of success that this programme has actually had in influencing wind energy projects in reality will be illustrated using information gathered over the whole of Scotland, as well as regional and local case studies.

A Windfall of Potential: An Analysis of Wind Energy at a Remote Diamond Mine in Northern Canada

Horrocks, Kimberley; De Beers Canada Inc., Suite 300 5102 50th Avenue, Yellowknife, Northwest Territories X1A 3S8 Canada. 01 867 766 7321. Fax 01 867 766 7347. kimberley.horrocks@ca.debeersgroup.com

This paper presents a brief project history of the Snap Lake Diamond mine in Canada's Northwest Territories, exploring various energy alternatives that were considered during the three year environmental assessment process (2001 to 2004).

With recent shifts in non-renewable global energy demand, supply and pricing—a reevaluation of wind energy as an alternative or part contributor to the overall energy requirements of the Snap Lake Project (the Project) has been undertaken.

This initial reevaluation has been conducted using the most recent (2005) RETScreen International Wind Energy Project Model, made available by Natural Resources Canada. Overall energy requirements and currently planned path forward to meet the requirements will be presented along with the results of the wind energy reevaluation.

Wave Energy Converter Seawave Slot-cone Generator (SSG)

Osaland, Espen; Wave Energy AS, Opstadveien 11C, Aalgard, Aalgard 4330 Norway. +4751610930. Fax +4751610931. espen.osaland@waveenergy.no www.waveenergy.no

The Seawave Slot-cone Generator under development by the Norwegian company Wave Energy AS is a wave energy converter utilizing wave overtopping into a total of three reservoirs placed on top of each other. The potential energy in the water collected in the three reservoirs is converted into electricity by the use of a single patented multi stage turbine (MST) and an asynchronous generator. The SSG is designed as a near shore concrete structure with the turbine shaft as virtually the only moving part of the system. A pilot plant is planned for deployment at the west coast of Kvitsøy, (Stavanger) during 2006. The Kvitsøy municipality has 520 inhabitants and is one of 10,000 islands in Europe where wave energy can quickly be developed into a cost-effective energy production alternative to existing diesel generators. The objective of the pilot project is to demonstrate at full-scale, the operation of one module of the SSG wave energy converter in an 19 kW/m wave climate, and to connect the system to the public grid for electricity production. The Project is part funded by the European Commission FP6 with EURm 1 and ENOVA with EURm 0,26.

The Adoption of Improved Charcoal Stoves in Urban Zanzibar and Its Impact on Rural Forests

Makame, Makame; Department of Geography and Envntal. Management, University of Dar es Salaam, P.O.Box 35049, Dar es Salaam, Tanzania. +255 741 437143. maqam04@yahoo.co.uk

Suleiman, Jokha; Institute of Resource Assessment, University of Dar es Salaam, Dar es Salaam, Tanzania. Fax +255 51 410393. jokhass@yahoo.com

Fuel wood consumption per annum in Zanzibar is estimated to be 301,238m³. This is almost 7783 ha loss of forest per annum. The majority of people still cook over traditional stoves, which consume much wood to the extent of deteriorating forest resources.

Since conventional fuels remain remote for the majority, improved charcoal stoves are perceived as a real option for reducing consumption of wood fuel in urban area and thus arresting the rate of deforestation. However, this can only be realized if the improved charcoal stoves are widely adopted within social systems. Diffusion itself results from a series of individual or any unit of adoption to begin using the new stoves.

This paper will give the results of a research that is being carried out to assess the rate of adoption of improved charcoal stoves in urban Zanzibar and its impact on rural forests in Zanzibar.

Findings are expected to focus on energy policy requirements; in backing up adoption of technology related to fuel consumption and the danger of continuing use of fuel wood and its relation to forest destruction.

CS I.4 ENERGY INFRASTRUCTURE PLANNING

Scenario Analysis for Evaluation of the Future Sustainability of an Energy System

Grande, Darby; Delft University of Technology, Jaffalaan 5, Delft, 2628BX Netherlands. 015 278 7468. d.e.grande@tbm.tudelft.nl

Planning for the future of a nation's energy infrastructure is fraught with major uncertainties. Scenarios are constructed worldwide as a tool to help decision-makers understand and begin to cope with such uncertainties, but it is not always clear what is best to be done today given a perhaps overwhelming number of future possibilities.

In working to further transition to a sustainable energy infrastructure system in the Netherlands, we discover that in many cases our visions of the future depend heavily on technology developments that are not certain. Taking into account these uncertainties, we argue that flexibility of the energy infrastructure today and in the near future is a desirable step toward eventual sustainability. We discuss the use of our analysis of scenarios existing in the literature to evaluate the flexibility of the energy system in The Netherlands and the anticipated outcomes of various policy measures.

Relocation of 1.778 MW Diesel Lamu Power Station from Lamu Island to Lamu Mainland at Mokowe, Kenya—Impact Assessment

Wetang'ula, Gabriel; Kenya Electricity Generatig Company, Olkaria Geothermal Project, Moi South Lake Road, P.O. Box 785, Naivasha, 20117 Kenya. +254 50 50086. gwetangula@kengen.co.ke

Kubo, Benjamin; Kenya Electricity Generatig Company, Olkaria Geothermal Project, Moi South Lake Road, P.O. Box 785, Naivasha, 20117 Kenya. +254 50 50086. bkubo@kengen.co.ke

Kenya's national electric grid does not extend to Lamu District. Provision of electricity to the District is by 1.778 MW diesel power station situated on Lamu island operated by Kenya Electricity Generating Company (KenGen). KenGen plans to relocate the station from the island to the mainland. This is necessary due to safety, environmental, operational and generation expansion requirements. The station only serves the island which is the main load center of the district due to tourism industry and district headquarters. There is unserved power of 1.5 MW on the mainland due to lack of connectivity to the mainland and lack of generation capacity expansion space. The station is a potential occupational hazard. Should fire occur in the station, this UNESCO World Heritage Site could be decimated. There are also limited fire fighting and evacuation facilities. The study identified by products of the project as wastewater, used lubrication oil, scrap metals and gaseous emissions. Positive impacts include availability of space for expansion, job creation, reduced environmental and safety risk. Potential negative impacts include population increase, disturbance of terrestrial ecology, increased soil erosion and health risks during construction phase. This will be mitigated as per the Environmental Management Plan.

Deepwater LNG Terminal Development in the United States

Sage, Paul; TECinc, 250 Bobwhite Court, Suite 200, Boise, Idaho 83702 USA. 208 389-7848. Fax 208 389-7849. pwsage@tecinc.com

The U.S. Congress passed the Deepwater Port Act (DWPA) in 1974. Fundamental to the intent of the DWPA was the need to meet the United States' growing demand for natural gas supplies by increasing the nation's access to worldwide sources of supply. Meeting this need is viewed as a key component of the nation's energy and economic strategy.

The DWPA establishes a licensing system for ownership, construction and operation of man made structures (e.g., LNG terminals) beyond the U.S. territorial sea. The DWPA authorizes the U.S. Secretary of Transportation (SECDOT) to issue licenses.

The DWPA license review process is driven by legally mandated deadlines, totaling a maximum of 356 calendar days from the date that an application is filed. The DWPA mandates compliance with the National Environmental Policy Act (NEPA).

Finally, the DWPA requires the SECDOT to designate an adjacent coastal state(s) for consultation and requires the consent of the governor of that state(s) for the approval of a license.

Effectively, the DWPA creates a federal approval process that is swift and comprehensive while attempting to balance two national goals (i.e., energy development and environmental protection) in partnership with state governments.

Assessing the Potential for the Creation of a Standardised, Systematic Methodological Strategic Environmental Assessment (SEA) Framework for Wind Energy Planning

Phylip-Jones, John; University of Liverpool, Gordon Stephenson Building, 74 Bedford Stret South, Liverpool, United Kingdom L69 7ZQ United Kingdom. 0151 259 0888. john.phylip-jones@liverpool.gov.uk

As we enter 2006, the effects of global climate change on Earth have become more tangible. Coupled with the problem of rapidly depleting fossil fuel reserves and the political uncertainties surrounding fossil fuel supplies, there is an urgent need to adapt to such circumstances by diversifying the methods by which electricity is produced.

The expansion of the renewable energy sector would contribute greatly to achieving a switch from fossil fuel reliance and promote the generation of "clean power." Electricity generated from wind turbines is the predominant renewable energy technology of the modern era, but this also has environmental implications which need to be addressed if such power generation is to be sustainable.

This research assesses the potential for the creation of a standardised methodological SEA framework to ensure that sustainable wind energy planning is achieved. Case studies conducted in Denmark, Germany and the United Kingdom to establish the role of the respective planning systems in promoting the uptake of wind energy are central to the research. The final output of the empirical research is the development of a standard method of assessing the impacts of wind energy projects in order ensure improved planning of such sites in the future.

CS 1.5 GEOTHERMAL ENERGY

Peliminary Enviromental Impact Assessment for the Development of Tendaho Geothermal Field, Ethiopia

Kebede, Solomon; Geological Survey of Ethiopia, P.O.B. 40069, Addis Abeba 40069 Ethiopia. 251-11-3202858. Fax 251-11-3712033. solo450354@yahoo.com

The Tendaho geothermal field is one of the geothermal fields in the Ethiopian rift valley that has been explored by deep drilling. There is a plan to progress the resource to development in three phases, which includes small

scale power plant, deep drilling and medium scale plant. In this report, analysis of the current status of the environment, environmental effects which the proposed development activity may entail and mitigation measures to be taken to reduce impacts to the level of insignificance are discussed.

Potential impacts of utilization of the resource on the environment are physical, chemical and socio economic. The physical impacts on the geology and the landscape relate to construction activities and the abstraction of water from the reservoir. Given the chemical concentration of the geothermal fluids, the risk of contaminating the ground water by waste water disposal is considered low. Air emission during operation will cause no significant contamination of the air, since the gas content of the resource is low. The impacts on the socio economic condition are mainly positive, including a rise in employment opportunities and an indirect stimulation of rural development.

Effects of Geothermal Wastewater Disposal: Assessment of Seasonal and Spatial Variability in Thermal Stress in Lake Thingvallavatn, Iceland

Wetang'ula, Gabriel; Kenya Electricity Generating Co. Ltd, Olkaria Geothermal Power Project, Moi South Lake Road, P.O. Box 785, Naivasha, KENYA. +254 50 5050086. gwetangula@kengen.co.ke & gwetangulah@yahoo.com

Snorrason, Sigrudur; University of Iceland, Grensasvegur 12, Reykjavik, IS-108 Iceland. +3548613244. sigsnor@hi.is

Nesjavellir geothermal plant in SW Iceland utilizes high temperature fluid for power generation and space heating. Wastewater is pumped into drill holes or disposed in Nesjavellir stream, which disappears into the lava ending up in Lake Thingvallavatn, a rift lake of high conservational value. Water temperature measurements show that the large volume of wastewater (40.9 C - 84.0 C) disposed off has caused a rise in summer and winter water temperature at lake shoreline outflow sites. At outflow sites temperature was in the range 23.4-27.3 C. Spatial distribution of thermal stress varies seasonally. Summertime water temperature profiles showed decrease in water temperature with increasing depth and distance from the shore. During windy spells the warm water tends to mix with the lake water, thus lowering thermal stress effects. During winter, when ice covers most of the lake, areas close to warm water outflow points remain ice-free. In these situations a wall of cold water forms at the ice edge, resisting the warm water outflow and causing a deepening of the thermal effect on the biota near outflow sites. The thermal influence at the lake outflow sites will be averted with re-injection of all the wastewater.

Environmental Impact Assessment of 64 Mw Olkaria Geothermal Power Project--Kenya

Kubo, Benjamin; Kenya Electricity Generatig Company, Olkaria Geothermal Project, Moi South Lake Road, P.O. Box 785, Naivasha 20117 KENYA. +254 50 50086. bkubo@kengen.co.ke

Wetang'ula, Gabriel; Kenya Electricity Generatig Company, Olkaria Geothermal Project, Moi South Lake Road, P.O. Box 785, Naivasha 20117 Kenya. +254 50 50086. gwetangula@kengen.co.ke

Kenya Electricity Generating Company (KenGen) has developed a 64 MWe power station to extract geothermal energy available in the North East Olkaria geothermal area. The EIA was conducted following World Bank guidelines for the preparations of EIAs. It provides information on local setting, review of regulatory and legal requirements, description of the existing environment under the categories of flora, soils, fauna plus climate and meteorology among others.

An important factor in the environmental studies has been the existence of Hells Gate National Park. The park encloses this power station. This imposes constraints on the management of the park and the power station. Another important factor in the environmental studies is the issue of Lake Naivasha, located five kilometers from the station. The potential for adverse effects due to air emissions on the neighbouring flower farms located adjacent to the station and the impact that the power station workforce will have on the community infrastructure in Naivasha area were considered in the study.

The study concluded that the company could satisfactorily manage all these environmental concerns.

Does the EIA Function Properly for Geothermal Projects?

Thors, Stefan Gunnar; VSO Consulting, Borgartun 20, Reykjavik 105 Iceland. +354 580 9180. Fax +354 580 9010. stefan@vso.is www.vso.is

Albertsson, Albert; Hitaveita Sudurnesja (Sudurnes Regional Heating Corporaton), Brekkustig 36, Reykjanesbaer 232 Iceland. +354 422 5200. Fax +354 421 4727. albert@hs.is www.hs.is

There are some fundamental differences between energy projects in Iceland which have consequences for the efficiency and function of the EIA process. Most of the hydropower projects are well defined projects, i.e., the design, size and magnitude of the project is known when assessing the impact of the project. The characteristics of geothermal utilization can be very different. The utilization of geothermal energy is dynamic in nature, where the information is being gathered and processed continuously during the time of utilization.

The paper discusses whether the EIA Act and process in Iceland does function for geothermal projects and if it should be more flexible for such dynamic projects. The paper reviews three geothermal projects currently in process, describing the main benefits and problems relating to the EIA process as well as the process of applying for consents and permits under various acts. The experience of these projects are different. The paper discusses possible solutions to the problems accounted for example the new SEA Act, using tools of planning, allowing more flexibility in the EIA, implementing more consultation among interest parties and agencies, and using area approach instead of structural approach.

CS I.6 HYDROCARBON PIPELINES

The Effectiveness of the Environmental Impact Assessment (EIA) Follow-Up with Regard to Biodiversity Conservation

Bataineh, Ramzi; CCIC, Tblisi Avenue, Natavan Building, Baku AZ1065 Azerbaijan. 00994502254465. Fax 0099450124972291. ramzihus@yahoo.com

This paper investigates the effectiveness of the EIA during the construction of the BTC Oil Pipeline Project in Azerbaijan. The focus of the study is to examine the performance of the Biodiversity conservation measures on the Territory of Gobustan Area. The area is considered as badland and environmentally sensitive. The environmental impacts and the corresponding mitigation measures are highlighted. The key argument in the study is that the establishment of an integrated environmental monitoring system is central to the

success of the EIA follow-up. The study suggests further research to explore the contextual factors behind best practices generated within a developing environmental governance system.

The Evolving Role of the National Energy Board of Canada: Challenges and Opportunities

Bennett, Judy; National Energy Board, 444 Seventh Avenue SW, Calgary, Alberta T2P 0X8 Canada. 403 221 3003. jrbennett@neb-one.gc.ca www.neb-one.gc.ca

Matthews, Lesley; National Energy Board, 444 Seventh Avenue SW, Calgary, Alberta T2P 0X8 Canada. 403 299 2796. lmatthews@neb-one.gc.ca www.neb-one.gc.ca

The National Energy Board (NEB) is an independent, court-like body that was established in 1959 to regulate certain aspects of the Canadian energy industry. The NEB's vision is to be a respected leader in energy regulation that protects and enables in the Canadian public interest. The public interest is inclusive of all Canadians and refers to a balance of economic, environmental and social interests which changes as society's values and preferences evolve over time. As a regulator, the NEB must estimate the overall public good a project may create and its potential negative aspects, weight its various impacts, and make a decision.

Stakeholders continue to have high expectations of the NEB as a leader in Canadian energy regulation, and the NEB has faced challenges and found opportunities to fulfill its mandate. This presentation explores the following themes as the NEB explores and defines its future role as an energy regulator in Canada, using examples and case studies:

- Delivering clarity and efficiency in the regulatory and environmental assessment (EA) processes for hydrocarbon pipelines in Canada.
- Engaging stakeholders and enabling effective involvement in regulatory and EA processes.

The Langeled Project—Using the EIA as a Basis for Paying Compensation to Fishermen

Eldøy, Steinar; Statoil, Forusbeen 35, Stavanger, N-4035 Norway. +47 91534813. steine@statoil.com

The Langeled Project, which is organised as a joint project between Norsk Hydro (development operator) and Statoil (project execution), includes the construction of a new 44" pipeline for transporting gas from the Norwegian continental shelf to the UK. The southern part of the pipeline from Sleipner on the Norwegian continental shelf to Easington in Yorkshire was installed in 2005. Prior to that an EIA process was carried out, including preparation of a separate ES for the marine pipeline for UK waters. The landfall area at the Holderness coast is an important area for shellfisheries, particularly lobster. The EIA concluded that the fisheries would be disrupted in the construction corridor during construction, but no significant impact on the lobster population and no long term impacts were foreseen. Local fishermen on the other hand claimed that the project would cause significant damage to the fisheries both during and after construction. Monitoring during and after construction has confirmed the predictions in the EIA, and thus also supported the stand taken by the project to limit a compensation offer to the fishermen to the effects of establishment of an exclusion zone during construction.

LNG Regasification Terminals in Mexico and Their Relationship with Poverty and Social Conflict

Heisler, Harry; SEMARNAT, Av. Revolucion #1425, Col. Tlacopac San Angel, Mexico City, 01040 Mexico. + 525556243316. hheisler@semarnat.gob.mx

Quijano, Martín; SEMARNAT, Av. Revolucion #1425, Col. Tlacopac San Angel, Mexico City, 01040 Mexico. + 525556243313. mquijano@semarnat.gob.mx

Juarez, Ricardo; SEMARNAT, Av. Revolucion #1425, Col. Tlacopac San Angel, Mexico City, 01040 Mexico. + 525556243362. rijvarez@semarnat.gob.mx

The Mexican industrial complex is changing its energy supply source from oil and coal to natural gas because of economic concerns and, to a lesser extent, environmental awareness, creating pressure on national resources. In response, the market has created the need of an external supply of natural gas and the infrastructure to heat it and transport it to the final user.

There have been five LNG Regasification terminals evaluated in Mexico since 2002. Three have been approved but they still have some major hurdles to overcome before they can start construction, most dealing with social rejection due to a misrepresentation of information where environmental issues become irrelevant. Thus, public participation and awareness through public forums becomes very important in the decision-making process for this type of project.

A greater supply of cleaner (and cheaper) energy sources results in an increase in productivity directly linked to better quality of life both in terms of economic and environmental aspects.

Case studies are presented to better understand the EIA and decision-making processes, as well as the obstacles overcome in order to guarantee sustainable development of Mexico's energy infrastructure.

CS 1.7 GENDER – ENERGY LINK

Bottlenecks to Sustainable Development: Assessing the Gender-Energy Link on the Ground

Bamberger, Barbara; EDAAW Inc., 1420 Kettner Blvd #620, San Diego, CA 92101 USA. 619.233.1454 extension 35 Fax 619.233.1920. bambergerb@edaw.com www.edaw.com

Gender has become increasingly recognized as a critical component in facilitating sustainable development. Women are among the poorest of the poor, yet they have the most potential for driving and influencing sustainable development.

Only through disaggregated energy analysis will the effects of increased access to energy be understood. While gender has been widely recognized as an important component in agriculture, health care, and education, the gender-energy link has been a more recent phenomenon. Planners view energy as a technology-driven issue that is gender neutral. However, poverty and economic development cannot be addressed without considering gendered access to energy.

This panel is proposed to present methods for analyzing energy and its impacts through a gender lens. It will explore the challenges scientists face, methodologies that can help disaggregate impacts on men versus women, and difficulties analysts face in incorporating disaggregated energy impacts into useful policy recommendations.

Panelists should discuss what field-based methods they have used to address the gender-energy link in practical, real-world assessments, and present recommendations for incorporating a gender analysis into social and

environmental assessments in the developed and the developing world.

CS I.8 ENERGY AND EIA METHODOLOGY I

ESHIA—A Novel Concept in Impact Assessment: The Experience of Shell Nigeria

Abby-Kalio, Ndamieye; Shell Pet Devt Company, Old Aba Road, P.O.Box 263, Port Harcourt, Rivers State, Nigeria. + 234.84.4.21461. Nj.Abby-Kalio@Shell.Com

ESHIA—an acronym for Environmental, Social, Health Impact Assessment—is fast gaining acceptability in Shell Nigeria. The concept of ESHIA has brought various challenges to regulators, proponents, stakeholders and consultants. The new focus on integration has highlighted the similarities as well as sharp differences that exist in the components of this ESH tripod. Major issues are exposed in (a) the levels of competence and awareness, (b) stake holder participation, (c) legislation, (d) baseline data and information scope, (e) analytical tools and (f) indices for monitoring mitigation measures. The concept has also shown that proponents need to develop a holistic framework with respect to environmental assessment while regulators now seriously need stakeholders' 'informal social licence' as basis for granting their formal permits. While environmental legislation looks adequate with bio-physical determinants, it seems somewhat deficient in empirical standards and limits for social and health issues. Ironically, these S and H issues now increasingly determine which project or proponent gets regulators' legal approvals. This paper discusses the need for a proper balance of E, S, and H for optimal sustainability in the E&P business in the Niger Delta region of Nigeria.

A Newly Developed Structured Approach to Impact Management – The BP Way

Witchalls, Ben; BP, Maddox Farm, Little Bookham Street, Leatherhead, Surrey KT23 3BU UK. + + 44 1932 739 409. witchb1@bp.com

Stump, Mick; BP, Chertsey Road, Sunbury on Thames, Middlesex TW16 7LN UK.

Croucher, Toby; BP

Herlugson, Chris; BP

BP is keen to demonstrate that they recognise the importance of sensitive areas and that that recognition is embedded in the operational standards of the company. Over the past two years the company has undertaken an extensive review and update of its internal processes governing decisions around access to new areas, and its management of environmental risk and impact.

A comprehensive impact management process has emerged. It is a full life-cycle process based on four fundamental principles: identify and understand impacts; consult with others; avoid impacts by design; and reduce residual impacts. It builds on established good practice—updating, revising, clarifying, codifying and augmenting BP's traditional approach.

Major new components include:

- a front end screening assessment to categorise projects and determine the subsequent level of rigour which will govern all the activities on those projects.
- a structured and commitment based approach to consultation and disclosure.

- a clear and transparent decision making process to deal with issues which go beyond BP's core activities.

The process has been consulted widely internally and externally with NGOs and SRIs. The company is confident that this new approach will support the delivery of environmental leadership, ensuring consistency, transparency and performance focused management.

Development and Implementation of a Standardized Process for Environmental Social and Health Impact Assessment (ESHIA) at Chevron

Lilien, Jonathan; Chevron Corporation, 100 Chevron Way, Richmond, CA 94802 US. 510-242-5696. jlilien@chevron.com

Chevron International Exploration and Production (CIEP) recently developed and deployed a standardized process for Environmental Social and Health Impact Assessment (ESHIA). The Corporation is now adopting the CIEP ESHIA process for use by all Chevron operating companies. The process covers all major capital, seismic, and exploration projects under Chevron operational control. It includes a set of basic requirements to foster world-class ESHIA performance within CIEP, including (1) initiating ESHIA early in the project development cycle (e.g., evaluation of new business opportunities), (2) integration of ESHIA into business decision-making (e.g., determining project viability, alternative selection), (3) stakeholder engagement, and (4) development of robust management plans to ensure commitments made during the impact assessment are effectively carried over into construction and operations. The process also establishes a series of roles and responsibilities to support implementation. This paper describes the key features of the CIEP ESHIA process and best practices/lessons learned from its implementation by CIEP business units.

CS I.9 ENERGY AND EIA METHODOLOGY 2

La Parota: Social Response to the Hydro Electrical Power Project

Vadillo, Eduardo; Enlace Grupo de Consultoria, Las Brujas No. 304, Exhacienda de Coapa, Mexico, 14330 Mexico. 525526521945. Fax 525526521946. eduva_enlace@terra.com.mx

Mexico has important hydric resources to use in hydroelectrical projects. Nowadays, there are two important dams in progress to provide the electrical power from 2008 until 2020. One of them is called "El Cajon" in the northwest state of Nayarit. The other is "La Parota" located in the southern state of Guerrero, near Acapulco. Both projects have their environmental impact approval by the Mexican government and the EIA includes physical, biological and social analysis. However, the response of peasants, "ejidatarios," and land owners has been very different. The El Cajon land acquisition and people relocating process out of that basin was easy, but the La Parota dam has a lot of social problems with a large opposition. The purpose of this paper is to figure out what went wrong in the social impact analysis, the main problems, and which would

be the better way to solve them in order to launch the La Parota dam construction.

Impact Assessment: Integrating Social, Health and Environmental Assessment for Projects

de Koning, Saskia; Shell International Exploration & Production, PO Box 60, Rijswijk, 2280 AB The Netherlands. + 31 70 447 2369. s.dekoning@shell.com

Smies, Maarten; Shell International Exploration & Production, PO Box 60, Rijswijk, 2280 AB The Netherlands. + 31 70 447 4338. m.smies@shell.com

Dada, Oti; Shell Petroleum Development Company of Nigeria, PO Box 263, Port Harcourt, Nigeria. + 234 84 4 24039. oti.dada@shell.com

Traditionally, impact assessment of projects has strongly orientated on effects on the environment. Project proponents also wish to assess social and health impacts.

In Shell Exploration and Production, impact assessment addresses social, health and environmental impacts of projects in a co-ordinated, integrated fashion. The requirements are set through a global impact assessment standard and a global process and procedure. The procedure interfaces with the project development process and guidance and sets clear deliverables and milestones in to deliver maximum value to the project.

In some Shell companies, social, health and environmental impact assessment has been carried out for some time already. While the results of this have been positive, clear lessons for further improvements have also emerged. Examples of these will be presented.

The International Association of Oil and Gas Producers (OGP) has developed a support tool called e-SHRIMP. This will be web-based and provide comprehensive check-lists to assist companies, contractors and impact assessment consultants in stakeholder engagement and in scoping and execution of impact assessment. The tool applies to the various types of projects that the exploration and production industry engages in and will be of use in support of Shell's impact assessment procedure.

The Regional Energetic Environmental Plan (REEP) of Marche Region, Italy

Minetti, Antonio; Regione Marche, via Tiziano 44, Ancona, 60100 Italy. + 390718063470. Fax + 390718063012. antonio.minetti@regione.marche.it

Fontana, Raffaella; Regione Marche, via Tiziano 44, Ancona, 60100 Italy. + 390718063528. Fax + 390718063012. raffaella.fontana@regione.marche.it

The REEP, a programmatic document for the regional energy sector, is unique and far-fetching, as it puts into practice what was laid out in an agreement between the Presidents of the Regions and Autonomous Provinces of Italy in Turin in 2001 (Turin Protocol): to take into account environmental implications of Energetic Plans.

The REEP identifies three strategic action lines:

1. Energy saving and end user efficiency

The REEP envisages a wide set of actions, distributed over the territory and in the different consumption sectors, especially the tertiary and the residential, and supported by awareness-raising and information campaigns and incentive programmes.

2. Exploitation of renewable sources

The REEP envisages to increase the exploitation of renewable sources, with a specific reference to agro-forestry biomasses, wind and solar energy.

3. Widespread production

The REEP intends to pursue high energy efficiency, focusing on widespread electric energy and heat production, on technological and management innovation and on district systems based on enterprises.

The evaluations foresee that the interventions scheduled in the REEP will contribute in a significant way to the achievement of the reduction targets of the Kyoto Protocol.

CS 2.1 CLIMATE CHANGE

Economics and Policy of Carbon Sequestration in Agricultural Soils: A Review

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

Bangsund, Dean; North Dakota State University, Morrill Hall 217, Fargo, ND 58105 USA. 701-231-7471. Fax 701-231-7400. bangsund@ndsuxt.nodak.edu

Early in the debate on global warming and greenhouse gas emissions, agricultural soils were identified as a potential depository for atmospheric carbon dioxide [CO₂], and terrestrial carbon [C] sequestration was identified as a means of mitigating greenhouse gas emissions. The progression of research pertaining to terrestrial C sequestration has moved from the estimation of the technical potential of soils to store carbon to an examination of the economic and policy aspects of soil C sequestration. This paper reviews recent North American literature dealing with these topics. The key economic questions are the level of financial incentives needed for private landowners to adopt C sequestration activities and the cost competitiveness of terrestrial C sequestration with other abatement measures. The general premise is that landowners and agricultural producers will adopt C sequestration activities if net revenues from those activities are greater than those from existing practices. Research to date indicates that terrestrial C sequestration can be a low-cost strategy to mitigate greenhouse gas emissions. However, these studies also consistently point out that the economic potential of agricultural soils to store C is considerably less than their technical potential (ranging from 22 percent to 78 percent in the studies examined).

The Role of Spatial Planning in Biodiversity Adaptation to Climate Change

Wilson, Elizabeth; Oxford Brookes University, School of Built Environment, Gipsy Lane, Oxford OX3 0BP UK. 44 1865 483953. Fax 44 1865 483559. ebwilson@brookes.ac.uk

Piper, Jake; Oxford Institute for Sustainable Development, Oxford Brookes University, Gipsy Lane, Oxford OX3 0BP UK. 44 1865 483422. Fax 44 1865 483559. jake.piper@brookes.ac.uk

Climate change is already having impacts on biodiversity within Europe. It is clear that, even if action is successfully taken to meet Kyoto-and-beyond targets for greenhouse gas reductions, further climate change is unavoidable, with significant implications for habitats and species.

Spatial planning represents an important intervention to further European, national and local biodiversity objectives for climate change adaptation. This paper reports on a trans-national study examining the scope of spatial plans in The Netherlands, England and France in

addressing the impacts of climate change. It focused on the time-horizons of plans, how far they consider the direct or indirect impacts of climate change, and how far they address the specific needs of biodiversity, and the wider interactions with natural systems.

The paper draws on case-studies of inland and coastal areas in the three countries, using stakeholder workshops. The paper concludes that, while there is evidence of some developing good practice, very little systematic use is being made of the EU SEA or EIA Directives to “climate-proof” planning policies or projects. It makes some recommendations for plan processes and the integration of biodiversity objectives, and comments on the potential use of appraisal and assessment tools.

Impact Assessment of Energy and Climate Crisis of the Past

Coutinho, Miguel; IDAD - Instituto do Ambiente e Desenvolvimento, Campus Universitário, AVEIRO, 3810-193 Portugal. + 351234400800. Fax -351234382876. msc@idad.ua.pt www.idad.ua.pt

Borrego, Carlos; Departamento do Ambiente e Ordenamento, University of Aveiro, AVEIRO, 3810-193 Portugal. 351234400800. borrego@ua.pt

At the dawn of the 21st century, humankind faces two major challenges: how to adapt to climate change and the large diversity of its direct and indirect effects, and how to react to the paradigmatic shift that will happen in the timescale of a generation, caused by the inevitable scarcity of fossil fuels.

Societies and individuals have the tendency to see themselves as pioneers of history and forget that past generations lived similar challenges either with or without success. In the former case, history shows that almost in every case the end could have been predicted, and wise actions might have prevented collapse.

A possible approach to the study of mitigation and adaptation to climate and energy crisis is based in the comparative history of the past. It consists of research in archaeology, anthropology and history that examines the responses of earlier societies to climate variability and to other environmental factors. Methodologies developed for impact assessment give a positive contribution to this research.

Efforts to understand past impacts and cultural responses to large and persistent climate and energy supply forcings may prove instructive for assessing modern societal preparedness for a changing and uncertain future.

High Speed Railway at Sea Level—How Do We Handle the Climate Change?

Larsson, Kerstin; EnviroPlanning AB, Lilla Bommen 4 b, Gothenburg, S-411 04 SWEDEN. + 4631-7718742. kerstin.larsson@enviroplanning.se www.enviroplanning.se

The paper presents the issues of foreseeing climate change in EIA and presents a high speed railway project of current interest to be built in a waterfront area in 2007.

Background: “Railway 45 Norge-Vänernbanan” is to be built at sea level in “Göta Älv” in the cities Nödinge and Nol just north of Gothenburg, western Sweden spring 2007. The author manages the application for the permit to build in the water according to the Water Act. The building cost is estimated to be US\$125 million.

Main discussion points in the paper and at the presentation:

- The sea levels of today will not be the sea levels of tomorrow—how should we handle the climate impacts change when managing an EIA?

- When forming a future scenario—what is a relevant time aspect? 10-, 20- or 100-year?

The Environmental Courts have to consider new aspects before they give a permission to build in water—how have the courts in other countries reacted to the climate change?

CS3.1 LAND USE PLANNING AND TRANSPORTATION

Improving the Practice of Integrating Land Use Planning and Impact Assessment

Amos, Janet; Amos Environment + Planning, 1236 Butter & Egg Road, RR6, Bracebridge, ON P1L 1X4 Canada. 705-764-0580. Fax 705-764-1514. amos@primus.ca

The integration of land use planning and impact assessment for infrastructure projects seems like a natural mixture of groundwork and prudence. Who couldn't resist going to one public meeting and preparing one report to discuss the new road, sewage treatment and the form of a new housing development? As it turns out, there are pitfalls for the IA practitioner. Using Canadian municipal examples, this session will identify the key weaknesses of integrating the practices of land use planning and impact assessment and propose practice techniques to avoid them. This session is designed to assist you to move your integrated approach to a successful conclusion.

Did the Impact Assessment Matter at All?

Åkerskog, Ann; Swedish EIA-Centre, SLU, Ulls väg 28, P.O. 7012, Uppsala SE-750 07 Sweden. + 46 18-672664. ann.akerskog@sol.slu.se

An evaluation of impact assessments in Swedish municipal comprehensive plans made 1996-2002 is the base for this paper. The plans have been evaluated using a checklist with questions about process, content, environmental objectives, alternatives, sustainable development, etc. To supplement the evaluation, practitioners who have performed or been responsible for such impact assessments have been interviewed.

The results are discussed in this paper, with the perspective of effectiveness of the impact assessment. When changes to the law were introduced 1996, the hope was that the account of impact assessment would benefit sustainable development through comprehensive planning.

Now, when new demands on SEA have been added to the law, it is time to reflect on whether the vague demands for impact assessment really had any impact at all on comprehensive planning. And if so, in what way did the impact assessment have an influence on the plan?

Concepts Used for a Reader-Friendly EIS on a Large Transportation Project in Seattle, Washington

Gunther, Pamela; Parametrix, 411 108th Avenue NE, Suite 1800, Bellevue, WA 98004-5571 USA. 425.458.6231. Fax 425.458.6363. pgunther@parametrix.com

The Alaskan Way Viaduct is one of only two north-south highway routes through Seattle, Washington, USA. The viaduct and its seawall support structure are in need of

replacement due to deterioration and are at risk of falling in an earthquake event. Replacement of the viaduct and seawall is a \$4 billion project that will shape the region for the next 100 years. To best inform the public, stakeholders, and the decision makers about the alternatives and project trade-offs, the project team developed a unique reader-friendly EIS following 4 basic concepts:

- Tell a story
- Make it brief
- Engage the reader
- Make it visual

Provided in this presentation is the approach and examples that the team used to develop this EIS. The project approach has won several international, national, state, and local environmental excellence awards and has served as a catalyst for the state department of transportation to develop a new environmental impact assessment methodology for all future state transportation projects requiring environmental review. This presentation will highlight the approaches used under each of the four concepts.

Environmental Assessment, Alternatives and Large-Scale Infrastructure Projects – The Öresund Fixed Link Case

Markus, Eric

Abstract not available.

CS 3.2 LAND USE PLANNING, TRANSPORTATION AND COASTAL ZONE MANAGEMENT

Coastal Zone Management from Theory to Practice: Methodology and Case Studies from Italy

Marotta, Leonardo; Entropia SNC, via Corridoni 3, Recanati, Macerata I-62019 Italy. + 39 3383518558. Fax + 39 0717575525. leonardo.marotta@entropia-env.it

Deandrea, Gianmario; Entropia SNC, via Corridoni 3, Recanati, Macerata I-62019 Italy. + 39 0717575525. Fax + 39 0717575525. gianmario.deandrea@entropia-env.it

Picchio, Stefano; Entropia SNC, via Corridoni 3, Recanati, Macerata I-62019 Italy. + 39 0717575525. entropia@entropia-env.it

Bettini, Virginio; University IUAV of Venice, Ca' Tron Santa Croce 1957, Venezia, Venezia I-62019 Italy. + 39 0412572224. bettini@iuav.it

Impacts and conflicts analysis is the start of integration assessment for coastal areas (Vallega, 1999). The superposition of the existing problems and the policy, plans, programs can be a tool in order to integrate the management or disintegrating the coastal system. Sustainability can be realised only in the light of the three components of sustainability, ranked as follows (Vallega, 1999): integrity of ecosystem, social equity, economic efficiency. Megaprojects and great scale plans involve all the ecosystems and actors in coastal area. Highway, ports and marinas, urban development and sprawl are the changing drivers conflicting with vulnerability, conservation strategies, protection, space use activities and planning.

Our decision support systems are based on multicriteria analysis and geo-ecosystem approach (Jorgensen et al., 2005, Farina, 2004). Indices in multicriteria matrix are systemic (as energy, ecological footprint, greenhouse gas assessment) as

well as local (connectivity, ecological state, shoreline change, landscape pattern).

Technical and Legal Nature Conservation Requirements for New Spatial Planning Instruments in the Exclusive Economy Zone

Wende, Wolfgang; Berlin University of Technology, Strasse des 17. Juni 145, Sekr. EB 5, Berlin, Berlin 10623 Germany. + 49-30-314-73284. Fax + 49-30-314-23507. wende@ile.tu-berlin.de www.tu-berlin.de/~lbp

Koepfel, Johann; Berlin University of Technology, Strasse des 17. Juni 145, Sekr. EB 5, Berlin, Berlin 10623 Germany. + 49-30-314-22344. Fax + 49-30-314-23507. koepfel@ile.tu-berlin.de www.tu-berlin.de/~lbp

New options for the regulation of spatial interests in the Exclusive Economy Zone (North and Baltic Seas) were implemented in 2004, as a result of the amendment of the German Spatial Planning Law. The protection of the marine environment was to be incorporated into this "off-shore" spatial planning strategy. For this purpose, a research project at the Berlin University of Technology identified technical and procedural conditions to be considered for the successful integration of environmental and conservationist objectives in offshore spatial planning.

The project addressed the question as to how to specify objectives under the Federal Nature Conservation Law, given the spatial conditions of the Exclusive Economy Zone. Opportunities for a legal and technical framework according to nature conservation requirements have been identified. Criteria for a comprehensive assessment of various valuable nature conservation areas have been developed. The valuable ecological zones have been illustrated by means of maps in an accompanying report. The presentation held at the IAIA Conference will focus on the main results of this research project.

A Role for Environmental Assessment in the Atlantic Canada Coastal Zone: Linking Project Planning to Policy Implementation

Jeffrey, Barry; Environment Canada, 45 Alderney Drive, 16th Floor, Queen Square, Dartmouth, Nova Scotia B2Y 2N6 Canada. 902-426-4633. Fax 902-426-8373. barry.jeffrey@ec.gc.ca

Policy issues reside in every project-specific environmental assessment. In Atlantic Canada, countless decisions on the location, configuration and design of aquaculture operations, small-craft harbours, wastewater outfalls, and marine terminals are transforming the coastline. While any given proposal is run through its planning paces, it is not always clear that the policy implications are fully appreciated or communicated.

Environmental assessment holds enormous promise for reconciling the purpose of a specific project, with visions of sustainability as defined by public policy statements on climate change, biodiversity and clean-environment objectives for the coastal zone. As a starting point, environmental assessment can help render the short- and long-term trade-offs explicit.

Application of environmental assessment processes to coastal projects in Atlantic Canada is examined in terms of public policy statements on climate change adaptation (e.g., preparing for the increased severity and frequency of storm surges), species at risk (e.g., recovery of the endangered Piping Plover), and water quality (e.g., preventing bacteriological contamination). The efforts made to understand, articulate and resolve conflicts

between projects and policy statements are examined. Options for improving the utility of environmental assessment as a sustainability assurance tool in the coastal zone are presented.

Windfarms and Cultural Heritage along the Norwegian Coast

Jerpåsen, Gro Bjørnstad; Norwegian Institute for Cultural Heritage Research, Storgt. 2, Box 736, Sentrum, Oslo, N-0105 Norway. +47 23 35 50 00/40. Fax +47 23 35 50 01. gro.jerpasen@niku.no www.niku.no

Lindblom, Inge; Norwegian Institute for Cultural Heritage Research, Storgt. 2, Box 736, Sentrum, Oslo, N-0105 Norway. +47 23 35 50 00/51. Fax +47 23 35 50 01. inge.lindblom@niku.no www.niku.no

In the last few years there have been many energy entrepreneurs applying for licence to build windmill farms along the Norwegian coast. These are planned and conducted as single projects by private initiative. One of the problems connected to these single projects is lack of a general plan and assessments for suitable and non-suitable localization along the coast.

As some of the parks are planned and built, a public discussion has started in Norway about the impact these parks have on people's experience of landscape as well as cultural heritage monuments and environments. The national authorities in Norway, both for natural and cultural conservation, have recently made a statement which says that few a big windmill farms are better than many small farms.

The paper discusses the need for holistic evaluation and strategic planning (SEA) connected to such projects, and methods for strategic planning concerning cultural heritage and landscape. It also presents some methods for environmental impact assessment (EIA) on the project level illustrated by wind farm examples from Norway. The windmills impact on value and vulnerability of landscape and cultural heritage monuments will also be discussed.

CS 3.3 MAINSTREAMING UNIVERSAL DESIGN

Universal Design and Disability: Fundamental Physical and Social Impact Assessment

Alton, Charles; Global Environmental Solutions, 9745 Conservation Drive, New Port Richey, Florida 34655 USA. 5033512142. charles.alton@earthlink.net

Underwood, Benjamin; Global Environmental Solutions, 3 Queen St., Unit 301, Charleston, South Carolina 29401 USA. 8438708008. globalenviron@aol.com

"Disability is the result of the interaction between people with different levels of functioning and an environment that does not take these differences into account. In other words, people with physical, sensory or mental limitations are often disabled not because of a diagnosable condition, but because they are denied access to education, labor markets, and public services. This exclusion leads to poverty and, in a vicious circle, poverty leads to more disability by increasing people's vulnerability to malnutrition, disease, and unsafe living and working conditions." (Latin America & Caribbean Region, World Bank, December 2, 2004)

Many persons presently characterized as "disabled" have the potential to participate socially, politically and economically, but they are physically excluded. However, a significant number of people with disabilities can become a productive and contributing member of society if appropriate impact assessment and mitigation are utilized. The cycle of impairment, disability, and poverty is made up of both

physical and social barriers for disabled persons. Universal design techniques can remove many physical infrastructure impairments and allow people otherwise considered disabled into society, reducing social costs from unnecessary pensions or welfare and making them contributors to the economic GDP of the country.

Providing Knowledge and Skills to Bureaucrats about Mainstreaming Universal Design Through Specialized Training

Mercier, Jean-Roger; World Bank, 1818 H Street NW, Room MC5-139, Washington, DC 20036 USA. +1-202-473-5565. jmercier@worldbank.org www.worldsafeguards

Alton, Charles; Global Environmental Solutions, 11066 NW Valley Vista Road, Hillsboro, OR 97124 USA. +1-503-351-2142. charles.alton@earthlink.net

The World Bank has worked with Charles Alton of Global Environmental Solutions since 2003 to identify which of the points of entry provided by the Bank's environmental and social safeguard policies (see www.worldbank.org/safeguards) could be used to mainstream disabilities and universal design into Bank-funded activities. Two analytical reports and one pilot training later, training on the subject is being mainstreamed in the Bank's intensive safeguard training program. The process of providing incentives to operational staff to participate in such training, as well as the actual delivery and evaluations of such training sessions are analyzed in this paper. Recommendations are made to improve these courses, their delivery, their impacts and the incentives to participate.

Universal Design: Defining Human Diversity in Spatial Planning and Impact Assessment

Bringa, Olav Rand; The Ministry of the Environment, Myntgt. 2, Postboks 8013 Dep, Oslo 0030 Norway. 22245911. Fax 22242759. orb@md.dep.no <http://odin.dep.no/md/>

The strategy universal design emphasises the necessity of an accessible and usable environment for all citizens. A core issue is the requirements of people with disabilities. The strategy is firmly attached to basic human rights and related to planning for social sustainability. Universal design is one of more instruments addressing the challenges of a growing component of old citizens in the population.

The Norwegian Government uses universal design as part of the mainstream policy, including the strategy in all relevant areas. A five-year action plan was implemented in 2004 addressing the fields of activity of sixteen ministries. Universal design is adapted in regional and spatial planning by adjustments in the Planning and building Act, the development of National Policy Guidelines for universal design and Regulations on Environmental Impact Assessments.

Through research, experience analyses and municipality pilot projects indicators for planning and impact assessment are generated.

Universal Design and Tourism: A Missing Link In Impact Assessment

Underwood, Benjamin; Global Environmental Solutions, 3 Queen St., Unit 301, Charleston, South Carolina 29401 USA. 8438708008. globalenviron@aol.com

Alton, Charles; Global Environmental Solutions, 9745 Conservation Drive, New Port Richey, Florida 34655 USA. 5033512142. charles.alton@earthlink.net

Current estimates of disabled people are over 600 million worldwide. The number of disabled persons is steadily increasing as medical advances create healthier and longer life. The population over sixty years old currently numbers in the hundreds of millions worldwide and is expected to quadruple in the next few decades. Of this expanding group, 50-60% are likely to have some form of disability. Studies indicate disabled persons travel at a rate comparable to non-disabled persons, especially from more developed countries; however, the accessibility of destinations is deemed crucial by these prospective tourists.

Universal design improves accessibility for all persons encountering mobility/activity difficulties including everyday situations (e.g., temporary disability from accidents, parents with baby carriages, small children or older persons).

Plus, real accessibility has a substantial economic dimension. A recent Australian study estimated 3.7 million trips by physically disabled people with an average travel group of 4.1 people. The total amount spent by people with disabilities on their last holiday adds to approximately \$472 million Australia wide. When translated internationally, the impact of people with disabilities tourism market is far too significant to ignore and countries that aggressively encourage the disabled tourist will benefit enormously.

CS 3.4 PLANNING AND ZONING, THE FORGOTTEN ASPECT OF PROJECT DEVELOPMENT

Small Scale Projects and Their Impact to the Environment: An Examination of Screening Guidelines and Planning Process in Tanzania

Mchome, Beatrice; East Africa Resource Group, -, P.O Box 72462, Dar-es-Salaam, Tanzania. +255748-464816. Fax +222410393. bmkilenga@hotmail.com -

Many forms of development projects, regardless of their size, impact on the environment. With inadequate screening procedures and guidelines coupled with poor planning for these development projects, the negative impacts to the environment are accelerated.

In Tanzania, the newly enacted Environmental Management Act (Act No 20 of 2004) outlines the need for EIA for projects that are likely to impact the environment. The EIA Regulations provides details on the screening procedures and outlines a list of projects requiring mandatory EIA and those that may or may not require EIA. The list of projects that may or may not require mandatory EIA is primarily made of small-scale projects. This screening process may lead to leaving out a large number of projects that may affect the environment due to their cumulative effect. With poor urban planning in Tanzania, development projects will have more negative impacts to the environment.

This report will present findings on the impact of such unclear screening and make recommendations for improving the EIA process.

EIA as a Tourism Planning Tool: Case Study in Oman

Rady, Adel; Center for Design and Development, P.O. Box 1952, Al Ouzeba, Muscat, Sultanate of Oman 130 Oman. +968 2 449 0764. Fax +968 2 449 0763. adelrady2@hotmail.com

Abul-Azm, Ahmed; Cairo University, 1 M. Abul-Azm Street, Maadi, Cairo, Egypt 11431 Egypt. +202 359 3261. Fax +202 358 7690. ecma@access.com.eg

Omani Tourism witnessed a rapid growth in the last five years. This was reflected in the rapid development of the remote desert areas in Oman as a response to the increasing demand of tourists to virgin tourist attractions. One of the major examples representing this trend can be identified in the case of tourism development of Dhofar governorate in Oman. Its location and its wealth of natural and heritage resources represented an attraction to tourists coming from other Arabian Gulf countries and from Europe.

Several types of environmental impacts were identified as a result of tourism development in Dhofar. Negative impacts that could occur if tourism development is poorly planned, designed and managed in the province include air pollution from vehicular exhausts of increased tourist vehicles, water pollution from untreated waste water generated by tourist facilities, noise pollution from tourist vehicles and gatherings of tourists, congestion at popular tourist sites by visitors, inappropriate grading of the landscape, littering of tourism sites and improper disposal of solid waste, marred of tourist attractions and facilities by graffiti and vandalism, and excessive removal of flora and fauna and disruption of natural ecosystems by inappropriate tourism development or tourist use of the area.

Planning and Zoning: The Forgotten Aspect of Project Development

Fleischauer, Patricia; ENSR, USA. 978-589-3262. pfleischauer@ensr.com

Project development routinely begins with the question of "what permits do we need?" Fortunately it is generally recognized that a project must address the potential impacts that it will have on the environment and responsibly develop means to mitigating these during project construction and operation. Often forgotten is the issue of whether the proposed development will actually be allowed at the site that has been selected. Under the title zoning, master planning or land allocation local and/or federal governments exercise control over site development. The process of site development approval typically runs parallel to project environmental review. Documents prepared and used for the one process quite often are required for the second process. Because of the overlap in the agencies that participate in these parallel processes, project proponents often see this as duplicative and unnecessary. Rather the processes are complementary and if identified at the start of development the studies and analyses needed to support both can and should be coordinated in order to meet project cost and schedule objectives. This discussion will explore these parallel processes as they are implemented in several countries, identify the common elements and provide examples of how both can be effectively pursued simultaneously.

CS 3.5 LAND USE PLANNING AND TRANSPORTATION

Using a Cost-Benefit Analysis to Select the Optimal Flood Protection Measures

Broekx, Steven; VITO, Boeretang 200, Mol, 2400 Belgium. 0032 14 33 59 59. steven.broekx@vito.be

De Nocker, Leo; VITO, Boeretang 200, Mol, 2400 Belgium.
0032 14 33 59 59. leo.denocker@vito.be

Liekens, Inge; VITO, Boeretang 200, Mol, 2400 Belgium. 0032
14 33 58 86. inge.liekens@vito.be

Smets, Steven; International Marine and Dredging
Consultants, Wilrijkstraat 37, Borgerhout 2400 Belgium. 0032
3 270 92 92. steven.smets@imdc.be

Bulckaen, Dirk; International Marine and Dredging
Consultants, Wilrijkstraat 37, Borgerhout, Belgium. 0032 3 270
92 92. dirk.bulckaen@imdc.be

Gauderis, Johan; Resource Analysis, Wilrijkstraat 37,
Borgerhout, Belgium. 0032 3 270 00 30. jga@resource.be

The Scheldt estuary is a tidal estuary. Tides create unique ecosystems, but also important risks for flooding in a highly urbanized and industrial area. The estuarine nature is at risk because of urban-industrial developments. The riparian states Belgium and The Netherlands have agreed to develop a long-term strategy for a more safe, natural and accessible river, considering sea level rise. For this purpose, Flemish and Dutch governments commissioned a cost-benefit analysis of flood protection measures.

Within the cost-benefit analysis framework, a series of models of different scientific disciplines was integrated. Results of cost-calculation, hydraulic, ecological and agricultural models were used to assess measures. Flood protection was evaluated on a risk-based approach.

Measures evaluated include storm surge barriers, dike heightening and floodplains. Constructing reduced tide areas which allows creation of new wetlands was assessed. Nature development benefits were considered when comparing costs and benefits of these measures. An optimal flood protection strategy was developed, and it was tested using different kinds of uncertainty analyses.

The analysis showed that cost-benefit analysis is a very useful approach to assist decision-making processes on designing flood protection measures and the approach is applicable to other estuaries.

The Recovery Plan for the Area at High Risk of Environmental Crisis (Ancona, Falconara and Lower Esino Valley), Marche Region (Italy): An Integrated Governance and Planning Model

Federiconi, Lorenzo; Regione Marche, via Tiziano 44, Ancona, 60100 Italy. +390718063530. Fax +390718063012.
lorenzo.federiconi@regione.marche.it

A portion of the territory of Marche Region (Italy), was declared a nationally relevant Area at High Risk of Environmental Crisis, due to a troublesome coexistence of high density settlements, highly hazardous plants, and internationally relevant infrastructures. Many environmental factors are in a critical condition.

After the declaration a series of scientific studies was carried out by a joint work group including experts from universities, consultants and public officers belonging to different disciplines and sectors. These studies allowed to identify the main critical points and especially the high level of complexity of the environmental situation in which each problem has a feedback on the others.

So this has been the occasion to undertake a process of concerted governance in which all relevant stakeholders (public administrations at different levels, private-public consortia managing infrastructures such as transport, energy provision etc., private companies) are involved.

Such process led to the elaboration of the Recovery Plan for this area. The Plan is an innovative, integrated instrument that steers the territorial transformations towards

environmental sustainability. The Plan is one of the first in its kind to test a governance model at the local planning level with a view of the wider territorial context.

Environmental Impact Assessment of Federal Tourism Developments in Mexico

Pisanty-Levy, Julieta; EIA Counseling and Training, Horacio N 1834-301, Col. Polanco, Mexico, D.F. 11550 Mexico. +52 (55) 52-80-95-95. Fax +52 (55) 52-80-95-95. andermann@prodigy.net.mx

Federal tourism developments in Mexico are achieved through a land use planning and zoning procedure by the National Trust Fund for the Development of Tourism (FONATUR).

As a trust, this institution is in charge of the identification of appropriate sites and areas for national tourism activities as well as for project design. The main objectives are regional development, creation of permanent jobs, the generation of foreign revenue and promotion of Mexico's image abroad and overseas. This in turn has made tourism one of the most dynamic sectors of the Mexican economy.

As other institutions and agencies of the Mexican Federal Government, FONATUR is entitled to submit its regional developments and specific projects to the Environmental Impact Assessment Procedure according to the General Ecological Balance and Environmental Protection Act, the EIA Bylaw and the environmental standards.

The Environment and Natural Resources Secretariat (SEMARNAT) assesses and authorizes the environmental impact statements of tourism master plans and projects, among others.

The main purpose of this paper is to present FONATUR's internal tourism planning procedure and the way their Master Plans and infrastructure projects are analyzed and reviewed through the Federal EIA proceedings.

CS 3.6 TRANSPORTATION, EMISSIONS, AND SOCIAL IMPACTS

Detroit River International Crossing Project—Public Participation in an International Transportation Project

Stiff, Kaarina; Transport Canada, 330 Sparks Street, Place de Ville, Tower C, 19th Floor, (AHSA), Ottawa, Ontario K1A 0N5 Canada. 613-990-2861. Fax 613-990-9639. stiffk@tc.gc.ca

Wake, Dave; Ontario Ministry of Transportation, 659 Exeter Road, London, Ontario N6E 1L3 Canada. 519-873-4559. Fax 519-873-4600. dave.wake@mtg.on.ca

The Detroit River International Crossing (DRIC) Project is a coordinated effort by the governments of Canada, the United States, Ontario and Michigan to examine options for adding border crossing capacity in Windsor-Detroit.

The purpose of this coordinated environmental assessment is to provide for the safe, efficient and secure movement of people and goods across the Canada-U.S. border while maintaining acceptable local traffic movement and minimizing impacts on affected communities.

This border crossing is vitally important to the local, regional and national economies. At the same time, the issues associated with planning new transportation

infrastructure of this magnitude is highly complex. Moreover, the study must be designed to meet the environmental assessment requirements of each jurisdiction.

This study provides a practical example of how a coordinated EA process can be effectively implemented for a complex project. In Canada specifically, it demonstrates coordination of federal and provincial EA legislation.

This paper will summarize the DRIC Study, highlighting challenges and solutions identified by the project team to date, including: competing scheduling interests (too fast versus too slow); early engagement of government agencies (gaining agreement on information needs early in the process), and the implementation of a comprehensive public consultation program.

Regulations and Guidelines for the Environmental Assessment of Road Projects in Lao PDR

Rattana, Phaknakhone; Ministry of Communication Transport Post and Construction/DoR/Environmental and Social Division, Lane-Xang Avenue, Sisattanak, Vientiane 1471 Lao, PDR. 856-21 412264. Fax 856-21 414132. monoidesu@yahoo.com

Laos is under developing country status to 2020 synonymous with eradication of mass poverty. Therefore the National Development Objective could be formulated on infrastructures development. Activities of project construction such as road or dam operations may potentially affect the environment in a number of ways. For example, environmental concerns can stem initially from poor design and planning; mobilization of construction crews; construction camp maintenance; storage, reservoir and handling of wastes and hazardous materials; location of borrow pits and quarry sites; associated earthworks; drainage design; etc.

Norway is a developed country, leading the world in technology and sustainable environmental management and also natural resources preservation. The standard of qualification of Stavanger Forum is very high to train researchers and engineers to play a leading role in impact assessment in the formulation long-term/short-term core project programs such as environmental engineering or national development plans that would be applied for Laos. It should be noted that developing the role of impact assessment is normal and sound engineering practice for the preservation and restoration of environment.

Do Women Drive Sustainable Mobility in the Developed World? Results from an Activity-Based Survey

Beckx, Carolien; VITO, Boeretang 200, Mol, 2400 Belgium. +32 14 33 59 58. Fax +32 14 32 11 85. carolien.beckx@vito.be

Int Panis, Luc; VITO, Boeretang 200, Mol, 2400 Belgium. +32 14 33 58 87. luc.intpanis@vito.be

Torfs, Rudi; Vito, Boeretang 200, Mol, 2400 Belgium. +32 14 33 58 56. rudi.torfs@vito.be

Wets, Geert; IMOB - Transportation Research Institute, Wetenschapspark 5, Diepenbeek, 2400 Belgium. +32 11 26 91 58. geert.wets@uhasselt.be

Janssens, Davy; IMOB - Transportation Research Institute, Wetenschapspark 5, Diepenbeek, 3590 Belgium. +32 11 26 91 28. davy.janssens@uhasselt.be

Broekx, Steven; VITO, Boeretang 200, Mol, 2400 Belgium. +32 14 33 59 59. steven.broekx@vito.be

An activity-based survey gathers activity diary data from household members during a certain time period. An analysis on the activity diary data from a small case study in Belgium

revealed some interesting differences in travel behaviour between men and women. In most cases the women in the survey did not only perform their own commuter trips, but they were also responsible for the school trips of their children and the household shopping trips. Due to this, they performed more and shorter trips during a day than men. Other differences in travel behaviour concerned disparities in average driving speed and average positive acceleration during a trip. Trips made by women were, on average, driven at lower driving speeds but with higher positive accelerations than trips made by men. When converting these driving parameters into emission estimates, the differences in travel behaviour resulted in significant differences in traffic air pollution. Men seemed to emit more emissions per trip, caused by the larger trip distances, but women seemed to emit significantly more emissions per kilometer, caused by the driving behaviour during their trips. This approach opens up new perspectives when aiming research on gender-linked disparities in traffic air pollution.

Towards Sustainable Mobility between Québec and Saguenay

Michaud, Claire; Transports Canada, 901 cap Diamant, Québec, Québec G1K 4K1 Canada. 418-826-0322. michauc@tc.gc.ca

Martel, Donald; Transports Québec, 3950 boul. Harvey, Jonquière, Québec G7X 8L6 Canada. 418-695-7916. d.martel@mtq.gouv.qc.ca

In the context of sustainable development, Transports Canada and Transports Québec support sustainable mobility projects, which increase efficiency and improve mobility and security of the national highway system and help reduce GHG emissions along trade corridors. Twinning 167 km of Highway 175, of which 134 km are in a wildlife reserve in the heart of the boreal forest, is a good example of this. The project, linking an urban centre to a Nordic region, was driven by socio-economic objectives and provided an opportunity to set an example of sustainable mobility by adding environmental objectives. The environmental assessment is an excellent tool for integrating sustainable mobility into the project planning. For this project, it led to the development of new concepts for protecting fishing resources, a list of creative mitigation measures to reduce the effects of the project on the environment and to an innovative project to compensate for the inevitable loss of fish and wetland habitat. The fragility of the wildlife reserve made it necessary to promote stakeholder awareness of this environment. To materialize the sustainable mobility character of this project, a training and awareness program and detailed environmental monitoring and follow-up programs will be implemented.

CS 4.1 INDIGENOUS PEOPLES AND DEVELOPMENT ISSUES

Ethnic Minorities, Development Issues and Hydropower in Lao PDR

Sparkes, Stephen; NORPLAN/Multiconsult, Holtevegen 5, P.O. Box 280, Ski, 1401 Norway. (47) 64855618. Fax (47) 64855555. steps@multiconsult.no

The paper outlines how ethnic minority concerns have been integrated into the planning for a large hydropower development scheme in Lao PDR, the 1060Mw Nam

Theun 2 Dam. The construction of the dam will necessitate the resettlement of about 6000 ethnic minority people and the development of new livelihood options. The paper is divided into three sections. In the first section, an overview of the project is presented, including the impacts on the ethnic minority groups and adjacent areas. The second section will discuss and evaluate the methods used to collect data and the consultation process that attempted to ensure that the concerns of the affected people were integrated into project planning. This covers a range of issues, such as cultural heritage, new site selection, livelihood options, effective communication and attention to cultural beliefs. The third section discusses ethnic minority issues in relation to development options and strategies groups that are not yet integrated or may not want to be integrated into mainstream market economies. Here the important issues of rights to land and resources and the maintenance of cultural diversity will be examined, and how these aspects are integrated into project planning and the Impact Assessment process.

State Ethnological Expertise or Ethno-Cultural Assessment? Theoretical Problems and Real Practice. Case Study of Russia.

Filin, Pavel; Ecoline EA Center, Valovaya Str. 32/75, office 408, Moscow 115054 Russia. +7 095 236 1027. Fax +7 095 236 1027. pfilin@eac-ecoline.ru

The paper presents the concept of ethno-cultural assessment in the Russia versus the concept of State Ethnological Review/Expertise and explains the difference between these two approaches to project appraisal. The necessity of ethno-cultural appraisal comes from the experience of some project implementation that has resulted in negative impacts on ethno-cultural environment and the public has demanded "Ethnological Expertise." In response to these demands, a draft law on "State Ethnological Expertise" was initiated. It is suggested that the State Ethnological Expertise be a State control service, which decides whether to support a project or to reject it.

The conception of the law is being criticized. Taking into consideration the lack of clear definition of the terms "ethnicity" and "ethnos," a misuse of such a law seems to be very possible. In contrast we suggest the concept of ethno-cultural assessment as a proponent's instrument, which can help to improve a project by consideration of ethno-cultural aspects. The main components are the procedures of public participation, access to relevant information and quality control of documentation. Ethno-cultural assessment should be an integrative part of other types of assessments at various levels – SEA, ESIA, OVOS.

Indigenous Reindeer Herders' Knowledge and Assessment of Vulnerability to Climate Change

Mathiesen, Svein D.; Saami University College, Kautokeino, Kautokeino 9520 Norway. +4790524116. Svein.d.mathiesen@veths.no

Nomadic reindeer herding is the most extensive form of animal husbandry in the Eurasian Arctic and sub-Arctic. Some 3 million reindeer provide the basis of the livelihood for more than 20 ethnic groups. Climate variability, climate change and societal/cultural transformation associated with globalization have been responsible for major changes in the environment and the cultures of indigenous peoples in the Arctic. Analyses of vulnerability is a procedure through which the potential impacts of these changes on human-environmental system are examined in relation to the systems resilience and its ability to adapt to change. We recognize that reindeer herders' ability to adapt to change is based on their indigenous knowledge embodied in the language, the institutions of herding, the

action of individual herders, in herders' experience and insights. Reindeer herders' understanding is based on generations of experience accumulated and conserved in herders' specialised vocabulary. Reindeer herders have to be able to read nature and predict situations that can disturb the welfare and reproduction of their herds. We attempt to use this kind of knowledge in partnership with reindeer herders, in analyses of vulnerability to change and together prepare the society for climate change through understanding.

CS 4.2 INDIGENOUS PEOPLES AND BIODIVERSITY

Impact of Removing Exotic Forests from Newly Established National Park

Mondlane, Margaret; Sesikhona Services, PO Box 67060, Highveld, Gauteng 0169 South Africa. +27 12 665 1380. Fax +27 86 671 7236. margaret@sesikhonas.com www.sesikhonas.com

This paper focuses on the impacts of removing exotic tree forests from the newly founded Blyde Canyon National Park in South Africa.

This park was established in 2005 and incorporates a Provincial Nature Reserve, host to the third largest canyon in the world. It also incorporates a state forest area that contains pine and eucalyptus tree plantations and the only Afromontane indigenous forests to be in a national park in South Africa. For the establishment of the new park, the state forest area is being clear-felled to rehabilitate this land back to its original condition prior to the exotic tree afforestation. We completed a rapid socio-economic assessment for the IUCN to determine the impacts of this land use change. We are currently conducting the exit strategy to investigate human resource and energy impacts and legal options. Do the long-term positive environmental impacts and potential socio-economic benefits outweigh the negative short-term socio-economic impacts? South Africa is a water-stressed country which views exotic timber plantations as large consumers of water that negatively impact on the catchment management strategies, hence the decision to clear fell.

Inuvialuit Involvement in Impact Assessment and Development in Canada's Western Arctic

Klassen, William J.; Environmental Impact Screening Committee, 107 Mackenzie Road, P.O. Box 2120, Inuvik, Northwest Territories X0E 0T0 Canada. 867 777 2828 or 633 2443. Fax 867 777 2610. wjk@yknet.ca

Inglangasuk, Christine; Environmental Impact Screening Committee, 107 Mackenzie Road, P.O. Box 2120, Inuvik, Northwest Territories X0E 0T0 Canada. 877 777 2828. Fax 867 777 2610. eisc@jointsec.nt.ca

The Inuvialuit of the Western Arctic achieved a land claim agreement with the Canadian government in 1984. The Inuvialuit Final Agreement (IFA) provided the Inuvialuit with certain rights, land and funding. The IFA established a process for environmental impact assessment.

The Environmental Impact Screening Committee and the Environmental Impact Review Board—half of whose members are Inuvialuit and half are government appointees—assess the potential impacts of development projects in the Inuvialuit Settlement Region. Natural gas exploration in the Mackenzie River Delta in support of

the Mackenzie Gas Project has emphasized the importance of Inuvialuit involvement in impact assessment of such projects in their traditional territory.

The Inuvialuit Development Corporation is a significant participant in the search for and development of natural gas reserves in the Settlement Region through joint-ventures with seismic exploration and drilling companies. The Corporation will, through the Aboriginal Pipeline Group, share a one-third interest in the Mackenzie Gas Project.

The active involvement of Inuvialuit companies in natural gas exploration and development, and participation by Inuvialuit in impact assessment of such development, is a current example of the effort to find a satisfactory balance between resource development and Inuvialuit traditional land use and harvesting practices.

Land Claims and Their Contribution to Biodiversity Protection in Northern Canada

Klein, Heidi; Gartner Lee Limited, 3015 5 Ave NE Suite N195, Calgary, Alberta T2A 6T8 Canada. (403) 262-4299 x 5422. Fax (403) 264-8412. hklein@gartnerlee.com www.gartnerlee.com

Snortland, Jody; Sahtu Renewable Resources Board, P.O. Box 134, Tulita, Northwest Territories X0E 0K0 Canada. (867) 588-4040. director@srrb.nt.ca www.srrb.nt.ca

The Canadian government has negotiated arrangements or claims with its aboriginal people in its northern territories: the Yukon, the Northwest Territories, and Nunavut. Elements of these claims include measures for wildlife management through the use of co-management boards with aboriginal and government membership. This paper will review the contribution to biodiversity that these boards may have.

CS 5.1 THE CBD (CONVENTION ON BIOLOGICAL DIVERSITY) AND CASE STUDIES

Agenda Item 'Impact Assessment' – Discussion and Outcomes at the 8th Conference of the Parties to the Convention on Biological Diversity in Curitiba, Brazil

Mayer, Sabine; Federal Environment Agency, Spittelauer Laende 5, Vienna, 1020 Austria. + 431313043311. sabine.mayer@umweltbundesamt.at www.umweltbundesamt.at

The 8th Conference of the Parties (COP 8) to the Convention on Biological Diversity (CBD) takes place on March 20-31 in Curitiba, Brazil. Article 14 of the Convention calls on Contracting Parties to apply environmental impact assessment and strategic environmental assessment to proposals with potential significant adverse effects on biological diversity.

A series of decisions have been adopted by the CBD on impact assessment, which, *inter alia*, request to develop guidelines for assisting Parties in incorporating biodiversity-related issues into EIA and SEA legislation and procedures. These guidelines were adopted at COP 6 in 2002. COP 6 also requested the Executive Secretary to compile and disseminate experiences and case studies for further development and refinement of the guidelines. In collaboration with IAIA and the Netherlands Commission for Impact Assessment, proposals for refined guidelines have been prepared, which shall be presented and adopted at the 8th meeting of the Parties in Curitiba.

From the viewpoint of a member of the Austrian EU presidency team, the presentation will focus on some of the key discussion points raised at COP 8 under Agenda Item "Impact Assessment" and will present the discussions and final outcome.

The Usefulness of Environmental Servitudes in Environmental Impact Assessments

Holgate, Claudia; University of the Witwatersrand, 1131 Plovers Nest, Box 641 Featherbrooke, Mogale City, Gauteng 1746 South Africa. + + 27 11 662 2276. Fax + + 27 11 507 5231. holgate@worldonline.co.za

South Africa is currently experiencing a development boom which is creating a significant threat to many endemic and endangered plant and animal species. Protection of these environmentally sensitive areas, particularly when under private ownership is an issue for all environmental authorities. The opportunity to formally protect these sensitive areas often only occurs during town planning and environmental impact assessment processes. This paper will examine two approaches of local councils with regards to the use of environmental servitudes, one in Durban and the other in Mogale City. The Durban example sets aside specific land, on a case-by-case basis, depending on the sensitivity of the area. It further encourages management of these areas through an open and transparent process with the landowner, as well as, the use of economic instruments, such as tax relief, for managing the undeveloped land. The Mogale case study requires a uniform 15% of all new developments to be kept as open space areas, regardless of sensitivity. This paper will examine the effectiveness of these two approaches and will provide individual case studies within each city.

Impact Assessment and Biodiversity Considerations: A Case Study of Niger Delta University Campus Development Project on Wildlife of Nun River Forest Reserve in the Niger Delta

Hamadina, Mohammed; Biogeochem Associates Ltd., 1 Omoku Street (by Ndashi Str), D-Line, Port Harcourt, Rivers State Nigeria. + 234-8033403544. m.hamadina@biogeochem.com www.biogeochem.com

Dimie, Otobotekere; Rivers State University of Science and Technology, Nkpolu Oroworuko, Port Harcourt, Rivers State Nigeria. + 234-84-485733. info@biogeochem.com

Anyanwu, Donald; University of Port Harcourt, Choba, Port Harcourt, Rivers State Nigeria. + 234-84-485733. info@biogeochem.com

An EIA was carried out for the establishment of Niger Delta University (NDU) campus sited in Bayelsa State of Nigeria. The campus was to be located at the fringe of a Nun River Forest Reserve (NRFR), with access roads passing through NRFR. The NRFR has neither been surveyed nor protected, with no documentation except a 30 year-old gazette; and covers 97.15 km² of humid tropical rainforest characterised by torrential rains, seasonal flooding, and multi-layered vegetation. In order to identify and mitigate/ameliorate the impacts of the project on the biodiversity of NRFR, a wildlife study was conducted as part of the EIA. The results of the study revealed a rich assemblage of wildlife species, of which 12 are enlisted in the 2003 IUCN Red List of threatened species, while 14 are protected by Nigeria's statutes; and they are threatened by human activities. The NDU campus project shall have significant adverse impacts on the wildlife: directly through habitat loss/fragmentation, nuisance, influx of people; and indirectly by exacerbating the existing threats. This paper discusses the impacts of NDU campus on NRFR. Also, conservation-friendly local beliefs/practices that could fit into a wildlife management plan are discussed.

Establishment and Application of Eco-Environmental Risk Assessment System of Highway: A Case Study from G315 Yitunbulake-Qiemo Section of Xinjiang

Zhou, Huarong; Xinjiang Institute of Ecology and Geography, CAS, 40-3 South Beijing Road, Urumqi, Xinjiang 830011 China. 86-991-7885445. Fax 86-991-7885320. zhouhr@ms.xjb.ac.cn

Qian, Yibing; Xinjiang Institute of Ecology and Geography, CAS, 40-3 South Beijing Road, Urumqi, Xinjiang 830011 China. 86-991-7885369. Fax 86-991-7885320. dt6@ms.xjb.ac.cn

The ecoenvironmental risk assessment system of highway, based on the Analytic Hierarchy Process and specialists' ideas, is set up. To give prominence to the spatial attribute of each assessment index, the weight values were determined by the magnitude of special range that was influenced by assessment index. By translating relative maps using GIS, the influenced range of environmental factors, the area occupied, was determined. The lengths impacted by disaster factors were measured by the route reconnaissance and design. The results of applying the assessment system to evaluate the ecoenvironmental risk assessment of G315 Yitunbulake-Qiemo section of Xinjiang shows that the ecoenvironmental risk indices of the road region, ERA are between 1.55 ~ 3.23. According to the heterogeneity of the ecoenvironmental vulnerability indices and disasters indices included in ERA, we used 4 risk ranks to assess the eight units of landscape ecology in the Yitunbulake-Qiemo section of G315 highway, which factually reflects the characteristics of the ecoenvironmental risk for the highway.

CS 5.2 METHODS AND APPROACHES

From Waste of Time to Useful Tool—Changed Perception Of Sustainability Appraisal—An Ecologist's Views

Olsson, Gunilla A.; Norwegian University of Science and Technology, Dept. Biology, Trondheim, N-7491 Norway. +4773596074. gunilla.olsson@bio.ntnu.no

Ecologists have studied the effects of land use changes on biodiversity at landscape and population levels in mountains in mid-Norway. Large-scale ecological changes have been revealed over a period of 50 years—from elevation of tree-line to declining grassland plant populations. With low expectations we entered the challenge of sustainability appraisal (SA) of our study site. This was a collaborative effort of ecologists, social scientists and stakeholders in the mountains. Step by step our perception of this effort changed and during the work it became evident that the SA process is a valuable tool for understanding and reflecting upon driving forces behind land use changes—and thus facilitating a more thorough understanding of causes for biodiversity changes, as well as for assessing measures for their conservation. The SA tool also functioned as a means for the stakeholders for reflections on their possibilities for influencing the societal changes. The paper will illustrate this experience from the Jotunheimen mountains in Norway.

Impacts of Region-Wide Urban Development on Biodiversity in Strategic Environmental Assessments (SEA)

Zetterberg, Andreas; Royal Institute of Technology, Dept of Land and Water Resources Engineering, Brinellv. 28, Stockholm, SE-100 44 Sweden. +46 8 790 6558. aze@kth.se

Mörtberg, Ulla; Royal Institute of Technology, Brinellv 28, Stockholm, SE-100 44 Sweden. +46 8 790 86 08. mortberg@kth.se

Balfors, Berit; Royal Institute of Technology, Brinellv 28, Stockholm, Sweden. +46 8 790 63 52. balfors@kth.se

Gontier, Mikael; Royal Institute of Technology, Brinellv 28, Stockholm, SE-100 44 Sweden. +46 8 790 73 77. gontier@kth.se

In urbanising regions, urban sprawl and infrastructure cause profound alterations of natural habitats. Moreover, initial decisions on urban expansion and major infrastructure investments are often made on a strategic level where the long-term development of an urban region is determined. For this type of decisions, a strategic environmental assessment (SEA) can be prepared, which addresses the environmental impacts of a strategic decision. The project focuses on effective methods for biodiversity analysis on landscape and regional levels. Problems that are addressed concern habitat loss, fragmentation and degradation caused by large-scale urbanisation and infrastructure. A landscape ecological indicator system, based on requirements of sensitive species, is developed for measuring habitat quality and connectivity in the landscape for species tied to defined habitat types, in a quantitative and systematic way. The study area is situated in the Mälardalen region in Sweden. Two case studies are presented, one concerning a single, highly urbanised municipality and one concerning a larger area, involving four municipalities. The results will lead to conclusions on the ecological consequences of the plans on a landscape level, useful as decision support in SEA.

Assessment of Endangered Plant Species in South Korea

Lee, Hyun-Woo; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul, Korea. 82-2-380-7768. hwlee@kei.re.kr

Kwon, Young Han; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul, Korea. 82-2-380-7660. yhkwon@kei.re.kr

Choung, Heung-Lak; Korea Environment Institute, 613-2 Bulgwang-dong, Eunpyeong-gu, Seoul, Korea. 82-2-380-7752. chlak@kei.re.kr

Biodiversity is an essential issue in conservation and its damage in proposed development can be reduced by environmental assessment. Developed countries implement environmental assessment to protect species diversity using their own national red lists. However, there has been lack of a national red list for many developing countries, including South Korea. A provisional species list and an explicit evaluation method of conservation values that include species rareness, endemism, and traditional usage of biological resources are needed for those countries.

This research suggested 10 criteria, with five sub-criteria for each criterion, which can be used in evaluating conservation value of plant species. The criteria include taxonomic distinctiveness, geographic range, population size, habitat stability, extinction status, human use, etc. According to averaging numbers of each criterion, the conservation index is acquired and categorized to four levels. The conservation index is applied to assess endangered plant species in South Korea, including 64 species designated by the Wildlife Protection Law. In addition, EIA experiences for conservation of legal endangered plant species in South Korea are presented.

Integration of Biodiversity in Environmental Impact Assessment Studies in Nepal

Khatiwada, Nawa Raj; Nepal Development Research Institute (NDRI), Dhobighat, Lalitpur, Nepal. +977-1-5554975. Fax +977-1-4220161. nawa@ndri.org.np, khatiwada@iges.or.jp

Manandhar, Bhai Raja; Ministry of Environment, Science and Technology, Singha Durbar, Kathmandu, Nepal. +977-1-4247391. Fax +977-1-4225474. osho_brm@yahoo.com, brmanandhar@hotmail.com www.most.gov.np

Biodiversity is strongly tied up with the livelihood of the majority of the population in Nepal and is a major concern in the sites identified for implementing development projects. Thus, it remains the major element of discussion and analysis in these EIA reports. In these contexts, the aim of this paper is to reflect upon the consideration of biodiversity followed in current EIA process. The specific objectives are:

to portray the level and extent of integration of the issues of biodiversity in approved EIA reports in Nepal.

to evaluate the existing impact assessment methods and identify the gaps by comparing them with the government policies and commonly followed norms and principles.

The findings in this paper were based primarily on the secondary information available regarding the Environmental Impact Assessments, in general and the consideration of biodiversity issues in EIA processes, in particular. At least ten approved EIA reports were prepared for hydropower projects, highway and roads, water supply projects, waste management projects, tourism projects and industries. The information on the biodiversity consideration, in different steps of EIA, such as screening, scoping and impact assessment was reviewed and analyzed.

CS 5.3 THE EU BIRDS AND HABITATS DIRECTIVES

Implementation of the EU Bird and Habitat Directive in EIA and SEA in The Netherlands

Kolhoff, Arend J; Netherlands Commission for Environmental Assessment, Arthur van Schendelstraat 800, UTRECHT, 3511 ML The Netherlands. +31 30 2347660. akolhoff@eia.nl www.eia.nl

In fifty percent of all EIAs and nearly in all SEAs, we are dealing with the application of the EU Bird and Habitat Directive because the proposed project or plans which are subject to EIA or SEA affect areas are protected by these directives. In that case we follow a fixed sequence of steps in the EIA and SEA to answer the central question: Will the expected impacts be significant? In case of significant impacts an activity is in principle not allowed despite the proposed activity is of national interest. In that case the loss of protected area should be compensated.

The Netherlands Commission is responsible for scoping of all EIAs and SEAs in The Netherlands and therefore we have developed a procedure and some rules of thumb to deal with the prescribed EU procedure. In addition we have developed a methodology to deal with cumulative impacts in those protected areas. I will present our approach and experiences based upon practical EIA and SEA cases.

Compensatory Measures under Article 6(4) of the Habitats Directive – Methodological Experiences and Requirements

Peters, Wolfgang; Berlin University of Technology, Strasse des 17. Juni 145, Berlin, 10623 Germany. +49-30-314-73324. peters@ile.tu-berlin.de

Köppel, Johann; Berlin University of Technology, Strasse des 17. Juni 145, Berlin, 10623 Germany. +49-30-314-22344. koepfel@ile.tu-berlin.de

In case of unavoidable impairment of areas belonging to the European ecological network NATURA 2000, Article 6(4) of the Habitats Directive requires that compensatory measures must be implemented to preserve the coherence of the NATURA 2000 network.

An international exchange of experience was hosted by the Berlin University of Technology, inviting experts to discuss the technical implementation of compensatory measures in the EU member states. Estimating the results of this event, in the overall context of the coherence of NATURA 2000, four central dimensions regarding the technical requirements for compensatory measures are to be taken into account:

- What? (The functional qualitative aspects)
- Where? (The spatial aspects)
- How much? (The quantitative aspects)
- When? (The time-frame)

Beside these four central questions concerning the quality of compensatory measures, the paper also addresses procedural requirements for the planning, the implementation and the monitoring of the compensatory measures.

The qualification profile of the compensatory measures shows parallels to the ecological compensation demanded in the context of German intervention regulations. So methodological experiences can be used for the calculation of compensatory measures under Art. 6 (4) of the Habitats Directive.

Compensatory Measures for Habitat Loss: Spanish Examples

Arce Ruiz, Rosa M^a; Universidad Politécnica de Madrid, Avda, Profesor Aranguren s/n, Madrid 28040 Spain. 913366694. rarce@caminos.recol.es

Aizpurua Giraldez, Nerea; Universidad Politécnica de Madrid, Avda, Profesor Aranguren s/n, Madrid 28040 Spain. 913366783. naizpurua@caminos.upm.es

The implementation of compensatory measures required by the Habitat Directive is controversial. Nowadays, professionals haven't enough criteria to apply them. The great number of different habitats under the Natura Network make it more difficult. The good experiences can be the reference for new cases, although the real effectiveness is an unresolved matter. In this paper we analyze three Spanish practical examples:

1. The Melonares Dam. It's the first dam in Spain in which compensatory measures have been implemented, primarily, the establishment of a compensation Area. The cost of mitigation and compensatory measures was the 52% of the project budget.
2. The A-381, The Ecological Highway. This highway runs through a protected area containing the most relevant landscapes and ecological richness in Andalucía. For the first time, an integrated Project of Compensatory Measures has been developed, tackling the indirect or diffuse impact the road may cause to the ecosystems. In this case, the cost of the measures was the 30% of the total project.
3. The M-50 Highway. Important measures were implemented for lost habitat of the *Falco naumanni* compensation. Examples of correct

compensatory measures were acquiring lands and the construction of a specific building for this bird.

CS 5.4 BIODIVERSITY AND HYDROPOWER GENERATION

Popa Falls Case Study

Tarr, Peter W; SAIEA, 58 Robert Mugabe Avenue, Windhoek, Namibia. +264 61 220579. peter.tarr@saiea.com

The proposed project is a 20 MW hydro power station on the Okavango River in Namibia. A Preliminary Environmental Assessment (PEA) investigated three alternative sites. A full EIA will be required in the next phase.

The proposal is a run-of-the-river scheme and does not require a dam, but rather a weir that will raise enough head to enable power generation. River flow will not be blocked as water will flow over the weir and through turbines in the wall. Inflow will equal outflow.

Likely biophysical impacts (all with transboundary implications):

- Disruption of sediment movement
- Impacts on biodiversity and aquatic ecosystems
- Impacts on the hydrograph
- Spread of alien aquatic weeds, or reeds and papyrus
- Evaporation and seepage

Both government and the proponent have accepted the findings of the PEA and the need for further studies before a final decision can be taken.

Key lessons

- Although this project has strong government support, there was no political interference in the study.
- Biodiversity loss will have serious economic and social implications if not mitigated.
- This case study also shows that, if properly contextualized and presented, biodiversity issues will be taken seriously by high level decision makers.

Status of Biodiversity in Minihydropower Development Projects in Sri Lanka

Karunaratna, Indika; Department of Zoology, University of Peradeniya, Peradeniya, Sri Lanka. +94-81-2394201. indika@science.pdn.ac.lk

The status of biodiversity in EIA in minihydropower projects remains at a very low level. The genetic diversity, abundance, distribution and cumulative impacts are not thoroughly investigated. In particular, the aquatic fauna is highly overlooked. Because of high endemism in the country and restricted distribution of many species, construction of minihydropower plants cause severe threat to certain species. At present no specific guideline exists for placing biodiversity effectively in EIA.

The paucity of expertise, inadequate area specific knowledge in EIA conducting teams as well in Central Environmental Authority (CEA) of Sri Lanka, lack of long-term scientific data and monitoring plans, public participation in EIA, and inconsistencies among state departments are the major barriers for effective integration of biodiversity in EIA.

Preparing a national action plan is vital for effective integration of biodiversity in EIA. A special guideline for mini hydropower sector must be prepared immediately.

Long-term measures would involve establishment of a National Expert Committee, better implementation of the

Fauna and Flora Protection Ordinance, capacity building for officials in CEA, institutional reforms, promotion of scientific research, use of advance tools such as GIS and Remote Sensing, collaboration with foreign experts and organization and active public participation in EIA.

Biodiversity Considerations in the Mega-Hydroelectricity Project in Nepal

Uprety, Batu Krishna; Ministry of Environment, Science and Technology, Secretariat Complex, Singhdurbar, Kathmandu, x P.O. Box 4008 NEPAL. +977-1-4225596. upretybk@wlink.com.np

The 750 MW West Seti Hydroelectricity Project will have, *inter alia*, (a) a 195 m high concrete face rockfill storage dam, (b) 1,989 ha reservoir, (c) a re-regulation weir located 6 km downstream from the tailrace outlet, and (d) permanent access road totalling 20.3 km.

This project will remove 1,090 ha of vegetation permanently, including forests of *Acacia catechu*, *Bassia butyracea*, *Dalbergia latifolia*, and *Aegle marmelos*. The project will also remove 2,441 ha of potential existing fauna habitat on permanent project site including the inundation of the habitat of endangered Yellow Cheeked Tit. Twelve species of plants and 11 species of birds have conservation significance, and three herpetofauna species found in the project area are legally protected. Forty-seven avian species will benefit from the creation of the reservoir (new habitat) which will also serve as the major resting area for long-distance migratory species.

Impact of the project on biodiversity deserves attention for detail analysis, and demands for concerted effort to implement measures for biodiversity conservation through EIA process.

CS 5.5 BIODIVERSITY AND POWER GENERATION

Biodiversity Issues Pertaining to the Operation and Maintenance of High Voltage Power Lines within the Cape Floristic Kingdom

Willemsse, Douw; Eskom Transmission, 60 Voortrekker Road, Bellville, Cape Town, Western Cape 7551 South Africa. +27-21-9159279. Fax +27-21-9159261. douw.willemsse@eskom.co.za

This paper would address the maintenance practices pertaining to the high voltage power line aiming to optimise the quality of supply to the Western Cape and Cape Town. The city is the second biggest metropolis in South Africa, is furthest away from the generating capacity and is situated within an area which is prone to severe weather conditions, both during summer (dry summers and high fire danger index) and winter (heavy rainfall, snow and storms). It will present practical case studies and examples.

Power Generation and Biodiversity Conservation at Cuyutlán Lagoon

Zúñiga-Gutiérrez, Guillermo; Comisión Federal de Electricidad - Division of Construction, Rio Mississippi 71 9 Floor, Col Cuauhtemoc 06500, México, D F 06500 México. 52 (55) 5231 1876. Fax 52 (55) 5229 44 00 / 2673. guillermo.zuniga@cfe.gob.mx

Hernández-Álvarez, Francisco-Javier; Comisión Federal de Electricidad - Division of Construction, Rio Mississippi 71 9 Floor, Col Cuauhtemoc 06500, México, DF 06500 México. 52 (55) 5231 1876. Fax 52 (55) 5229 44 00 / 2673. francisco.hernandez@cfe.gob.mx

EIA was conceived as a tool for predicting environmental effects. However, EIA as scientific procedure is useful for constructing project alternatives that can help the people obtain more benefits from the environment.

Manzanillo Power Plant (MPP), located near the port of Manzanillo, in the Pacific Coast of Mexico, uses fuel oil for electricity generation. The people living in the neighbouring regions of this plant have complained about the discomfort caused by gas emissions. The Mexican National Power Company has not been able to reduce gas emissions due first and foremost to technical limitations, since there is not enough room to install control equipment and there is no other fuel (natural gas) available in the region.

On the other hand, MPP operation is linked to Cuyutlán Lagoon, where continental water intake is low, the lagoon is shallow, which creates a high rate of sediment deposit, and there are fisheries and recreational activities as well. Since MPP water intake is located in the lagoon, the lagoon's hydrodynamics benefit from MPP operation.

In this paper we describe how the environmental impact assessment helped us reach better environmental conditions for social welfare, and how it helped us to maintain the Lagoon resources.

Drivers of and Response to Biodiversity Loss in China: Can Impact Assessment Play a Role in Addressing This Issue?

Li, Wei; School of Environment, Beijing Normal University, No. 19, Xin Jie Kou Wai St., Beijing, P.R. China. +86-10-58804440. weil@bnu.edu.cn

By any definition, China is one of the most biodiverse countries in the world. However, rapid economic growth, large population and insufficient managerial capacity are threatening the Chinese biodiversity conservation. The situation can be characterised by decades of massive pressure on biodiversity values as priority has been given to economic development. Even some recent attention paid to ecological issues and biodiversity conservation has reduced the rate of decline, but has not yet reversed the situation. Here, by analyzing the status quo of biodiversity and the immediate causes of biodiversity loss in China, the underlying drivers of biodiversity loss are investigated, and the shortfalls are summarized of the current biodiversity management system. It is found that the most critical problem remains the lack of effective tools to tackle the fundamental governance weakness in the current approach to biodiversity conservation. So, it is recommended in accordance with the new China EIA law, that biodiversity conservation should be integrated into socio-economic planning and poverty alleviation initiatives by means of biodiversity impact assessment, which is now in a much need of technical methods and successful experience.

CS 5.6 BIODIVERSITY AND POWER GENERATION - WINDPOWER

Offshore Wind Farms—Improving EIA for Better Decision-Making

Koeller, Julia; Berlin University of Technology, Straße des 17. Juni 145, EB 5, Berlin, 10623 Germany. +49/(0)30/314-29618. koeller@ile.tu-berlin.de

Johann, Koepfel; Berlin University of Technology, Straße des 17. Juni 145, EB 5, Berlin, 10623 Germany. +49/(0)30/314-22344. koepfel@ile.tu-berlin.de

Morkel, Leena; Berlin University of Technology, Straße des 17. Juni 145, EB 5, Berlin, 10623 Germany. +49/(0)30/314-73324. leena.morkel@tu-berlin.de

Peters, Wolfgang; Berlin University of Technology, Straße des 17. Juni 145, EB 5, Berlin, 10623 Germany. +49/(0)30/314-73324. peters@ile.tu-berlin.de

The German ecological research on environmental impacts caused by offshore wind farms has produced many results about fauna of North and Baltic Seas and about possible consequences on the marine environment. The question is now on which cause-effect-chains have to be focused in the decision-making process. Empirical studies on several of the 30 EIAs which have been elaborated for offshore wind farms in the German Exclusive Economic Zone show that not all potential impacts, which were analysed in the EIS, may influence the decision-making process in the same way.

In order to support the decision for permission of an offshore wind farm, the EIA must focus its contribution in accordance with the legal standards of the authorisation procedure. Therefore it is necessary to identify key indicators needed for the assessment of the impact on the marine environment as well as for the approval process.

Based on the results of several research projects at the Berlin University of Technology, this paper presents the significant effects of offshore wind farms which would thus in fact be most relevant for the decision. Furthermore it will discuss methodological approaches on assessment criteria and standards to evaluate these impacts.

EIA and SEA for Offshore Wind Farms in the North Sea

Kolhoff, Arend J; Commission for EIA, Arthur van Schendelstraat 800, Utrecht, 3500 GH The Netherlands. +31 30 2347 604. Fax +31 30 2304 382. akolhoff@eia.nl

Draaijers, Geert; Commission for EIA, Arthur van Schendelstraat 800, Utrecht, 3500 GH The Netherlands. +31 30 2346 617. gdraaijers@eia.nl

In the Netherlands about 1500 MW wind generation capacity has been established in the last 15 years. The opportunities for further expansion of the capacity on land are limited. The most suitable locations are already used and a growing number of inhabitants and NGOs oppose more sites on land because of negative landscape effects, noise and shade hindrance. Therefore, the governmental policy goal is to establish 6000 MW off shore generation capacity before 2020. Currently, several EIA procedures for individual offshore wind farms are in progress.

One of the problems encountered for the competent authority is that a sufficient framework for granting permits is lacking. For example, no information is available on the locations best suitable for establishing off shore wind farms. Moreover, information is lacking on cumulative effects of wind farms, for example for migrating birds. This becomes even more relevant as The Netherlands is not the only country along the North Sea which is planning to develop offshore wind farms. Belgium, England, Scotland, Germany, Denmark and Norway all have comparable plans. We feel it is important to perform an SEA on these cumulative effects

and invite representatives from the North Sea countries to join the presentation.

Models, Methods, Case Studies of Impact Assessment of Wind Farm on Biodiversity and Landscape

Marotta, Leonardo; Entropia Snc, via Corridoni 3, Recanati, Macerata I-62019 Italy. + 39 3383518558. Fax + 39 0717575525. leonardo.marotta@entropia-env.it

Deandrea, Gianmario; Entropia Snc, via Corridoni 3, Recanati, Macerata I-62019 Italy. + 39 0717575525. Fax + 39 0717575525. gianmario.deandrea@entropia-env.it

Catorci, Andrea; Università di Camerino, Dipartimento di Botanica ed Ecologia, via Pontoni, 5, Camerino, Macerata I-62032 Italy. + 390737404511. andrea.catorci@unicam.it

Picchio, Stefano; Entropia Snc, via Corridoni 3, Recanati, Macerata I-62019 Italy. + 39 0717575525. entropia@entropia-env.it

Wind farms have a very well-studied impact on birds. Other impacts are in some cases forgotten or underdeveloped. In this work we show how the landscape science is important in order to protect ecosystems, species and respect the Habitat Directives, 92/43/CE. Our cases are studied on Appennini Mountains (Italy) in the bioclimatic belt between 800 and 1200 m. All the areas are close to a European Nature 2000 Net. Landscape diversity is very high, as well as biodiversity. The landscape, geosystem and ecosystem impacts are integrated and cumulative impact analysis is done (Bettini *et al.*, 2000). Historical and cultural analysis is the integration in a holistic analysis.

A general methodology is proposed integrating fieldwork, monitoring methods, geostatistical analysis, forecasting models of noise and particulate matter, and cumulative impact assessment, for both construction and operation phases (Bettini *et al.*, 2003).

Knowledge, Uncertainty and Action

Saglie, Inger-Lise; Norwegian Institute for Urban and Regional Research, P.O. Box 44 Blindern, Oslo, 0313 Norway. 22 95 89 56. Fax 22 60 77 74. inger-lise.saglie@nibr.no

Increasingly we are in situations characterised by uncertainty and risk, indeed we live in what Ulrich Beck has called "risk society." It is just as important to consider the unintended as well as the intended effects. Impact assessment and risk analyses are different *ex ante* techniques for assessing the consequences of today's decisions on future development. The fundamental assumption is that increased knowledge leads to better, more informed and rational decisions. This is linked to a positivistic view on knowledge and a technical-rational model for planning and decision making. However, this model has been heavily criticised, including the discrepancy between the result of such procedures and its effect on decision-making.

This leads to a paradox: on the one hand there is an increasing awareness of the limitations of the model, and on the other hand there is an increasing need for such appraisals. In this paper the question of uncertainty in predictions and the effect on decision making is investigated in a case study of the first Norwegian wind mill park and its effect on white-tailed sea-eagle, a species for which Norway has a particular responsibility according to the Bern Convention.

Biodiversity Issues Pertaining to the Operation and Maintenance of High Voltage Power Lines within the Cape Floristic Kingdom

Willemsse, Douw; Eskom Transmission, 60 Voortrekker Road, Bellville, Cape Town, Western Cape 7551 South Africa. + 27-

21-9159279. Fax + 27-21-9159261. douw.willemsse@eskom.co.za

This paper addresses the maintenance practices pertaining to the high voltage power line aiming to optimise the quality of supply to the Western Cape and Cape Town. The city is the second biggest metropolis in South Africa, is furthest away from the generating capacity and is situated within an area which is prone to severe weather conditions, both during summer (dry summers and high fire danger index) and winter (heavy rainfall, snow and storms). It presents practical case studies and examples.

CS 5.7 JOINT AFF/B&E SESSION: AGRICULTURE, FORESTRY AND FISHERIES: RELATIONSHIPS WITH WILD BIODIVERSITY

Saving Biodiversity in Pastoral Land: Earthwatch Institute's Samburu Conservation Research Initiative, Kenya

Oguge, Nicholas; Earthwatch Institute, Mombasa Road, 4th Fl. Suite 1, Vision Plaza, Nairobi, Kenya. + 254 722 702 970. noguge@earthwatch.org

In Kenya, dry lands constitute two-thirds of the landmass. One such area, the Samburu-Laikipia landscape, is rich in cultural, wildlife and habitat diversities. Biodiversity underpins two important industries here: pastoral economy and wildlife-based tourism. Saving biodiversity in pastoral land presents the great challenge of balancing livestock productivity for a growing human population with conservation. In 2003, Earthwatch developed the Samburu Conservation Research Initiative to (i) make a contribution towards the sustainability of the landscape through research, education and public engagement, and (ii) assess the costs and benefits of different land-use tenure systems for sustainable livelihoods and environment. To achieve these, we (i) developed and support integrated research projects addressing conservation issues, (ii) built supportive communities, and (iii) provide educational opportunities. Currently, six research projects are addressing three thematic areas: (a) Baseline information on (i) water resources, and (ii) critical wildlife habitats; (b) Endangered species conservation, focusing on Grevy's zebra in (iii) protected areas, and (iv) pastoral land; (c) Applied research on (v) carnivore ecology and conflicts with livestock, and (vi) indigenous knowledge and medicinal plants studies. Our capacity building initiative has yielded training of 35 locals at different levels, and engages 22 Kenyan scientists.

Impacts of Woodfuel Production on Biodiversity- A Case Study from Kenya

Koech, Michael; Kenyatta University, Off Thika Road, Nairobi, Nairobi 254 Kenya. 254 (020) 810901-12. Fax 254(020) 8191906. *Prof. Koech'amiacfed@yahoo.com

This paper presents a case study of the impact of woodfuel energy production on the indigenous forests woodlands in Kenya. Woodfuel is Kenya's most critical fuel, providing for about 70% of the total energy demand. It is mainly sourced from the indigenous forests. Over the last 30 years, degradation of forests through overexploitation has led to a 40-60% loss of standing wood volume from most forest reserves. Unless alternative sources of energy are sought, the increasing

demand for woodfuel is likely to lead to a severe loss of savannah woodlands and closed canopy forest.

The paper outlines the importance of impact assessment in ameliorating the adverse impacts of woodfuel energy production on biodiversity in Kenya. It recommends interventions such as training and sensitising the public on the innovative technologies that conserve energy and integration of environmental concerns into energy development, policy and law.

These interventions are intended to reduce overexploitation of the indigenous forests, reduce rampant poverty and to rehabilitate degraded forests Kenya.

Contribution to the Environmental Impact Assessment of the Limbe Power Project: Case of the Independent Valuation of Project Affected Crops

Eric Fondzenyuy, Wirsiy; Limbe Botanic Garden, Gardens, Limbe, South West Province 437 Cameroon. +237 762 72 17. Wirsiyef@Yahoo.Com Wwww.Mcbclimbe.Org

The Limbe Botanic Garden (LBG) provides functions and services that assist the Cameroon government with fulfilling its commitments under international and national protocols and laws. This role is being strengthened as the institution consolidates and expands its programme, through the ongoing transformation into a semi-autonomous institution, The Mount Cameroon Biodiversity Conservation Centre. LBG benefits from an experienced and recognized cadre of professionals including botanists, zoologists, socio-economists, foresters, geographical information system specialists, crop extension experts and outreach specialists that provide a range of research, information and training services.

Because of its status LBG's services are solicited in impact assessment studies, notably fauna and flora, socio-economic and independent valuation surveys. This paper describes the methodology used during the crop valuation studies for the Limbe Power Project. Project Affected Crop owners cultivated a multiplicity of crops ranging from 1 to 16. More than 230 small farms were surveyed. Monoculture plantations were owned mostly by the Cameroon Development Corporation. Crop inventory and valuation techniques differed in the two farming systems.

Survey outcome: inventory of crops per Project Affected Crop Owner, the development of a fair compensation rate for the affected crops and compensation of the affected crop owners.

CS 5.8 CAPACITY BUILDING FOR BIODIVERSITY, PART I

CBBIA: Progress and Highlights

Treweek, Jo; CBBIA, Chancery Cottage, Kentisbeare, Cullompton, Devon EX15 2DS UK. +44 1884 266798. jo@treweek.fsnet.co.uk

CBBIA participants may contribute to this presentation and should all be acknowledged for their dedication and hard work.

The Capacity Building in Biodiversity in Impact Assessment (CBBIA) project is a three-year project managed by the International Association for Impact Assessment (IAIA) and funded by the Netherlands government. The CBBIA project aims to integrate biodiversity conservation with impact assessment and develop capacity among stakeholders in developing countries.

Regional workplans are underway in Southern Africa, Central/South America, South/SE Asia and for Small Island States.

CBBIA has also funded several smaller projects throughout the world and has supported people to attend training on biodiversity and impact assessment.

Some of the results of the project will be set out in this presentation. CBBIA participants will provide more detail in following presentations in the same session.

CBBIA: Getting the Process Started in Asia

Saeed, Ahmad; IUCN - The World Conservation Union, 1 - Bath Island Road, Karachi, 75530 Pakistan. (92)(21) 5374073. Fax (92)(21) 5838106. ahmad.saeed@iucnp.org

The CBBIA Asia Project seeks to build capacity in the South/Southeast Asian regions through training, knowledge transfer, institution building and networking. It is a joint initiative of IUCN Asia, in collaboration with WII and MWBP. The involved partner countries are Bangladesh, India, Nepal, Pakistan and Sri Lanka. The major activities of the project are highlighted below.

A Needs Assessment Survey (NAS) was conducted to identify the understanding and role of biodiversity and EIA and training needs of the identified institutions in the five countries. It helped identify EIA as the sector to focus on and recognized SEA as a more effective tool to protect biodiversity in the region.

An inception workshop helped in the project prioritization process and in developing synergy between the project partners, to ease future collaborative work. Additionally, a contacts consultative workshop to be held in Islamabad, Pakistan, from 16th-19th February 2006, will involve participants from the three sectors – mining, roads and oil and gas – in the process and gain from their contribution. Other project outputs include development of contacts database and EIA Practitioners and Reviewers Guides.

The project will incorporate economic concerns in impact assessment, with relation to biodiversity goods, services and values.

Making Decisions on Biodiversity: The Challenges Faced in Southern Africa

Walmsley, Bryony; Southern African Institute for Environmental Assessment, PO Box 380, Noordhoek, Western Cape 7979 South Africa. +27-21-789-0251. Fax +27-21-789-0257. bw@saiea.co.za

Brownlie, Susie; De Villiers Brownlie and Assocs, 21 Menin Avenue, Claremont, Western Cape South Africa. +27-21-674-4263. dbass@icon.co.za

Tarr, Peter W; Southern African Institute for Environmental Assessment, PO Box 6322, Ausspannplatz, Windhoek, Namibia. +264-61-220579. Fax +264-61-259183. peter.tarr@saiea.com

In recognition of the need to improve the consideration of biodiversity in impact assessments, IAIA initiated a three-year global project with funding from the Dutch government. The project in southern Africa focuses on building capacity within decision-making authorities on biodiversity issues. The first phase of the project was a Situation Assessment to determine the levels of understanding of biodiversity issues and sustainable development principles, the importance attached to biodiversity, how decisions are made, and the criteria used to make trade-offs between biodiversity and socio-economic issues.

The findings of the study showed that biodiversity issues are often compromised in the pursuit of short-term development objectives, due to:

- the way in which biodiversity information is provided to decision-makers in the EIA reports.
- the levels of understanding of the links between poverty reduction, rural livelihoods, sustainable economic development and the value of ecosystem services.
- the criteria used to make decisions.
- the lack of follow-up, auditing and enforcement of EMPs and RODs.

This paper examines some of the main findings and sets out how some of the issues can be addressed through the development of capacity building materials such as a guidance document and training materials.

Capacity Building in SEA and Biodiversity in South America

Garcia de Brigard, Juan Carlos; CBBIA - IAIA, Calle 140 No. 14-13, Bogota, Colombia. + 571 2747045. gardebri@cable.net.co

Quintero, Juan David; The World Bank, 1818 H Street, Washington, DC 20433 USA. + 1.202.4735294. jquintero@worldbank.org

The International Association for Impact Assessment and the World Bank in association with IUCN and some local authorities have started a series of training and capacity building efforts in Strategic Environmental Assessment and Biodiversity. By the end of 2006, three different workshops will be held covering three basic regions: Central America, the Caribbean Islands and the Andean region of South America. A new training methodology has been developed for these reunions, which involve practical training on carrying out an SEA in issues and regions which are important for biodiversity conservation. Parallel to this, an effort has been made to emphasize on the way in which, through SEA, biodiversity can be further protected in these megadiverse regions.

CS 5.9 CAPACITY BUILDING FOR BIODIVERSITY, PART 2

Capacity Building for Biodiversity-Inclusive Impact Assessment: The Findings of the Needs Assessment Survey in India

Rajvanshi, Asha; Wildlife Institute of India, Chandrabani, Dehradun, Uttaranchal 248001 India. + 91-135-2640112 Ext 225. Fax + 91-135-2640117. Ar@Wii.Gov.In

The Asia component of the IAIA-CBBIA project aims to build capacity in the region for promoting good practices to conduct biodiversity-inclusive EIA through initiatives of knowledge transfer and development of guidance tools. The specific guidance tools to be generated under the project are the Practitioners' and Reviewers' Guide to facilitate environmental decision-making based on biodiversity considerations linked to development proposals in key sectors.

The Needs Assessment Survey of the relevant departments was conducted in five south Asian countries to (i) review how biodiversity is taken into account in impact assessment and decision-making, (ii) assess existing capacity of relevant departments for conducting biodiversity inclusive EIAs and their reviews and (iv) build consensus for identification of appropriate guidance tools.

The results of the survey in India indicate that EIA is gradually maturing to positively influence biodiversity conservation. While the professional skills of the EIA community are

improving both by experience and training in EIA, most respondents highlighted the importance of SEA as a thematic area for developing guidance tools under the CBBIA-Asia project. The responses also reflected the critical need to incorporate ecosystem approach and economic considerations in impact assessment for more credible decision making.

Development of a Guidance Tool for Professionalizing Biodiversity-Inclusive EIA

Mathur, Vinod; Wildlife Institute of India, Chandrabani, Dehradun, Uttaranchal 248001 India. + 91-135-2640304. Fax + 91-135-2640117. vbm@wii.gov.in www.wii.gov.in

Rajvanshi, Asha; Wildlife Institute of India, Chandrabani, Dehradun, Uttaranchal 248001 India. + 91-135-2640112 Ext.: 225. Fax + 91-135-2640117. ar@wii.gov.in www.wii.gov.in

The Asia component of the Capacity Building in Biodiversity and Impact Assessment project aims to build capacity through transfer of knowledge, institution-building and networking in five South Asian countries. As part of this project, a Needs Assessment Survey was carried out in Bangladesh, India, Nepal, Pakistan and Sri Lanka, based on which it was decided to develop a guidance tool in the form of a "Practitioners' and Reviewers' Guide" (PRG) to effectively review and address biodiversity concerns in impact assessment. Incorporating the cross-cutting sector priorities and the proposed foreign direct investments, it was agreed to focus the PRG on three key sectors *viz.* mining, roads and oil and gas.

Guidance for economic valuation and assessment of biodiversity goods and services and integration of socio-cultural attributes in all stages of EIA process will be the salient feature of the PRG. Country-specific case examples and lessons learnt would be included in the PRG to sensitize the project proponents and the decision makers on the need as well as the ways and means to integrate biodiversity in impact assessment. The paper discusses the road map for development of this guidance tool and seeks inputs from the global EIA community.

Indicators of Wetland Acidification and Their Relevance to Impact Assessment

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

The International Association for Impact Assessment (IAIA) awarded a research grant to study the indicators of wetland acidification and its relevance to impact assessment under the Capacity Building for Biodiversity and Impact Assessment (CBBIA) Small Grants Program in 2004. The findings of the research are presented in this paper. The study indeed confirmed the presence of both potential and actual acid sulphate soils (ASS) in the Niger Delta, which when disturbed during developments caused acidification with pH dropping to < 4 in open streams and < 2 at the backswamps. Indicators of ASS were found to include vegetation, water quality, hydrology and drainage patterns, microbial (*Acidithiobacillus sp.*), landforms and soil/sediment/spoil. The global extents of the problem of acidification underscore the importance of the challenge and the need for concerted efforts for their management. Strategies for the control and management of ASS include recognition and avoidance, prevention of oxidation, neutralization, complete oxidation and

leaching, and segregation and removal of pyrite. Because of the potentially devastating effects of acidification, it is recommended that acidification-related issues be taken on board early in the EIA process starting from EIA screening and scoping and be included in the Terms of Reference and work plans.

The CBBIA Project on Impact Assessment as a Tool for Regulating Activities in and Around Protected Areas for the Benefit of Biodiversity

Treweek, Jo; CBBIA-IAIA, Chancery Cottage, Kentisbeare, Cullumpton, Devon EX15 2DS UK. +44 1884 266798. Fax 0870 7622963. jo@treweek.fsnet.co.uk

Tucker, Graham; Ecological Solutions, 5 Rosenthal Terrace, Hemingford Grey, Huntingdon, Cambridgeshire PE28 9BL UK. +44 1480 498395. g.tucker@ecological-solutions.co.uk

The Capacity Building in Biodiversity and Impact Assessment (CBBIA) IAIA project has developed a sub-project on impact assessment as a tool for regulating activities in and around protected areas for the benefit of biodiversity. This project aims to provide information and case studies in support of the CBD's decisions and guidance on impact assessment.

The project has been carried out by supporting and coordinating the following five studies:

- Preparation of environmental guidelines for development activities in protected areas in Nepal (IUCN Nepal).
- Monitoring of impacts of infrastructure on biodiversity in Nam Ha National Protected Area Lao PDR (IUCN Lao PDR).
- Development of biodiversity indicators as a tool for regulating development activities in and around protected areas and wetland regions in the Northwest Province of Cameroon (COMINSUD Cameroon).
- Development of Environmental Assessment guidelines for identified sensitive areas in Ghana's EA Legislative Instrument (Ghana EPA).
- A procedure for evaluating impacts of infrastructure development in and around protected areas in Costa Rica (Mauricio Castro).

These studies have recently been completed and this presentation will describe key generic lessons for raising standards and capacity for impact assessments and the conservation of biodiversity in protected areas.

CS 5.10 BIODIVERSITY AND POVERTY REDUCTION – GENERAL

Impact of Poverty on the Environment

Babu, Maureen; IUCN, P.O.Box 68200, Nairobi, Nairobi 00200 Kenya. +254 20 890605-12. Fax +254 20 890615. maureen.babu@iucn.org

The city of Nairobi has grown from a railways terminus with a population of a few hundred people at the turn of the twentieth century into a metropolis of more than three million inhabitants. There has been unplanned rapid urban expansion as a result of rural-urban migration in search for informal employment in the city's industrial areas. This has resulted in the growth of cheap unplanned housing-slums thus impacting the environment negatively as the slum areas lack adequate sanitation and infrastructure. These areas have experienced reduced access to clean safe water, increased risks to health, loss of sustainable livelihood among the riparian

communities, loss of recreation facilities, and insecurity among others. However all is not lost as promising ongoing initiatives have been developed with the support of different stakeholders to help restore the integrity of the environment. This paper will attempt to address one such initiative that has also "domesticated" the Millennium Development Goals.

Sustaining a Natural Balance: Integrating Social and Community Considerations in Biodiversity Planning

McCommon, Carolyn; Rio Tinto Plc, 6 St. James Sq., London, SW1Y 4LD United Kingdom. +44 207 753 2381. carolyn.mccommon@riotinto.com

Richards, David; Rio Tinto Plc, Castlemead, Lower Castle St., Bristol, BS99 7YR United Kingdom. +44 17 9388 596. david.richards@riotinto.com

Anstee, Stuart; Rio Tinto Ltd., 55 Collins St., Melbourne, Victoria 3001 Australia. +61 3 9283 3537. stuart.anstee@riotinto.com

Biodiversity and its management are of strategic importance to a mining company such as Rio Tinto. Worldwide, we work in regions that are recognised and valued locally and globally for their biodiversity resources. Effects on this biodiversity make mining projects a sensitive issue for local communities, the scientific community, regulators, investors and employees. Our long-term business depends on our ability to understand these sensitivities and to resolve them equitably. A fundamental aspect of this success is the active and equitable involvement of affected communities, alongside that of other constituencies.

The biodiversity strategy developed by Rio Tinto provides a framework for integrating these social and community considerations into biodiversity planning, using impact assessment methodology. This paper describes that process and its key elements for enhancing opportunities for community development and maintaining cultural and heritage values while addressing biodiversity considerations. This addresses the need to ensure equity between environmental and social aspects, considering the respective roles that may be played by business, local communities, NGOs, and local governments.

From Environmental Observation to Action?

Ellegård, Anders; Vattenfall Power Consult AB, Nya Varvet 90, Västra Frölunda, SE-426 71 Sweden. +46-31 29 05 22. anders.ellegard@swedpower.com

Rydgren, Bernt; Vattenfall Power Consult AB, P.O. Box 1842, Linköping, SE-581 17 Sweden. +46-13 25 43 22. bernt.rydgren@swedpower.com

EIA has become an integral part of most infrastructure feasibility studies, a great improvement to the situation only 25 years ago, when environmental considerations were either ignored completely, or considered less importance than the "development goals." This positive development has, in large part, come about thanks to lobbying by environmental NGOs. The tools and procedures for EIA have also developed considerably, largely as a result of the increased pressure for high-quality assessments.

- However, some fundamental issues are still not addressed satisfactorily in many EIAs. Examples:
- What are "acceptable impacts" and how do we choose the value basis, the context of the

assessment? We argue that we are no closer to satisfactory answers to these questions than we were 25 years ago, and discuss this based on a few power-sector projects we have been involved in.

- Should the EIA practitioner form and communicate his/her clear stated opinion on the project under assessment?
- What value should be the basis on which to judge environmental acceptance—those of the financiers, the NGOs or the on-the-ground stakeholders?
- How does the precautionary principle and concepts like “no net loss” relate to a serious poverty-alleviation focus in the power sector?

The Ecosystem Approach and Regional Collaboration: Towards Achievement of the Millennium Development Goals

Naicker, Isayvani; Earth Rehabilitation Services, Mentone Centre 4th Floor, 1 Park Road, Richmond, Johannesburg, 2050 South Africa. + 27(0)762241448. Fax + 21(0)114829591. isayvani@gmail.com

The Millennium Development Goals (MDGs) relate to sections of population in developing countries that are mostly dependent directly on natural resources for their subsistence and livelihoods. Therefore, for the achievement of these goals it is necessary to examine humans as part of the ecosystem in traditional natural resource management.

Economic development, efficient use and management of shared resources, promotion of peace and security, investing in economies of scale and social development are some of the key justifications for current African regional integration initiatives. African politicians now have a framework to integrate their efforts (the Africa Union) and will be using a variety of mechanisms (including continental (NEPAD), regional and country-specific strategies) to achieve sustainable development objectives.

Africa and the international community have various visions for “claiming the 21st century” for the poor, contained in commitments made at the World Summit on Sustainable Development and the Millennium Summit. Regional collaboration and integration are imperative for human development in a globalised world and for achievement of the MDGs.

In this context a conceptual inclusion of humans and practical level regional collaboration and development as means to achieving these visions and MDG in Africa is examined in this paper.

CS 5.1 | BIODIVERSITY AND POVERTY REDUCTION – COUNTRY AND SECTOR CASES

Biodiversity-Inclusive Screening Process for Ghana’s EA System

Amoyaw-Osei, Yaw; EPA-Ghana, Starlets 91 Street, Ministries, Opposite GNA, P. O. Box M326, Accra, Ghana. 233 (21) 664697. Fax 233-21- 662690. yosei@epaghana.org www.epa.gov.gh

The EPA-Ghana was established in 1994 with a mandate to oversee EIA implementation. The first step in the EA procedure is screening. The screening tools in Ghana are the Schedules 1, 2 and 5 of the EA Regulations. A standard screening form – EA Form 1 – facilitates the process of screening decision making by EPA

Information submitted on the form for screening a proposal often presents difficulties which could range from gross “under-statements” to inaccuracies. This affects validity of screening decisions, due mainly to the open-ended questions on the form encouraging non-disclosure of vital information, resulting in wrong decisions. Officials of the EPA who make screening decisions also appear to have unlimited discretion that could easily be abused. This is due to the nature of the screening report form that is in use.

The main objectives of the study are three-fold:

1. To incorporate Schedule 5 of the Regulations to facilitate determination of “significance” in the screening process.
2. To propose an improved screening system with leading questions, removing opportunity to down play or ignore issues.
3. To develop a checklist-Screening Report format eliminating the wide discretionary power of the EPA officials.

Oil and Gas Exploration, Poverty and Environmental Unsustainability in the Niger Delta

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

The Niger Delta region of Nigeria is a wetland of over 76,000 sq km and has the largest mangrove forest in Africa (11,134 sq km). Petroleum exploration is the mainstay of the country, accounting for 95% of the country’s exports earnings. Notwithstanding the economic benefits, both social and environmental impacts are associated with oil exploration in the Niger Delta. The major occupations of the inhabitants are subsistence fishing and farming. These are threatened by oil exploration activities, which pollute the air, soil and water resulting in poor farm harvest and fish catch. Also, proceeds from oil exploration go to the federal and state governments and exclude the host communities who are directly impacted by oil exploration activities. This process, among others, resulted in poverty. Many of these communities lack basic amenities such as potable water, electricity, sanitary facilities and hospitals and political power. This has led to social problems. Agitation for equitable distribution of resources has led to the emergence of violent youths involving in unwholesome activities such as vandalism of oil installations, illegal bunkering of oil and hostage taking. The aim of this paper is to link oil exploration with environmental degradation causing poverty and conflicts in host communities.

Poverty Reduction and MDGs: Case Cameroon

Ingram, Verina; SNV, C:O SNV Highlands, Kameroun, PO 20061, Den Haag, 2500 EB Netherlands. + 237 941 7397. vingram@snvworld.org www.snvworld.org

How can and do activities in forests affect biodiversity? How can they be combined to have positive environmental and social impacts? Is this an impossible dream or actual reality? What are the problems and tensions? Some examples of successes.

Results from the IAIA sponsored projects in Cameroon will be used to present findings on how biodiversity and poverty alleviation can be combined and how biodiversity impact assessment and indicators can be

used to set a balance between livelihoods, poverty alleviation and biodiversity. Examples from Community Forestry will be used to illustrate.

Biodiversity and Poverty Reduction

Mchallo, Ignace; National Environment Management Council, P.O.Box 63154 Dar es Salaam, Dar es Salaam, Tanzania. 255 (0)22 2134603. Fax 255 (0)22 2111579. ignacioamani@yahoo.com

Pugu/Kazimzumbwi Forests are located within Kisarawe District in the Coast Region of the United Republic of Tanzania. They are one of the biodiversity hotspots in the world with a variety of endangered, threatened and endemic species of flora and fauna.

The forests have been decreasing at an alarming rate. The biodiversity loss is obviously worrying. One of the causes has been cutting down various species for charcoal making, timber extraction and poles. The main exploiters of the forests' resources are the communities living around the forests. Charcoal making is primarily the main income-earning activity.

The study will assess sources of income for the households of the villages around the forests. An attempt will be made to subject the District Development Plan to Strategic Environmental Assessment and examine the plan and set options for sustainable development and biodiversity conservation.

The paper intends to provide recommendations on future development options on empowering local communities to engage in alternative economic activities as a way of shifting from biodiversity destruction to earning sustainable incomes while minimizing biodiversity loss.

CS 6.1 ARCTIC AND CIRCUMPOLAR

A Canadian Perspective on Northern Environmental Protection Issues

Tremblay, Jean; Environment Canada, 105 McGill Street, 4th floor, Montreal, Quebec H2Y 2E7 Canada. 514-496-4433. jean.tremblay@ec.gc.ca

Canadian environmental issues are typical of those of other northern countries. The North encompasses half of Canada's land mass, covering three territories and parts of four provinces. Aboriginal peoples account for a large portion of the population living there. Northern community development is central to Canadian governmental concerns, while northern economic activity is closely tied to the extraction of numerous natural resources, putting a great deal of pressure on the environment, notably forests and marine life.

Some environmental protection issues will be addressed from a Canadian perspective, including air pollution caused by wood heating, the impact of climate change on ice melt and retreating permafrost, the protection of migratory birds and shellfish water quality. Applied scientists and researchers who deliver environmental assessment services to protect and preserve Canada's northern environment are faced with these air, water, soil and biodiversity phenomena. Depending on their nature, these environmental issues will be presented from a national, regional or local perspective.

The Early Years: Establishing the Environmental Management and Monitoring Programs Following EIA at the Snap Lake Diamond Mine in Northern Canada

Horrocks, Kimberley; De Beers Canada Inc., Suite 300 5102 50th Avenue, Yellowknife, Northwest Territories X1A 3S8 Canada. 01 867 766 7321. Fax 01 867 766 7347. kimberley.horrocks@ca.debeersgroup.com

The Snap Lake Project (the Project) is a remote diamond mine currently under construction, with a 2007 commissioning target, in Canada's Northwest Territories. The three-year environmental assessment and permitting process (from 2001 to 2004) resulted in several federal and territorial regulatory instruments giving direction and timelines around the establishment of an extremely comprehensive and detailed suite of environmental management and monitoring programs in consultation with affected aboriginal communities.

This paper describes some of the challenges and opportunities encountered thus far in the design and establishment of the environmental programs including the construction and monitoring of an artificial spawning reef for lake trout, planning for closure and reclamation and the ongoing involvement and consensus building of interveners from the environmental assessment process.

Strategy for Sustainable Environmental Management of Antarctica

Balfors, Berit; Royal Institute of Technology, Brinellvägen 28, Stockholm, SE-100 44 Sweden. +46 8 790 6352. Fax +46 8 411 0775. balfors@kth.se

Juan, Azcarate; Royal Institute of Technology, C/O Anders Strömgren, Swedenborgsgatan 4B, 3tr, Stockholm, 118 48 Sweden. +46 8 790 8478. azcarate@kth.se

Antarctica is a fascinating place that raises interest and curiosity among scientists, tourists and many others. We need to look after and encourage this interest and curiosity at the same time as we have to preserve these unique ecosystems for future generations. Therefore it is of great importance to draw up a strategy for a sustainable environmental management of Antarctica that allows the development of human activities in balance with ecological conditions. Along with such strategy we need tools to analyse the consequences of human activities on the environment of Antarctica and its associated ecosystems. SEA could play an important role in the development of a strategy for a sustainable environmental management of Antarctica. Components in strategic discussions on Antarctica are goals, scenarios and predictions. Goals state the environmental scope and conditions for the aggregated human activities in Antarctica, scenarios provide alternative future development options in the Antarctic region, and the assessment of these alternative scenarios requires tools that allow for reliable predictions. The result of the assessment may call for a revision of the goals and scenarios for Antarctica and allow development of a strategy for the sustainable environmental management of Antarctica to protect its sensitive ecosystems.

CS 7.1 GOVERNANCE, INSTITUTION BUILDING, THE LEGAL BASIS AND ENFORCEMENT

The Path for a Legalized EIA Practice in Tanzania: The Potential for Success and Challenges

Mato, Rubhera Ram; University of Lands and Architectural Studies, P.O. Box 35176, Dar es Salaam, Tanzania. Department of Envir. Eng.. Fax 255 22 2775391. mato@uclas.ac.tz www.uclas.ac.tz

Tanzania is determined to achieve sustainable development goals. In this pursuit, the government has established legal framework and institutions to support and mainstream environment in the development realm. Among them are the National Environmental Policy, Environmental Management Act, revised sectoral policies and laws (with deliberate inclusion of environmental safeguards), and a full ministry responsible for environment, etc., all achieved in the past fifteen years (1990-2005). The National Environment Management Council (NEMC) has also been re-established with the new legislation and conferred more enforcement powers. The recent (2005) establishment of regulations governing the conduct of EIA administration and practice in the country, gives more impetus to the environmental sustainability motorcade. Furthermore, there is a political will and citizens' concern on environmental deterioration both of which are supportive to the environmental protection agenda. However, along the path of EIA conduct there are many other hurdles to overcome before EIA is seen as meaningful to many Tanzanians. The realities of poverty, low awareness, corruption, inadequate data and means for environmental quality verification and many others all impinge on EIA conduct in our country. This paper discusses the plight of EIA practice and its associated challenges in Tanzania.

The Effect of the Lack of a National SEA Framework in the UK

James, Emma; ENVIRON, Swallow Court, Devonshire Gate, Tiverton, Devon EX16 7EJ England. 01884 842010. Fax 01884 842010. ejames@uk.environmentcorp.com www.environmentcorp.com

Curran, Jo; ENVIRON, Swallow Court, Devonshire Gate, Tiverton, Devon EX16 7EJ England. 01884 842010. Fax 01884 842010. jcurran@uk.environmentcorp.com www.environmentcorp.com

The concept of tiering was a driver behind the development of SEA. This paper will discuss what can happen when arguably the most important tier of SEA is missing – that of national policy – and what effect this can have on plan making and assessment.

The UK government has resisted applying SEA to its policies. The nearest the government has come to national SEA is the Greening Government Initiative which refers not only to greening operational management but also to greening the fundamental objectives of departments by ensuring that full weight is given to environmental impacts in policy development. However, the focus of the initiative has so far been restricted to operational management. The lack of a national SEA or sustainability appraisal framework causes a number of problems for local and regional plan makers. The UK transport and development sectors will be presented as a case study in order to analyse what problems have been found in the plan making and SEA process at regional and local levels due to a lack of national SEA. Recommendations will then be presented to assist practitioners to help resolve (or at least effectively communicate) these tensions.

An EA Step in the Right Direction? Sociological Analysis of Impact and Benefit Agreements in Canada's North

Caine, Ken; Department of Rural Economy, University of Alberta, 515 General Services Building, Edmonton, Alberta T6G 2H1 Canada. 780.492.4225. Fax 780.492.0268. kcaine@ualberta.ca

Krogman, Naomi; Department of Rural Economy, University of Alberta, 527 General Services Building, Edmonton, Alberta

T6G 2H1. 780.492.4178. Fax 780.492.0268. naomi.krogman@ualberta.ca

Negotiated agreements, including Impact and Benefit Agreements (IBA), between resource developers and Aboriginal communities are increasingly seen as viable approaches to supplementing and in some cases, addressing shortfalls of impact assessment processes. A 2005 IAIA conference paper on IBAs as a new supra-regulatory approach concludes that further assessment is required of the legitimacy and analysis of the conditions under which IBAs are effective. Moreover, critical analyses of these agreements have not yet been undertaken from a sociological perspective. This paper, embracing the conference theme of "Power, Poverty, and Sustainability," examines how negotiated agreements over natural resource extraction confer particular advantages and disadvantages to Aboriginal people and proponents of development, thereby distributing power inequitably. Using sociological theories of power, the content of IBAs will be examined in regards to theoretical concepts to enrich the debate about power and the role of the state at safeguarding sustainable development in the Canadian North.

CS 7.2 GOOD GOVERNANCE, ENVIRONMENTAL POLICIES, METHODOLOGICAL ADVANCES AND PUBLIC PARTICIPATION

Statutory Guidance for Public Participation in Environmental Governance in Tanzania: An Assessment of its Effectiveness for Better Environmental Assessment and Management

Suleiman, Jokha; Institute of Resource Assessment, University of Dar-es-Salaam, Dar-Es-Salaam, Tanzania, East Africa. +255 773 064702. Fax +255 022 2410393. Jokhass@Yahoo.Com, Jokha@Ira.Udsm.Ac.Tz

Good governance and transparent decision making system are key tools for facilitating participatory decisions in environmental management.

Tanzania enacted its environmental management act in 2005. This act guides various environment management issues such as environmental planning and management, impact assessment and public participation in environmental decision-making. Implementations of this act need a lot of preparations, including establishment of EA guidelines and regulations and specification of roles of institutions responsible for environmental management.

The aim of this paper is to assess the effectiveness of the public participation framework as outlined in the environmental management act of Tanzania in ensuring proper assessment of environmental impacts and create opportunities for effective participatory decision making of environmental management issues.

Initial observation indicates that provision of public participation in this law does not provide sufficient guidance to address key issues like responsibilities of different players, participation tools, conflicts management and others.

Therefore the paper recommends the establishment of specific guidelines on how to undertake public participation effectively in environmental assessment in Tanzania.

The Role of Environmental Assessment in Enhancing Environmental Governance: Some Challenges and Opportunities with Reference to Tanzania

Sosovele, Hussein; UDSM, Dar es Salaam, Tanzania. +255 22 2410144. Sosovele@ira.udsm.ac.tz

The idea of good governance has now evolved to embrace relationships between people, institutions, processes of doing things and how they are done, and exchange of ideas not only in the administrative structures but also, and more importantly, in the environmental field. Environmental governance is increasingly becoming an important aspect not only because of the increasing environmental degradation in the world, but more so because efforts to address poverty and the quest to increase frontiers of developments have major implications on the environment. How the environment is managed is therefore very important. This article explores the various elements that form “good governance” such as transparency in decision-making, public participation, institutional set up, roles and mandates and commitments to institutional goals and legal frameworks with regard to the environmental management in Tanzania with specific focus on the role of environmental assessment in enhancing good governance. The article draws examples and lessons from case studies in which “adequate” public participation and democratic principles helped to influence decision making for development projects. It also discusses challenges in ensuring effective environmental governance in Tanzania following the enactment of the Environmental Management Act in 2004.

Rights, Risks and Responsibilities—A Governance Tool

Bird, Jeremy; Independent Consultant, Sandford Lodge, Mellersh Hill Road, Womersley, Guildford, GU5 0QL UK. +44-1483-892383. Fax +44-1483-890170. jeremy.bird@tiscali.co.uk

Haas, Lawrence; Independent Consultant, 5 Surrey Cottage, Norfolk Place, Littlehampton, BN17 5PB UK. +44-1903-726369. larryhaas@tesco.net

Mehta, Lyla; Institute of Development Studies, University of Sussex, Brighton, BN1 9RE UK. +44-1273-606261. L.Mehta@ids.ac.uk

Significant challenges exist in ensuring that participatory processes reach out to affected stakeholders and are effective in influencing development outcomes. The rights, risks and responsibilities approach – or 3R approach – has been developed into a rigorous framework for stakeholder identification that integrates economic, social and environmental dimensions. It combines consideration of the rights of stakeholder groups, the risks they face and the responsibilities they hold and builds on the central theme of ‘recognition of rights and assessment of risks’ proposed by the World Commission on Dams.

Beyond stakeholder identification, the 3R approach provides a governance tool to inform infrastructure development processes from overall planning through to specific assessment activities, for example participation in resettlement planning, EIA consultations and determination of environmental flows. The framework draws together into a single tool aspects of legal entitlement (formal and customary), risk assessment and responsibility for compliance.

The paper summarizes findings of a scoping report prepared as the first step in developing practical guidance on implementing the 3R approach and presents its initial application on a proposed hydropower project in Southeast Asia. It further discusses how the framework of rights, risks and responsibilities can be integrated into current planning procedures.

CS 7.3 GOOD GOVERNANCE IN THE IA PROCESS, QUALITY, CREDIBILITY AND CAPACITY BUILDING

Working Towards Quality Assurance in Impact Assessment: From a Voluntary to a Statutory Certification System for Environmental Assessment Practitioners in South Africa

Brownlie, Susie; deVilliers Brownlie Associates, 21 Menin Ave, Claremont, Cape Town, Western Cape 7708 South Africa. +27 21 6744263. Fax as above. dbass@icon.co.za

Glazewski, Jan; Institute of Marine and Environmental Law, University of Cape Town, Lower Campus, off Woollack Drive, Cape Town, Western Cape 7708 South Africa. +27 21 6503075. glaz@law.uct.ac.za

Laros, Marlene; MLA-Sustainability Matters, Iris Road, Scarborough, Cape Town, Western Cape 7975 South Africa. +27 21 7801120. mtlaros@mweb.co.za

Seaman, Maitland; Centre for Environmental Management, University of the Free State, Nelson Mandela Drive, Bloemfontein, Free State 7708 South Africa. +27 51 4013958.

The environmental assessment field has grown rapidly in South Africa since impact assessment became a legal requirement in 1997. Responding to the need for quality assurance in impact assessment, a voluntary system of certification of environmental assessment practitioners was established in 2001, endorsed by seventeen organizations. To date, over seventy environmental assessment practitioners have been certified by an Interim Certification Board.

Amendment of the National Environmental Management Act in 2004 provided for the appointment of “registration authorities” for environmental assessment practitioners, effectively enabling the establishment of a statutory certification system.

In 2005, the national environmental department appointed the Interim Certification Board to run a country-wide consultative process on the establishment of a statutory registration authority. This process, to be carried out in early 2006, is to reach broad consensus on:

- The structure and characteristics of the registration authority.
- The criteria and process used to evaluate applicants.
- The code of conduct and ethics of certified environmental assessment practitioners.

The paper presents the outcome of the consultative process and summarises the way forward. It also discusses the key legal and regulatory, ethical and competence issues associated with the establishment of a statutory registration authority for environmental assessment practitioners in South Africa.

New Tools for Effective Leadership and Education

Van Bergen, Joop; Management Effective Concepts, Koelderstraat 19, Venlo, 5916NH Netherlands. 0031-77-3513391. bergen@plex.nl

We are realizing more and more: there’s a fast growing gap between Life and Business as Usual and aspects like

environment, sustainability, safety environmental/energy costs and legislation.

A solution can be made “new combinations” based upon a balance between basic needs and co-operation within geographical/natural boundaries.

A most important basic need with impacts on economical, ecological, social, cultural and political aspects is the availability for people to live and to work in their own trustful “environment” mainly based upon local products and services.

Main items:

- A definition of sustainability and the development of projectmanagement and co-operation as practical steps on our way forward to a sustainable future.
- The relation between energy and poverty in specific/local situations.
- Education as a new basic tool for coherence between social levels.
- A first step towards a meta-model bringing (sub)activities together.

Environmental Capacity Development in the Spanish Public Sector: An Evaluation of Environmental Assessment's Potential to Produce Institutional Reform

Clemente-Fernández, Pilar; Parsons Brinckerhoff, 29 Cathedral Road, Cardiff, Wales CF11 9HA United Kingdom. 00-44-(0) 29-2082-7075. Fax 00-44-(0)29-2082-7002. clementep@pbworld.com

Cobb, Dick; InteREAM (Interdisciplinary Research on Environmental Assessment and Management), School of Environmental Sciences, University of East Anglia, Norwich, Norfolk, England NR4 7TJ United Kingdom. 00-44-(0) 1603-592-696. Fax 00-44-(0) 1603-591-237. d.cobb@uea.ac.uk

Studies on the influence of EIA on design modification, environmental decision making, and in terms of progression towards the ultimate goal of sustainable development, have demonstrated only marginal incremental impacts, and very little positive movement.

Theoretical approaches to explain this disappointing performance are not well developed, but it has been argued that processes of institutional change, and enhanced stakeholder involvement may be critical components as a means of improving effectiveness.

Capacity development (which could contribute to both these components) is the focus of this reported study, using Spain as a case study. A conceptual framework was developed and applied to all layers of the EIA process. Deficiencies affecting the successful implementation and performance of the Spanish system were identified. Suggested approaches to enhance the development of the capacity of institutions and stakeholders are suggested, emphasizing the interdependence of all strata of the governance process.

Evaluation of the Austrian EIA System in Terms of Quality

Merl, Astrid; Federal Ministry of Agriculture, Forestry, Environment and Water Management, Stubenbastei 5, Vienna, AT Austria. 00431 515 22-2131. Fax 00431 515 22-7122. astrid.merl@lebensministerium.at

On behalf of the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management a study on the “Evaluation of the EIA regime in terms of quality” was drawn up. A three-steps methodology was used: first, all licensing procedures concluded according to the Federal Environmental

Impact Assessment Act between July 1994 and October 2005 were evaluated statistically; secondly, structured interviews were held with representatives of competent authorities, applicants, planners, ombudsmen for the environment (this is a body specifically established by the federal government or a Land to ensure the protection of the environment in administrative procedures) and citizen groups. And finally, some procedures were analysed in detail in those areas that have been mentioned during the interviews as specialty of the EIA-regime, either as surplus value or as special challenge.

The study was completed in February 2006 and will be available in German on the Internet (www.umwelt.net.at/umweltvertraeglichkeitspruefung).

The purpose of the presentation is to give up-to-date information on the main outcomes of the study, discuss with other participants their experiences and learn from one another.

CS 7.4 LEGACY, ENFORCEMENT OF LAWS AND REGULATIONS, GOVERNANCE ISSUES

NEPA Improvement Or Dismemberment? An Analysis of the Report of the Task Force on Improving and Updating the US National Environmental Policy Act

Grassetti, Richard; Grassetti Environmental Consulting, 7008 Bristol Drive, Berkeley, CA 94705 USA. (510) 849-2354. GECONS@aol.com

In December 2005, the US Congress' Federal Task Force on Improving and Updating the National Environmental Policy Act released its Initial Findings and Draft Recommendations. Interspersed amongst a number of tweaks to improved NEPA's processes and documents are a number of “silver bullets” that could functionally disable and render irrelevant Federal EIA in the US. This paper will summarize the good, the bad, and the ugly from that report.

Facing the Past: Legacy Issues and Impact Assessment on a Major Hydropower Project in Tajikistan

Ramsay, James; J. Ramsay Associates, 2671 Margate Avenue, Victoria, BC V8S 3A8 Canada. +1-250-598-4415. jramsay@horizon.bc.ca

Eckhardt, Claudia; PG Eckhardt & Rehahn, Waldstrasse 7, Mühlthal, D-64367 Germany. +49 (0) 6151-913-008. c.eckhardt@pger.de

Large-scale hydropower development in Central Asia is reviving following a period of stagnation after the collapse of the Soviet Union, driven by public sector demand for increased power generation and private sector demand for cheap power for smelting aluminium. Old plans are being reviewed, but the development context has changed radically. In particular, the need for international financing brings with it safeguard policies and participatory processes, and some states no longer have the resources or capacity to provide permanent alternative livelihoods to displaced citizens.

In Tajikistan a project to build the world's highest dam has been revived and is at feasibility study stage. The study's integrated social and environmental impact assessment faces major challenges due to multiple legacy

effects including the physical and social consequences of civil war, damaged and partly completed civil works, pre-Independence resettlement activities, severe economic stress, a transitional legal and institutional framework, and very limited exposure of all project partners to international development concepts and financing agency policies and procedures. Under these circumstances, a prerequisite for implementing credible impact assessment and resettlement planning processes is the creation of enabling conditions—especially for dialogue and transparency—by awareness-raising amongst the project partners.

Institutionalization of EIA Tools and Steps in Sectoral Agencies, Ethiopia

Megersa, Abdissa; Ethiopian Roads Authority, Addis Ababa, P.O.Box 16565, Addis Ababa, Ethiopia, Addis Ababa 16565 Ethiopia. +251 911 88 89 12. abdimegersa@yahoo.com

Without the improvement of road networks that involves the upgrading and/or rehabilitation of the existing road network and the construction or opening up of agriculturally potential areas, it is worthless to think of the eradication of poverty and other socio-economic constraints in a country.

Road infrastructural development, one of the different development projects, besides its enormous benefits, brings tremendous adverse environmental impacts if not planned properly and appropriately. EIA tools and steps are now becoming mandatory study steps and processes in road transport planning, wherein the steps magnify the positive environmental and social benefits of the development projects.

Guiding policies and legal frameworks have to be formulated and put into practice to safeguard the natural environment and make development projects environmentally and socially friendly and sound. EIA needs to be experienced and institutionalized within those sectoral agencies undertaking various development undertakings.

It has become more of a consultative processes with the various parties and stakeholders wherein opinion and ideas are incorporated to empower them to take part in, not only in providing information during the planning phase, but also to take part in the monitoring and evaluation work during the implementation phase of the project.

CS 8.I DEVELOPMENT AND POVERTY REDUCTION, SESSION I

Impact Assessment and Comprehensive Planning of a Development Project: The Hydroelectric Project La Parota Case

Hernández-Álvarez, Francisco-Javier; Comisión Federal de Electricidad - Division of Construction, Rio Mississippi 71 9 Floor, Col Cuauhtemoc 06500, México, DF 06500 México. 52 (55) 5231 1876. Fax 52 (55) 5229 44 00 / 2673. francisco.hernandez@cfe.gob.mx

Zúñiga-Gutiérrez, Guillermo; Comisión Federal de Electricidad - Division of Construction, Rio Mississippi 71 9 Floor, Col Cuauhtemoc 06500, México, DF 06500 México. 52 (55) 5231 1876. Fax 52 (55) 5229 44 00 / 2673. guillermo.zuniga@cfe.gob.mx

In Mexico there are regions where poverty and depletion of natural resources are joined in a vicious circle. Inhabitants exploit their resources, but their needs are not satisfied; therefore exploitation increases, resource depletion begins, and poverty becomes acute.

We, the National Power Company of Mexico, think that if a project will be executed, we must generate social and environmental benefits for the region where it will be constructed. We analyse alternatives for satisfying the energy requirements and we decide supported by a comprehensive analysis (environmental, social and technical) that determines the cost-benefit of each option. EIA allows us to determine the relevant problems and their causes and to analyse the potential environmental effects. This information is used for project planning.

The environment where the hydroelectric project of La Parota will be constructed is deteriorated, and resources are overexploited, and poverty and social exclusion are increasing. Under these conditions, the EIA carried out for determining project feasibility shows that it may be developed if it is designed considering multiple purposes of dam (water supply, irrigation, fisheries and ecotourism), since these new economic activities could help the people to increase their social welfare and to reduce the exploitation of resources.

Poverty Impact: Evidence of Communication Effectiveness

McBean, Bridget; European Centre for Development Policy Management, Onze Lieve Vrouweplein 21, Maastricht, 6211 HE Netherlands. +31 43 250 2913. Fax +31 43 350 2902. bmb@ecdpm.org www.ecdpm.org

The development community has a strong emphasis on impact assessment for poverty eradication. The reason for this emphasis is to attain the Millennium Development Goals in 2015. The development community is looking for impact evidence of their programmes which contribute to achieving these goals.

As part of a worldwide initiative, the evidence of communication effectiveness in health, education, governance, livelihood/agriculture and growth is being examined. For the purposes of the project, communication encompasses dialogue, participatory consultation, stakeholders and technology, bringing in a traditional and new media channels.

This process begins to find a balance between the supply of evidence and the demand for it. A first round Delphic survey mapped the evidence available to policy makers and practitioners, by asking policy makers the following questions:

- What types of information do you want?
- In what form do you want it?
- Who else might benefit from this information?
- In what form would they want it?
- Where do you currently access this type of information?
- Who else might have it?

The results of the first phase survey will be presented to share knowledge about the role of communication and the evidence of its effectiveness in determining impact for improved governance.

Monitoring of Environmental and Social Questions in the National Hydropower Programme in Vietnam

Wallentinus, Hans-Georg; Swedish EIA Centre, P.O. Box 7012, UPPSALA, SE-75007 Sweden. +46 18 67 1978. Fax +46 18 67 3512. hans-georg.wallentinus@sol.slu.se www-mkb.slu.se

Isaksson, Karin; Swedish EIA Centre, P.O. Box 7012, UPPSALA, SE-75007 Sweden. +46 18 67 1910. Fax +46 18 67 3512. karin.isaksson@sol.slu.se www-mkb.slu.se

The National Hydropower Programme (NHP) in Vietnam aims at getting an overview of possible sites for construction of hydropower stations. The suitability is calculated from data on environmental/social conditions, and economic/technical conditions.

The Swedish EIA Centre was asked by Swedish Sida to form a monitoring team for follow up of environmental and social issues.

The entire programme might be seen as a very large SEA, because the aim is to explore the least costly sites from technical, economic, environmental and social points of view.

Negative: The methodology used was not satisfactory for determination of the appropriateness, since all data should be merged into one figure. Through our work the figures are discussed more separated from each other in the draft final report and "warning flags" are run up for negative impact hidden behind mean values, etc.

Positive: The programme has contained public participation ranging from village level to national level. Baseline data (environmental and social) has been collected in an amount not seen before in the country.

Hope for the future: The knowledge gained in the programme should be used in the Vietnamese development of hydropower and baseline data for other types of projects also.

CS 8.2 DEVELOPMENT AND POVERTY REDUCTION, SESSION 2

Environmental Integration in EC Development Cooperation Programming: Experiences in the Use of Country Environmental Profiles

Palerm, Juan; Help Desk Environment, Av Louise 251, bte 23, Brussels, 1050 Belgium. +32 2 626 3320. Fax +32 2 646 35002. palerm@environment-integration.org

Ledan, Jean-Paul; Help Desk Environment, Av Louise 251, bte 23, Brussels, Belgium. +32 2 626 3320. Fax +32 2 646 35002. ledant@environment-integration.org

Brinn, Peter; Help Desk Environment, Av Louise 251, bte 23, Brussels, Belgium. +32 2 626 3320. Fax +32 2 646 35002. brinn@environment-integration.org

During the phase of Programming in European Commission (EC) development co-operation the main tool for environmental integration is the Country Environmental Profile (CEP), which informs, from an environmental point of view, the preparation of Country Strategy Papers (CSPs). Recently the quality of CEPs has improved significantly and the CSPs that have been prepared for the next programming period (2007-2013) show evidence, in the form of a better environmental integration, of the value of CEPs. The CEPs have different entry points in the CSP and the results of environmental integration can be found in a series of "environmental integration outcomes." This paper describes the structure of CEPs, their place in the EC cycle of operations and how they can be used in the CSP preparation. Through a series of case studies it shows the impact CEPs are having on the quality of CSPs, resulting in CSPs that set the ground for a more effective environmental integration throughout the whole cycle of operations. These include, for example, provisions for undertaking of Strategic Environmental Assessments when budgetary and sectoral support is foreseen, and integration of the environmental dimension in the definition of strategies and work programmes for focal sectors.

Impact Assessment in Wetlands Management as Solution to Poverty

Nyanutse, Kokou Edem; College Protestant Lome Togo, Avenue De La Victoire, Lome 80909 Togo. 2289163469. Renenyanutse@Yahoo.Fr

Whereas several western countries are at the stage of the follow-up of the impact assessment (Morrisson and Al, 2005), the idea of the feasibility of the impact assessment (environmental or social) in the realization of a project remains for several decision makers, a parameter which does not tally with economic realities of the developing countries. In Togo (West Africa), the wetlands and coastal zones are at the origin of several problems of management which generate environmental and socio-economic negative impacts. The unforeseen consequences of management generate difficulties and accentuate the population economic and social situation, which is already deplorable. We argue that an environmental and socio-economic impact assessment (even badly made) contributes to lay down the repercussions of management and thus, decrease the recurring misery in those areas.

Capacity for Environmental Review of Small- Scale Activities: Key Concepts and Lessons Learned

Stoughton, Mark; The Cadmus Group, 57 Water St, Watertown, MA 02472 USA. +81.80.3132.3513. Fax +81.75.541.6353. mstoughton@cadmusgroup.com www.cadmusgroup.com

Fisher, Weston; The Cadmus Group, 57 Water St, Watertown, MA 02472 USA. +1.617.673.7000. Fax +1.617.673.7001. wfisher@cadmusgroup.com www.cadmusgroup.com

Decentralized, small-scale development activities are a critical complement to the infrastructure and area development programs most familiar to EA/IA professionals. (In Africa, such development is probably the dominant form of development assistance.) Environmentally Sound Design and Management (ESDM) of such activities is essential: while individual impacts may be small in absolute terms, they can be extremely significant locally. The primary tool available to development sponsors to assure ESDM is environmental review/safeguard procedures, almost uniformly based on the "classic" EA process. However, environmental review procedures for such activities must be carried out in an simplified, decentralized way by non-specialists – posing critical challenges both for development sponsors and implementers (usually NGO staff). Sponsors must assure that implementers possess both skills and motivation. Our experience of more than a decade of such capacity-building in Africa indicates that success requires establishing clear connections between project success and ESDM, and between basic EA skills and well-accepted development best practices already in the core skill set of small-scale development professionals. We explain these connections and the pedagogical approaches effective in communicating them. We also examine related administrative and institutional challenges donors must address in implementing small-scale environmental review.

CS 8.3 ASSESSING THE RESOURCE SECTOR'S IMPACT ON SUSTAINABLE DEVELOPMENT

Critical Load and Level Approach for Assessment of Ecosystems Risks in EIA: Promises and Challenges

Demidova, Olga; Ecoline Environmental Assessment Center, Pechorskaya Street, 3, apt. 12, Moscow, 129344 Russian Federation. +7 495 236 10 27. Fax +7 495 236 10 27. odemidova@eac-ecoline.ru www.eac-ecoline.ru

Bashkin, Vladimir; Moscow State University, School of Geography, GSP-2, Leninskie Gory, Moscow, 119899 Russian Federation. +7 495 939 25 76. Fax +7 495 939 22 38. Bashkin@rc.ru

Ecological effects are often treated inadequately in the assessment of environmental impacts of proposed developments, while lack of quantitative ecological impact predictions is mentioned among key drawbacks of the current EIA practice.

The use of risk assessment methods and techniques within EIA for improving the quality of environmental impact studies has been widely discussed in the impact assessment community. For assessing ecological impacts of proposed developments the 'ecosystem approach' is often recommended (Treweek 1999). However, formal ecological risk assessment as it is has significant limitations for dealing with ecosystem-level effects. One can suggest incorporating the Critical Load and Level (CLL) approach, an established methodology for assessing effects of industrial pollution on ecosystems and their sensitive components, into the EIA process to improve treatment of ecological implications of development projects. Benefits of and obstacles to applying CLL methodology for ecological impact assessment will be analyzed. A structured framework for ecosystem risk assessment based on CLL approach within EIA will be presented.

Since the proposed integrated assessment model is suggested to be applied within the ESIA of an extractive industry project located in the relatively untouched area in the North of Russia, feasibility of its practical application will be discussed.

Assessment for Sustainable Development: Theoretical Framework and Mining Sector Cases Studies from Canada, Namibia, and South Africa

Hacking, Theo; University of Cambridge, Department of Engineering, Trumpington Street, Cambridge, CB2 1PZ United Kingdom. +44 1223 760 562. Fax +44 1223 765 625. th252@cam.ac.uk

Guthrie, Peter; University of Cambridge, Department of Engineering, Trumpington Street, Cambridge, CB2 1PZ United Kingdom. +44 1223 333 321. Fax +44 1223 765 625. pmg31@cam.ac.uk

Mining is frequently at the forefront of debates concerning sustainable development (SD). Leading mining companies have expressed commitments to the principles of SD, as have many governments, financiers and investors. This gives rise to the question: How can planning and decision-making be directed to ensure that mining contributes to SD?

EIA is the most commonly used technique for evaluating the wider implications of mining projects. SIA and other types of assessment are also increasingly used. There are many suggestions for improving their effectiveness as SD "tools," ranging from enhancing EIA to developing "new" techniques (e.g., Integrated Assessment and Sustainability Assessment). The paper will present the findings of research undertaken in two stages. The first stage involved a review of the literature

to identify the features commonly promoted for improving the SD-directedness of assessments. This led to the development of a framework which captures the distinguishing characteristics of SD-directed assessment. The second stage sought to establish the extent to which SD-directed assessment features can be applied to mining projects. Six "best practice" mining project assessments were selected for analysis against the framework. The analysis found evidence of progress towards SD-directed assessment.

Hazardous Waste Landfill in Mexico and Its Relationship with Poverty and Social Conflicts

Villicaña, Grethel; SEMARNAT, Av. Revolución 1425, Col. Tlacopac San Angel, Mexico City, 01040 Mexico. +52.55.56.24.34.27. Fax +52.55.56.24.36.18. gvillicana@semarnat.gob.mx

Quijano, Martín; SEMARNAT, Av. Revolución 1425, Col. Tlacopac San Angel, Mexico City, 01040 Mexico. +52.55.56.24.33.13. Fax +52.55.56.24.36.18. mquijano@semarnat.gob.mx

It is estimated that the generation of industrial hazardous wastes in Mexico is around 8 million tons a year. It is considered that only 10% is well managed; the rest is placed within the industrial facilities or it is disposed of with inadequate procedures.

In Mexico, legislation imposes the way a site is selected for hazardous waste landfills, sites that sometimes impact regions far away from urban zones and affect people who live in extreme poverty. On the other side, these are the places that, due to their characteristics, are suitable to comply with the law guaranteeing environmental viability for these kinds of projects. In these cases, environmental impact assessment is an invaluable tool for decision making focused on two important points, establishing useful and environmentally safe infrastructure for adequate management of hazardous wastes and reduction of poverty in marginalized zones.

Two study cases are presented within the same economically depressed region, demonstrating the importance of public participation during the environmental management of a project, where the benefit perception of the community determines the cancellation of a project at the cost of its own benefit or its continuity against international pressure.

CS 8.4 SEA IN DEVELOPING COUNTRIES: EXPERIENCES AND PERSPECTIVES, SESSION I

SEA in Developing Countries: An Overview

Teixeira, Izabella

Abstract not available.

The Advancement of SEA in Madagascar

Andrianavomahefa, Paul; POLY-MAHEFA EURL, lot II S 78 GA Anjanahary, Antananarivo, 101 Madagascar. + (261) 32 04 656 37. raoelpaul@yahoo.fr

Regulatory provisions for SEA are contained in the Decree initially intended to ensure compatibility between investment and the environment. However, without specific references to this Decree, some SEAs had already been conducted with the support of aid donors: sectoral EA (transport, tourism, mining, rural

development, environmental program), regional EA (industrial zone, integrated growth pole, plan of urban development, regional plan development), integration of the environment in the strategy of poverty reduction, etc.

The analysis of these SEAs shows various problems: the comprehension of the SEA is varied and variable. The vocabulary is varied; it is not known any more if it is within the framework of SEA or not. The utility of the SEA carried out is not always put forward. The mechanism of the follow-up of the elaborated SEA does not exist.

A meeting of capitalization of the SEA carried out was held in 2002. The SEA directive is drafting on early 2006. This directive tries to put a common framework of comprehension of the SEA and to make coherent the procedures about SEA. It tries to be based on the principles of good practices worked out at the international level and a capitalization of the national experiences.

Integrating Environmental Concerns in Development Planning Process: The Case of Ghana

Appah-Sampong, Ebenezer; Environmental Protection Agency, Ghana, P.O. Box Mb 326, Accra, Gt. Accra Region Ghana. 23321664697/8. Fax 23321662690. esampong@epaghana.org

Environmental Assessment as a planning and environmental management tool has not been fully utilized in the development planning process in Ghana because of low level of EA awareness, weak enforcement of EA legislation, limited capacity and tools/systems. The result is that environmental issues have not been given due consideration until recently. This has contributed to the development of unsustainable plans, inefficient use of resources and eventual depletion of the country's resources. This paper examines the experience of Ghana in integrating environmental issues in the development planning processes at the national and local levels. It focuses on the objectives, methodology and tools used challenges, lessons and the way forward. It is expected that the lessons from this process would enrich the experience of other African as well as developing countries undertaking similar activities.

Development of EIA for Plans and Programmes in China

Li, Haisheng; Appraisal Center for Environment and Engineering, No.8 Dayangfang, Anwai, Beiyuan, Beijing 100012 China. 86-10-84913906. Fax 86-10-84918954. lihaisheng@acee.org.cn

It is required in EIA Law in China that EIA should be prepared for land use, river basins and coastal areas development plans and programmes, and ten specific plans concerning industry, agriculture, stockbreeding, forestry, energy, etc. Up to now, the Appraisal Center for Environment and Engineering (ACEE) has finished many technical documents such as Technical Guidelines on EIA for Plans and Programmes, which makes EIA for plans and programmes more practical. At present, seven technical guidelines on EIA for plans and programmes are being developed by ACEE, including comprehensive urban planning, urban transport planning, planning of river basin development, land use planning, overall planning of coal mining area, planning of oil and gas field development and planning of petroleum and chemical base. With the reinforcement of institutional construction, ACEE has recommended 232 organizations for conducting EIA for plans and programmes, and has organized many SEA trainings. The establishment of SEA experts consulting committee is also on the way. As the development of SEA case studies in Inner Mongolia region, Dalian city and Wuhan city, EIA for plans and programmes has been in full swing in China.

CS 8.5 SEA IN DEVELOPING COUNTRIES: EXPERIENCES AND PERSPECTIVES, SESSION 2

The First Step in a Long Journey: Progress and Reflection on Recent SEA Initiatives in Thailand

Nuntavorakarn, Suphakij; Health Systems Research Institute, Tiwanon Road, 126 Bamrardnaradun Infectious Diseases Institute, 4th Floor, Muang, Nonthaburi 11000 Thailand. 66-2-951 0067 ext.109. Fax 66-2-951 1482. suphakijn@yahoo.com www.hpp-hia.or.th

Sukkumnoed, Decharut; Aalborg University, Fibigerstraede 13, Department of Development and Planning, Aalborg East, Aalborg 9220 Denmark. tongklagroup@yahoo.com www.aau.dk

Haesakul, Sombat; Health Systems Research Institute, Tiwanon Road, 126 Bamrardnaradun Infectious Diseases Institute, 4th Floor, Muang, Nonthaburi 11000 Thailand. 66-2-951 0067. Fax 66-2-951 1482. sombatsh@yahoo.com www.hpp-hia.or.th

Strategic Environmental Assessment has been introduced in Thai society for only some years, but it has gained strong interests from different parts of society. The National Environment Board, the environmental policy and planning authority, Health Systems Research Institute, and universities are examples of organizations and networks which are working on SEA development from various angles.

Based on the four types of SEA that are categorized according to the different framing of "Strategic" issues, various SEA initiatives and experiences will be explained and synthesized, to provide the overall picture of SEA development in Thailand. The four types of SEA:

1. SEA Based on EIA School
2. Area-Base SEA
3. SEA Focusing on Policy Options
4. SEA Focusing on Broad Development Direction

More importantly, these initiatives and experiences will be analyzed and reflected, particularly through case studies, on the progress and obstacles for addressing the challenges of healthy and deliberative public policy process. These challenges are shifting the scope of thinking from project-base to strategic-base, improving impact assessment process, enhancing deliberative policy process, and strengthening civil society and local community capacity. This will lead to initial suggestions for future development of SEA in Thailand.

Environmental and Social Risk Assessment of Lake Chad Basin Ecosystem

Wolf, Charlie; Social Impact Assessment Center, 423 Broome Street, New York, NY 10013 USA. + 1.212.966.2708. Fax + 1.212.219.1963. cpwolf@mac.com

This is the report of an environmental and social risk assessment (ESRA) of Lake Chad Basin Ecosystem carried out under contract with the Lake Chad Basin Commission and the Global Environment Facility. The assessment encompasses a wide range of substantive and methodological issues, and raises fundamental questions of development policy and practice, such as dependent development and sustainable development, and participant assessment at the policy level. The approach of the study is integrated impact assessment, coupled with a social learning process.

CS 9.I TOOL DEVELOPMENT

Integrated Assessment and Planning or Strategies for Sustainable Development?

Cherp, Aleh; Lund University & Central European University, Nador u. 9, Budapest, 1051 Hungary. +46462220280. cherpa@ceu.hu

Integrated assessment seeks to facilitate sustainable development through making planning processes more informed, transparent and integrated. When applied to national and regional (sustainable) development strategies, this approach has significant potential, but also faces certain limitations.

Comparing the premises of the integrated assessment with strategy formation theories one can identify the types of analysis and communication which are often neglected in such assessments, but which can significantly enhance its influence on development programmes.

This point will be illustrated by lessons from specific applications of integrated assessment such as in case of Tomsk Regional Socio-Economic Development Strategy and other sustainable development strategies.

Integrating IA Guidelines for the Oman Oil and Gas Sector: A Best Practice Process Based on Multi Stakeholder Consultation

LaPin, Deirdre; Consultant (formerly Shell International), 3732 Veazey Street, NW, Washington, DC 20016 USA. 202-537-7274. Fax 202-537-4887. dlapin@verizon.net

Petroleum Development Oman, operated by Shell, sought to revise its IA guidelines to fully integrate analysis and management of environment, health, and social impacts. Key aims were to increase IA efficiency and value to business, reduce cost, improve prediction, achieve more effective mitigations, and exploit opportunities for reducing poverty through targeted social investment. Success required the input and support of government regulators, operations units, other oil and gas producers, HSE experts, Shell advisors, local IA contractors, civil society, and communities.

A five-step process ensured continuous stakeholder participation. A "pilot" IA was selected, in this case, evaluating a 300 km loop extension of an existing gas pipeline. Choosing a project "addition" implicitly compared the "old" approach of conducting separate IAs—in which many impacts were not foreseen—with the "new" IA stressing integration and community engagement. Five steps in the total process were: (1) holding a broad stakeholder workshop yielding input and advice; (2) revising and integrating new IA guidelines; (3) testing the guidelines in the gas pipeline "pilot" IA and consulting local stakeholders; (4) convening a second stakeholder workshop to review the "pilot" experience and solicit further advice; (5) revision and final drafting of integrated IA guidelines and methodology.

The Contribution of Environmental Assessment to Sustainable Development: Towards a Richer Empirical Understanding

Cashmore, Matthew; University of East Anglia, School of Environmental Sciences, University of East Anglia, Norwich, Norfolk NR4 7TJ UK. +441603 593797. Fax +441603 591327. m.cashmore@uea.ac.uk www.uea.ac.uk

Bond, Alan; University of East Anglia.

Cobb, Dick; University of East Anglia.

This paper advances theory on the sustainability potentialities of environmental assessment based on an empirical

investigation of its outcomes in three case studies. The findings demonstrate that conventional theory substantially underestimates the multiplicity of mechanisms by which environmental assessment contributes to sustainable development. The authors propose an integrative conceptualisation of environmental assessment's sustainability potentialities comprised of four principal categories: learning, governance and development outcomes, and attitudinal and value changes. It is concluded that, despite being essentially exploratory, the research has far-reaching implications, for it implies a radical reformulation of environmental assessment theory is required.

Soils and SEA

Askew, Rob; EDAFOS, The Old Stables, Up Exe, Exeter, Devon EX5 5ND England. 01392 861043. Fax 01392 833 683. robaskew@edafos.co.uk www.edafos.co.uk

Curran, Jo; Environ, Swallow Court, Devonshire Gate, Tiverton, Devon EX16 7EJ England. 01884 842010. Fax 01884 842011. jcurran@uk.environmentcorp.com www.environmentcorp.com

James, Emma; Environ, Swallow Court, Devonshire Gate, Tiverton, Devon EX16 7EJ England. 01884 842010. Fax 01884 842011. ejames@uk.environmentcorp.com www.environmentcorp.com

Soil is a subject which is often overlooked in SEA despite its being mentioned within the SEA Directive. UK planners produce a number of plans which impact on soil in a number of ways through land take and direct soil loss, leaching and changes to structure and erosion patterns. These plans include Transport, Waste and Minerals plans which set the framework for such projects as new roads, quarries and landfill sites which can involve the loss of large areas of topsoil. Despite this, there is little guidance on how to address soil issues in SEA.

The paper will review UK SEAs for their coverage of soil issues through SEA stages including collection of soil baseline data, review of relevant plans which set out soil protection policies/objectives, selection of soil SEA objectives and indicators, impact assessment, mitigation and monitoring. This review will seek to answer such questions as:

- Do any types of plan/stages of SEA address soil issues more comprehensively?
- What linkages are made between soil and other issues?

The paper will then conclude with an analysis of how soil issues could be better integrated into SEA and make suggestions on what guidance is needed.

CS 10.I EIA AND AGRICULTURE

Impact Assessment of Natural Resources Management Technologies in Crop-Livestock Systems in Arid and Semi-arid Areas

Laamari, Abdelali; National Institute for Agricultural Research, Dryland Research Center, Po.Box. 589, Settatt, Settatt 26000 Morocco. 212.23.72.93.00. Fax 212.23.72.93.06. al.laamari@menara.ma www.inra.org.ma

Barley-livestock farming system (barley/fallow or continuous barley) is typical in dry areas of WANA region. This has resulted in degradation of natural resources and decreased productivity, which in turn has

contributed to food and feed insecurity and dependent on costly concentrated feed to supplement animal feed and/or reduce flock size. The overall result would be increased poverty and reduced livelihoods of rural communities.

Research at INRA and ICARDA has developed technologies that improve crop/livestock systems to enhance and stabilize production and reduce pressure on the natural resources. Alley cropping of Atriplex with barley is an NRM (natural Resource Management) technology that has been introduced to Morocco through Machreq/Maghreb project during 1995-2003 period. Potential benefits of the introduced technology are to increase barley production, reduce soil erosion, improve soil organic matter, reduce feeding costs, emergency feed during drought seasons, and reduce grazing pressure.

The objectives of this topic is to better understand the adoption of this NRM technology, assess the impacts attributed to the use of the technology, and evaluate the environmental effects of the alley cropping system. The estimated economic IRR is around 27% with a financial IRR about 61%.

PRA and EIA: A Powerful Combination for Agricultural and Rural Development: A Lesson from Vietnam

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

Crowley, Eve; FAO of the UN, Viale delle Terme di Caracalla, Rome, 00100 Italy. (39) 06 5705 5325. Fax (39) 06 5705 3250. Eve.Crowley@fao.org

Drawing on recent FAO project experience in Vietnam, Kenya and Cambodia, this paper stresses the benefits of conducting a Participative Rural Assessment (PRA) in advance of an EIA for large agriculture/rural development projects and for rehabilitation of environments affected by chronic environmentally damaging practices.

PRA provides for equitable and active involvement of all stakeholders in access to information and some control over resources and related decisions that contribute to sustainable livelihoods in rural areas. Ideally, this means putting the beneficiaries at the centre of the development process so that they will help to drive it and continuously adjust to it according to their learning process and needs.

In northern Vietnam, trained scientists undertook three PRAs in different provinces to provide information to stakeholders and to obtain their views on practices and environmental consequences. Remarkably useful information flowed from the exercises, highlighting significant issues such as pollution of the environment and the cause-effect relationships. Corrective measures were described and the chronic need for resources to bring about change was acknowledged.

Future project-related EIAs will be substantially served by the PRA reports by the Vietnamese teams and by the raised awareness in the three study areas.

Developing a Policy-Relevant Framework to Assess the Social Consequences of Technological Developments in Agriculture

Vanclay, Frank; Tasmanian Institute of Agricultural Research, University of Tasmania, Private Bag 54, Hobart, Tas 7001 Australia. + 61-3-62262618. Fax + 61-3-62267450. frank.vanclay@utas.edu.au www.agsci.utas.edu

Russell, Wendy; School of Biological Sciences, University of Wollongong, Wollongong, NSW 2522 Australia. + 61-2-42214916. Fax + 61-2-42214135. wendyr@uow.edu.au

Aslin, Heather; Bureau of Rural Sciences, GPO Box 858, Canberra, ACT 2601 Australia. + 61-2-62723047. Fax + 61-2-62723882. heather.aslin@brs.gov.au

The social consequences of new technologies need to be considered in policy decisions about technology development and governance. This requires a comprehensive approach to assessing technologies which is positioned to inform policy-making. By combining useful approaches from the related but independent fields of Social Impact Assessment, Technology Assessment and Policy Analysis, this early work-in-progress paper will consider whether an assessment framework and methodological approach for assessing the social consequences of new technologies is feasible.

Caprivi Sugar Case Study

Tarr, Peter W.; SAIEA, Robert-Mugabe-Ave 58, Windhoek, Namibia. + 264-61-220579. Fax + 264-61-279897. peter.tarr@saiea.com www.saiea.com

The proposed project is a 10,000 ha sugar plantation and mill in northeastern Namibia. The aim is employment creation and sugar production. The government (proponent) commissioned a project-level EIA which identified the following key concerns:

- water use and the impact on the environment and downstream users
- pest control
- surface and groundwater pollution
- land alienation
- conflicts with other land use
- social and health impacts associated with the influx of seasonal workers.

Concerns about soil suitability and financial viability resulted in the government being advised to consider doing an SEA rather than an EIA.

The SEA:

- investigated a variety of high value crops, especially those requiring less water and less vulnerable to pests;
- considered crops that can be harvested at different times, (providing permanent rather than seasonal labour);
- sought to reduce opportunity costs and improve synergies between agriculture and other sectors;
- promoted the integration of existing farmers into the new projects;
- highlighted which projects were likely to be sustainable.

Lessons learned:

- The importance of flexibility and honest dialogue in an EIA.
- The SEA should have been commissioned at the start.

It is possible to “upstream” a project-level EIA.

CS 10.2 EIA AND FORESTRY

Integrating Environmental Assessment and GIS Technologies to Support Participatory Decision

Making for Forest Resources in Developing Countries

Weeks, Emily; Massey University, 12 Oak Crescent, Ashhurst, Manawatu 5451 New Zealand. 64 6 326 9217. Fax 64 6 359 3539. eweeks@ipc.ac.nz

Natural resource managers throughout the world are incorporating new technologies and adopting new assessment and monitoring strategies in order to accurately assess degradation of natural resources. Such technologies such as GIS and Environmental Assessment have become increasingly more popular. Though numerous development projects in urban areas utilize these technologies to assist in the decision making process, this is not the case in rural communities that encroach upon endangered ecosystems. Furthermore, conservation organizations focus on developing vast sets of data illustrating the degree of environmental degradation but fail to isolate the most threatening factors of destruction: resource users. This project seeks to help communities utilize this data to help them develop sustainable management strategies that address their needs and prevent further ecological damage.

SEIA in Peru and the Identification of Required Capacities for Its Effective Application in the Agriculture and Forestry Sector

Flores, Pedro; Ministry of Agriculture, Calle Valle Riestra 650-E. Pueblo Libre, Lima, Lima21 Peru. 5114616521. pedro_flores_t@yahoo.com

Peru has a new legislation about SEIA. But its application faces big challenges and restraints. The principal research questions: What capacities can be identified as necessary for its effective application in the agricultural and forestry sector? What are the differences with systems of other countries?

In this paper, we compare those characteristics and our analysis is focused specifically in the agricultural and forestry sector. We identify the principal threats, positive and negative impacts over the environment and natural resources produced from the agricultural and forestry activities, and identify the required capacities how the system contribute in mitigate those impacts.

Forest Stewardship Certification and Impact Assessment Practice in New Zealand Forestry Companies

Morgan, Richard; Centre for Impact Assessment Research and Training, University of Otago, P.O. Box 56, Dunedin, New Zealand. +64-3-479-8782. Fax +64-3-479-9037. rkm@geography.otago.ac.nz

Hart, Andrew; Centre for Impact Assessment Research and Training, University of Otago, P.O. Box 56, Dunedin, New Zealand.

Many New Zealand forestry companies have gained, or are working towards, Forest Stewardship Council (FSC) certification, which is seen to provide a degree of competitive advantage in the international marketplace. Impact assessment, in both the environmental (EIA) and social (SIA) forms, is a significant component of the Principles and Criteria guiding FSC certification. However, the FSC provide no impact assessment standards or principles to ensure companies meet internationally recognised standards of practice. What does this mean for the standard of impact assessment being practised by forestry companies? Does it undermine the intent of the FSC certification process to promote environmental sustainability in the forestry sector?

The paper describes a study we have recently conducted into the implementation of impact assessment by those New Zealand forest companies involved in FSC certification processes. In broad terms we are interested in how forestry

companies are working with impact assessment, in their day-to-day operations and at the strategic planning level. We present the main findings and discuss the prospects for improving impact assessment practices through modification of FSC Principles and Criteria.

Conceptual and Methodological Framework for the Integrated Assessment of Forestry Management Plans

Bitondo, Dieudonne; University of Dschang, P O Box 30465, Yaounde, Cameroon. +237 741 4928. bitondodieudonne@yahoo.fr

Russo, Laura; FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. +39 06 5705 2044. Laura.Russo@fao.org

After the Rio conference, many countries revised their environmental and forestry regulations to include prescriptions for sustainable management of the environment in general and forest biodiversity in particular. Such prescriptions include, among others, tools such as Forestry Management Plans and Environmental Impact Assessment of forestry operations. In Central Africa, the practice reveals some confusion as to the role and the use of those tools. It is therefore necessary to examine the axes of coherence that exist between those tools so as to make a better use of their complementarities and synergies in the sustainable management of forest resources and forest biodiversity. Based on the case of Cameroon, a conceptual and methodological framework for the integrated assessment of Forestry Management Plans is suggested. It was noted that such an integrated assessment, one that enables a more effective use of financial and human as well as information resources, makes easier the ownership of the tools by the main stakeholder that is the forestry industry.

CS 10.3 EIA AND FISHERIES

Promoting Sustainability of Marine Fisheries through Impact Assessment

Gurtman, Sarah; NOAA's National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts 01930 USA. 978-281-9368. sarah.gurtman@noaa.gov

Canter, Larry; Environmental Impact Training, P.O. Box 9143, Horseshoe Bay, Texas 78657 USA. 512-963-1962. envimptr@aol.com

Thompson, Sarah; NOAA's National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts 01930 USA. 978-281-9355. sarah.thompson@noaa.gov

The environmental impact assessment process for marine fisheries management actions in the US supports key elements of sustainability, emphasizing fully informed decision-making based upon the best available scientific information. The National Environmental Policy Act (NEPA) serves as an "umbrella" law and process. In addition to requiring specific impact analyses, the NEPA process serves to facilitate the integration of requirements of other important laws such as the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Endangered Species Act (ESA). Together, these laws require the use of the best available scientific information, a transparent public process, the prevention of overfishing, monitoring, mitigation of adverse environmental impacts, and protection of threatened species in marine fisheries management. More specifically, sustainability conditions

for managed species are annually or bi-annually determined based on monitoring of selected indicators and the use of sophisticated stock assessment modeling. Annual to bi-annual decisions on “allowable catch” are based on forecasted sustainability conditions and management measures for enhancing fishery sustainability. These decisions are documented via the preparation of environmental assessments or impact statements.

Cumulative Effects Assessment for Fisheries Management Plans

Gurtman, Sarah; NOAA’s National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts 01930 USA. 978-281-9368. sarah.gurtman@noaa.gov

Tomey, David; NOAA’s National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts 01930 USA. 978-281-9391. david.tomey@noaa.gov

Morton, Anthony; NOAA’s National Marine Fisheries Service, 501 West Ocean Boulevard, Suite 4200, Long Beach, California 90802-4213 USA. 562-980-3209. tony.morton@noaa.gov

Canter, Larry; Environmental Impact Training, P.O. Box 9143, Horseshoe Bay, Texas 01930 USA. 512-963-1962. envimptr@aol.com

Anderson, Jennifer; NOAA’s National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts 01930 USA. 978-281-9226. jennifer.anderson@noaa.gov

Fishery Management Plans (FMP) are used to manage marine fisheries in the United States. These plans are subject to the requirements of the National Environmental Policy Act (NEPA) and, therefore, involve environmental impact statements or assessments. A growing challenge for such NEPA documentation is to address the cumulative effects of both past and present fishing and non-fishing actions on the managed species, as well as future FMP measures and non-fishing actions on such species. These challenges are exacerbated by the large geographic range and varied habitats of the managed species’ life stages, migratory fish stocks, overlapping fishing areas, and scientific uncertainties. Despite these challenges, cumulative effects assessment can be accomplished via the systematic application, and adaptation as appropriate, of the Council on Environmental Quality’s 11-step process. Recommended approaches include the use of conceptual models for depicting the scientific and institutional factors influencing the species. Further, the development of structured tables is recommended for qualitatively describing the connections between various actions and the managed species, non-target species, essential fish habitat, protected species, and human communities. Trade-off considerations related to balancing the sustainability of the managed species and the economically-dependent communities will also be described.

Integrating Knowledge on Fisheries Impacts through Environmental Assessment

Curtis, Mark; McGill University, Macdonald Campus, 21,111 Lakeshore Rd., Ste. Anne de Bellevue, Quebec H9X 3V9 Canada. 514 398-7728. Fax 514 398-7990. mark.curtis@mcgill.ca

This paper considers how work on fisheries impacts can be better integrated in the context of contemporary EA perspectives. From reviews of current impact assessment work on fisheries, it is evident that there are a considerable number of EIA based studies on the impacts of development on fisheries, but comparatively few addressing the environmental and socioeconomic impacts of the fisheries themselves in the regions worldwide that sustain them. This gap needs to be addressed if we are to move constructively

towards interpreting information to enable sustainability appraisals for fisheries.

Impacts of economic development on fisheries can be described and mitigated through existing EIA and SEA procedures. However, although the direct environmental impacts of fisheries (stock depletion, bycatch, habitat destruction) have been extensively documented, comprehensive EA studies on these are rare. Similarly, while the socioeconomic impacts of fisheries are reasonably well understood (providing food, employment and community wellbeing, often through subsidies) these have not often been examined from the perspective of appropriate assessment methodologies. Our goal should be to bring together the diverse information afforded by existing studies, to identify gaps in knowledge, and to employ an integrated approach to address fisheries issues from the broadly based perspective of environmental assessment.

Environmental Implications of Land Administration and Land Reform Projects: Some Lessons Learned

Ledec, George; The World Bank, 1818 H Street, N.W., Washington, DC 20433 United States. (1-202) 473-9267. Fax (1-202) 676-9373. gledec@worldbank.org www.worldbank.org

Land administration (cadastre, titling, registry) and land reform (redistribution) projects are widespread in developing countries and popular with international donors. Traditionally, these projects have been assessed in terms of agricultural output, economic efficiency, poverty reduction, or social equity. However, land projects and associated policies can also affect natural resource use and biodiversity conservation, both positively and negatively. Environmental issues in land administration and land reform include land tenure within existing and proposed protected areas and buffer zones; incentives for forest conservation and management versus deforestation; intensified use of agricultural and grazing lands; ownership of archaeological sites and other cultural property; and settlement or urbanization within natural disaster-prone areas. Land administration projects can be environmentally enhanced through protected areas demarcation and consolidation; titling and demarcating the communal landholdings of indigenous and other forest-based and pastoral populations; promoting environmentally favorable changes in land tenure laws; and monitoring induced land use changes. Land reform projects can be improved through environmental screening of the lands proposed for redistribution, as well as the associated physical investments. In many countries, land administration and land reform projects provide under-utilized opportunities to conserve natural habitats and promote more sustainable rural and urban development.

CS 11.1 THE IMPACT OF CONFLICT, DISASTERS AND OTHER EXTREME EVENTS IMPACT

Conflict Impact Assessment and Risk Management in Practice: Oil Companies Working in Developing Countries

Pinilla Urzola, Luz Angela; International Centre for Corporate Social Responsibility, Nottingham University

Business School., International Centre Corporate Social Responsibility. Jubilee Campus. Wollaton Road, Nottingham, NG8 1BB. United Kingdom. (00440) 1158466451. lxlap@nottingham.ac.uk

Correa, Henry; Risk & Safety Ltd Colombia, Calle 126 No. 12-90 Apto. 504, Bogota, Colombia. (00571)6191342. correahenry@etb.net.co

Potential risks that corporations face operating in conflict zones include threats to their investment, property, resources and personnel. In Colombia, the scenario to analyse is a civil war involving right-wingers, rebel groups and the armed forces. In this country, guerrilla forces have blown up the Caño Limon-Coveñas crude-oil pipeline with more than 500 terrorist attacks until now. The crude-oil pipeline extends 780 kilometres crossing remote farmlands and high Andean mountains along the country with stakeholders such as farmers, fishermen, and indigenous people.

The Colombian Oil Company (ECOPETROL) has implemented risk assessments to identify the vulnerability of the operation. The risk assessment approach included the security risk factors that could have an impact on the corporate activities. ECOPETROL has carried out security programs to control and decrease the high risk of these attacks on the crude-oil pipeline and has developed corporate policy responses such as contingency plans to minimize or mitigate these risks. Furthermore, the company has implemented specific community programs to work with the different stakeholders of the project as well.

This paper is designed to examine the strategies that the company has implemented to address the conflict impact while maintaining the business sustainability.

Integrating EIA in Post-Conflict Countries

Bouma, George; United Nations Environment Programme, Daraluman Raod, Compound of the Ministry of Energy and Water, Kabul, Afghanistan. + 93 799282846. george.bouma@unep.ch <http://postconflict.unep>.

Wroe-Street, Grant; United Nations Environment Programme, 15, Chemin des Anémones, CH-1219 Châtelaine, Geneva, Switzerland. + 41 (0)22 917 87 00. Fax + 41 (0)22 917 80 64. grant.wroe-street@unep.ch <http://postconflict.unep>.

In the 20 years since the Brundtland Report "Our Common Future," increasing attention has been placed on the context of the environment in development. Whether development theory and practice has embraced a more sustainable approach is a moot point. Yet there are some countries that are considered conflict or post-conflict where the integration of environment can be obscured by competing needs. The principles and ideals borne out of "Our Common Future" have no currency or at best are poorly understood in these countries. Conflict has both direct and indirect impacts on the environment, but it also results in a lack of capacity to integrate sustainability into post-conflict relief and development. In this context what role can environmental assessment play to alleviate poverty and support much needed development? The following paper examines the case of Afghanistan and Liberia and argues that post-conflict countries need support to mainstream EIA practices, but more importantly SEA needs to be integrated as a tool to inform development practices in the post-conflict setting.

SEA in Conflict-Affected Countries

Verheem, Rob; The Netherlands Commission for Environmental Assessment, PO Box 2345, Utrecht, 3500 GH The Netherlands. + 31 30 2347 636. Fax + 31 30 2304 382. rverheem@eia.nl www.eia.nl

This paper focuses on questions such as: What should be the purpose of SEA and when to apply it in conflict affected

countries? How to undertake effective SEA in those situations: is it different from good practice in non-conflict situations? How to build capacity for SEA in conflict-affected countries: what are priorities and where to start?

The paper argues that one of the main purposes of SEA in conflict-affected countries should be to help preventing natural resources from becoming a source for further conflict in the future. Application should be limited to situations where environment is a priority and at the same time certain preconditions in the country are met. These are discussed in the paper.

Carrying out conflict-sensitive SEA is no different from "ordinary" SEA, with two notable exceptions: more careful preparation of the integrated plan/SEA process to ensure a conflict-sensitive design, and approaches to stakeholder involvement that will not put stakeholders at risk.

Finally, the paper concludes that building capacity for an SEA is also not different in conflict-affected countries from other countries, yet should not create tensions by itself. Therefore, the same recommendations apply as stated earlier for stakeholder involvement.

CS 12.1 ENVIRONMENTAL MANAGEMENT SYSTEMS, SESSION I

Sustainable Integrated Forest Management Mountain Forest

Adeniyi, Pius; Federal Ministry of Environment, Garki, P M B 468, Abuja, FCT 900001 Nigeria. + 234 5234119. Fax 234 523 4ii9. pakindele@yahoo.com

In Africa, land use and sustainable management schemes in highland areas and mountainous forest have become increasingly important and timely, as these areas, like the lowland forest, have come under serious exploitation and constant threat of disintegration, following the depletion of the majority of the lowland forest. Mountain forests, like most ecosystems, have been exploited and degraded mainly by anthropogenic activities either directly (through vegetation cover removed for timber/wood, construction, agriculture and other purposes) or indirectly (through pollution by environmental stresses such as hazardous gases/oils, global warming effects, heavy metal bioaccumulation and toxicity). These areas have also had their share of forest wildfire and defoliation, forest damage and decline by natural disasters and adverse climatic conditions. In order to arrest the situation, this paper suggests that appropriate and sustainable integrated forest management techniques be implemented and executed uncompromisingly. In this regard, geographic information system and remote sensing technologies should be employed along with appropriate methods of educating the rural populace in renewable resources utilization involving not only physical utilization of the forest resources, but also other areas of forest use peculiar to mountain forest such as profitable, sustainable ecotourism.

The EIA and the Environmental Management at the Miravalles Geothermal Field After 12 Years of Exploitation

Guido-Sequeira, Harman; ICE, Campo Geotermico Miravalles - Guayabo de Bagaces Guanacaste,

Guanacaste, Costa Rica. (506) 6730100. Fax (506) 6730132. hguido@ice.go.cr

The great biological diversity of Costa Rica represents one of its biggest resources, and it's a focal point of the country's policies of environmental protection. For this reason the country is recognized worldwide as a leader in protecting the environment. This characteristic constitutes an important challenge for developing the geothermal energy according to these policies, due to a great part of the recognized resources that are associated to areas with different degrees of environmental protection. The environmental impacts assessment (EIA) for Miravalles was made in 1988. Since it was the first EIA ever done in Costa Rica at that time, it would change the way models for any new large project in Costa Rica would be presented in the future. As a result of this study, the most important environmental aspect to monitoring was established.

This document discusses the different environmental aspects included in the EIA (air quality, water quality, effects on the atmosphere, visual impacts and public relations) and the actual environmental management related to the utilization of the Miravalles Geothermal Field.

Tracking EIA Applications in South Africa

Pillay, Anbendren; Department of Environmental Affairs and Tourism, 315 Pretorius Street, Pretoria, Gauteng 0001 South Africa. + 2712 3103951. Fax + 2712 3103688. apillay@deat.gov.za www.deat.gov.za

EIA applications are processed both nationally and provincially (regionally). An electronic system, National Environmental Authorisation System (NEAS) (NORAD-funded project), has been developed to record these applications, track the progress of each application, use the information to generate statistics, to identify officials' strengths and weaknesses, for capacity building initiatives and to provide support to provincial authorities.

The project was developed and implemented in two phases with future phases for enhancement. Phase one was the capturing of the EIA application form that included the activity being applied for, the location of the development, the authorities and stakeholders involved.

Phase two comprised of the processing of the application by the various officials. This included the assessing officer's reviewing the application, reports and specialist studies and making recommendations for approving or denying authorisation. The system tracks the progress of the application from receipt at the Department until it is authorised, signed off and archived.

Statistics, reports, letter templates and standard letters can be produced from the system.

This system will be used by the National Minister to immediately access the system when queries are directed to him for quick update on the status of an EIA application.

Lessons Learned for the Total Water Quality Management (TWQM) System

Jung, Jong-Gwan; Chungnam Development Institute (CDI), 138-42 Sangdae-dong, Yuseong-gu, Daejeon, 305-313 Korea, Republic of. 82-42-820-1181. Fax 82-42-820-1129. asset@cdi.re.kr www.cdi.re.kr

Yi, Sang-Jin; Chungnam Development Institute (CDI), 138-42 Sangdae-dong, Yuseong-gu, Daejeon, 305-313 Korea, Republic of. 82-42-820-1180. Fax 82-42-820-1129. asset@cdi.re.kr www.cdi.re.kr

This paper is the second presentation on the action plan of total water quality management system based in local area, which is connected to the basic plan for that system. It

particularly focused on the implementation of allocation of waste emission load.

The Total Water Quality Management (TWQM) system seeks to harmonize conservation and development by allowing regional development carried out in an eco-friendly manner and within the scope of achieving the desired water quality. Under the system, water pollutant sources are managed so as to keep the total amounts in public water to a certain level or total allowance in accordance with the target standards. Even though regulation on total load is not easy to enforce and monitor, it can control the load of pollutants under the consideration of regional capacity applied.

One of the allocation methods on the directive regulation is that administrative authority allocates the effluent allowances, which ignoring the discharges will be setting the total effluent standard. But this has been calculated without considering the cost-effective function. In this regard, another notice of target water quality is set by provincial governors. We drew out the cost efficient options for the enforcement of action plan of TWQM in Gongju-City, Chungnam Province. The main aspects of implementation are calculation of discharge load to meet water quality, standard stream flow applied to carrying capacity and margin of safety for abatement of load.

CS 12.2 ENVIRONMENTAL MANAGEMENT SYSTEMS, SESSION 2

Examining the Effectiveness of Environmental Management Systems in Practice

Nitz, Tracey; University of East Anglia, School of Environmental Sciences, University of East Anglia, Norwich, Norfolk NR4 7TJ United Kingdom. 44 1603 593130. t.nitz@uea.ac.uk www.uea.ac.uk/env

Organisations are investing significant resources in developing and maintaining their environmental management systems. The use of environmental management systems is increasingly recognised as best practice and is regarded as an indicator of sound environmental management. This view is shared by industry, governments and other stakeholders including investors and supply chain partners. However, there has been very little research that has evaluated the effectiveness of environmental management systems in practice.

To date much research has focused on the potential benefits of adopting an environmental management system. However, these discussions have been based on limited empirical evidence. Some empirical research has been conducted on the organisational changes that have resulted from adopting an environmental management system, but there is very little research that explores the implications in terms of environmental outcomes. This paper presents the research approach that will be used to examine the effectiveness of environmental management systems in practice. In particular, the research will investigate the implications of adopting an environmental management system in terms of environmental performance. This research will draw on theoretical frameworks for evaluating the effectiveness of other environmental management tools.

Integration of Environmental Management System and EIA in the Swedish National Rail Administration

Lundberg, Kristina; Royal Institute of Technology (KTH), Brinellvägen 28, Stockholm, SE-100 44 Sweden. +46 8 790 6141. krlun@kth.se

Balfors, Berit; Royal Institute of Technology (KTH), Brinellvägen 28, Stockholm, SE-100 44 Sweden. +46 8 790 6352. balfors@kth.se

Folkesson, Lennart; Royal Institute of Technology (KTH), Brinellvägen 28, Stockholm, SE-100 44 Sweden. +46 8 790 7376. lennart.folkesson@vti.se

The two management tools Environmental Impact Assessment (EIA) and Environmental Management System (EMS) are often used in isolation. This is the case also at the Swedish National Rail Administration. Environmental information and decisions expressed in the EIA during the planning of a project are seldom transferred to the construction phase and further to the operational phase and the EMS. Any continuous environmental monitoring is usually not based on the findings in the EIA. The lack of integration of the management tools and the poor transfer of information have had a negative effect on the follow-up of the environmental outcome of rail projects.

A research study has been initiated with the aim to improve the environmental monitoring within the Rail Administration by exploring ways of combining EIA and EMS. Three rail projects are being examined from the planning stage through construction to operation. The focal stage is the handing over of the project to the administration for continual operation. Based on findings from the case studies, a model will be developed for the integration of EIA and EMS. The model will facilitate the integration of EIA decisions with the operational EMS, which will improve the environmental outcome of rail projects.

Environmental Administration System as a Tool to Improve the Environment Impact Assessment

Guido-Sequeira, Harman; ICE, CSRG - Campo Geotérmico Miravalles, guayabo de Bagaces Guanacaste, Guanacaste, Costa Rica. (506) 673 0100. Fax 673 0132. hguido@ice.go.cr

The conservation of the environment cannot be sought by sacrificing the development and well-being of a nation, since the conservation alone doesn't contribute to reduce poverty. For this reason the concept of sustainable development looks for a balance between development and environmental conservation, and the EMS can be used to get this balance. But why should the organization have to implement an environmental management system? The main idea of the EMS is to prevent all kind of contamination, try to reduce the contamination, and if any of these solutions are possible, then it will focus on to mitigate the contamination. The organization can reduce the costs if it teaches the people about the importance of reduce the unnecessary use of material, electricity, water, paper, etc. It will represent a high efficiency and less production costs. Also, it has to be taken into account that the communities have a lot of power. If they are against the project it will mean problems that can be prevented and solved by a correct EMS. The EMS can also be used as a tool to ensure the appropriate implementation of the environmental programs established in the EIA and improve the EIA itself.

Environmental Management and Environmental Management Tools in Practice: The View of the Environmental Managers

Nitz, Tracey; University of East Anglia, School of Environmental Sciences, University of East Anglia, Norwich,

Norfolk NR4 7TJ United Kingdom. 44 1603 593130. t.nitz@uea.ac.uk www.uea.ac.uk/env

Brown, Lex; Griffith University, Faculty of Environmental Science, Griffith University, Nathan, Queensland 4111 Australia. lex.brown@griffith.edu.au

A plethora of environmental management tools have emerged over the last 40 years, such as EIA, SEA, EMS, 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 presents the results of an empirical study of environmental management practices of 23 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 discussed. The key issues for environmental managers were 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.

Links Between Environmental Impact Assessment and Environmental Management Systems – A Conceptual Framework

Krijnen, Justin; Institute of Environmental Management and Assessment (IEMA), St Nicholas House, 70 Newport, Lincoln, Lincolnshire LN1 3HQ United Kingdom. 01522540069. j.krijnen@iema.net

Environmental Impact Assessment (EIA) and Environmental Management Systems (EMS) are perceived by many to be separate environmental tools. Essentially this is true. EIA serves as a systematic and predictive tool for assessing the potentially significant impacts of developments on the environment. An EMS, on the other hand, is used to consider the key impacts of operational businesses on the environment. The main difference to note is that during the EIA process impacts on developments are predicted. A proposed development has yet to be built and therefore an element of uncertainty is associated with these assessments. With an EMS, the business or organisation's processes are already in operation. Even though there is also an element of prediction involved, it is a comparatively easier task to investigate what the environmental impacts of these processes are. Yet, however separate these assessment tools may appear to be, it is possible to integrate elements of each tool to aid in the process of managing the environmental impacts of developments and/or businesses. This e-briefing identifies the links between EIA and EMS and how a combination of both instruments may help to improve impact prediction and management.

CS 13.1 HIA INSTITUTION AND NATIONAL SYSTEM

A National Policy on Health Impact Assessment in Lao PDR—A Contribution Towards Sustainable Development and Poverty Reduction

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

Phommasack, Bounlay; Ministry of Health, Simeuang Road, Vientiane, Lao PDR. +856 21 24 32 61. Fax +856 21 24 32 61. bsack@laotel.com

Bos, Robert; World Health Organization, 20 Avenue Appia, Geneva 27, 1211 Switzerland. +41 22 791 35 55. Fax +41 22 791 41 59. bosr@who.int www.who.int

Inmuong, Yanyong; Mahasarakham University, Mahasarakham, 2920 Thailand. +66 43 75 43 21. Fax +66 43 75 43 05. yanyong.i@msu.ac.th

Chanthaphone, Soutsakhone; Ministry of Health, Vientiane, Lao PDR. souch@laotel.com

In early 2003, Health Impact Assessment was introduced in the Lao People's Democratic Republic through the initiation of a comprehensive, intersectoral capacity building programme. Subsequent to specific training activities targeted at professional staff of the health, environment and other development sectors, an HIA taskforce was established within the Ministry of Health and HIA focal points were designated in the other relevant ministries.

Following a national policy seminar in December 2004, line ministers endorsed a National Action Plan for the establishment of an HIA Policy Framework, initiating a review process of the contents of existing sectoral policies, legislation, decrees and regulations of relevance, harmonizing references to health in different policies and formulating new policy when necessary.

A year later the process was completed and a National HIA Policy was approved by the Government, establishing that any major future development activity should undergo a proper HIA either as an independent pre-project activity or as an integrated element of already existing practices for EIA. This HIA Policy initiative will significantly reduce the transfer of hidden costs of development to the health sector and contribute considerably to disease prevention and health promotion, prerequisites for long-term sustainable development and poverty reduction in Laos.

HIA Institutionalization in Thailand: The Struggle of Power and Rationality in Public Policy Processes

Sukkumnoed, Decharut; Aalborg University, Fibigerstraede 13, Aalborg East, 9220 Denmark. 45 9635 7219. tonklagroup@yahoo.com

Phoolcharoen, Wiput; Healthy Public Policy Foundation, Room 405, Baradnaruadune Institute (The 10 floor Building), Tiwanon Rd., Muang, Nonthaburi 11000 Thailand. 66 2 951 0722. Fax 66 2 951 1482. bphoolcharoen@yahoo.com

Nuntavorakarn, Suphakij; Healthy Public Policy Foundation, Room 405, Baradnaruadune Institute (The 10 floor Building), Tiwanon Rd., Muang, Nonthaburi 11000 Thailand. 66 2 951 0722. Fax 66 2 951 1482. suphakijn@yahoo.com

In 2003, Reiner Banken raised the question on "HIA—How to start the process and make it last." He suggests that "institutionalization" is the key to make HIA effective in policy process. He also pointed out "the evolving experience in Thailand should be followed closely, as it will provide

important lessons for institutionalizing HIA in similar context."

After 5 years of its implementation, HIA institutionalization in Thailand will be summarized and analyzed in this paper. In Thailand, co-evolutionary process is the key for HIA institutionalization, since it can shape HIA to fit with its wider societal contexts. As its wider contexts are highly dynamics, the challenge is how to facilitate the co-evolutionary process to keep HIA on the right track.

This study suggests that, apart from "how to make it last," we need to raise the question on "what to make it last for." This is because power struggle and contestation of different rationalities has played a key role in shaping HIA as part of on-going public policy processes. Therefore, the further developments of HIA need to reconsider their roles in public policy processes, as well as in balancing power relationship and rationalities within Thai society.

Evaluating the Roll-Out of HIA in New Zealand

Quigley, Robert; Quigley and Watts Ltd, Level 5, LG Centre, 35-37 Victoria St., Wellington, New Zealand. 0064 4 472 0139. rob@quigleyandwatts.co.nz

Ward, Martin; Environmental Consultant, 37 Hankey St, Mt Cook, Wellington, New Zealand. 0064 3 384 9590. martinward@xtra.co.nz

Langford, Barbara; Public Health Advisory Committee, PO Box 5013, Wellington, New Zealand. 0064 4 496 2084. Barbara_Langford@nhc.govt.nz

HIA using a social determinants of health approach has only been actively promoted in New Zealand to central and local government for the past 3 years. Fortunately much of this work has been evaluated, and this paper presents a unique opportunity to hear about country-level implementation of a new form of impact assessment.

Problems faced and lessons learned are likely to be applicable to other countries.

Pre-Screening? Developing Realistic Approaches to the System-Wide Use of HIA

Harris-Roxas, Ben; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. b.harris-roxas@unsw.edu.au chetre.med.unsw.edu.au

Harris, Patrick; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. patrick.harris@unsw.edu.au chetre.med.unsw.edu.au

Kemp, Lynn; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. lynn.kemp@sswaha.nsw.gov.au chetre.med.unsw.edu.au

Harris, Elizabeth; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. e.harris@unsw.edu.au chetre.med.unsw.edu.au

The New South Wales HIA Project has progressively built capacity to undertake HIA across the state's health system and within government more broadly. A major aspect of the current capacity building work involves "learning by doing" through supporting 19 sites to do HIAs.

These HIAs have highlighted the issue of when HIAs should be routinely undertaken by government agencies. If HIA is to be successfully incorporated into government policy development and planning processes it is crucial that it involves a resource commitment commensurate to its perceived benefits. The process of “learning by doing” has highlighted that even formal screening exercises that don’t progress to HIAs require substantial amounts of time and resources. If screening was required on all government proposals, it would quickly become unsustainable. This has highlighted the need for a practical pre-screening process or tool that could be used across government to determine if a formal HIA screening exercise is required.

This presentation:

- Canvasses the challenges governments face in institutionalising HIA, drawing on Australian and international experiences.
- Puts forward preliminary work on a pre-screening process.
- Highlights the possibilities a pre-screening step provides for HIA to complement other forms of impact assessment.

CS 13.2 CONCEPT AND CASE OF STRATEGIC HIA

Health Impact Assessment and Health Promotion

Bos, Robert; World Health Organization, Avenue Appia, Geneva 27, 1211 Switzerland. +41227913555. Fax +41227914159. bosr@who.int www.who.int/water_sanitat

Last August, the 6th Global Conference on Health Promotion adopted the Bangkok Charter on Health Promotion in a Globalized World. This Charter highlights, *inter alia*, the impact of development on environmental and social health determinants. It makes reference to health impact assessment as a tool to design intersectoral public health management plans whose execution can be integrated into the implementation of development projects. It reconfirms the functional framework HIA provides for healthy public policy formulation. Among opportunities that resulting from closer links between HIA and health promotion are a greater emphasis on health opportunities in development, more effective mechanisms for engagement of other sectors in health promotion, stimulation of intersectoral action for health, a reduction of the burden on the health sector, liberating resources for health promotion and more attention for changes in health determinants “upstream” in the development process. HIA is of great relevance to health promotion but this relevance is reciprocal: the settings approach of health promotion allows finding local solutions to local problems, health promotion helps create awareness of the need for HIA in development planning and it helps shape a participatory approach to health that can be applied to HIA.

Future Strategies for Addressing Health in SEA

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

Cave, Ben; Cave Consult, PO Box 220, Brighton, BN2 3WJ UK. +44 1273 723400. ben.cave@caveconsult.co.uk

Martuzzi, Marco; World Health Organization, Via F. Crispi 10, Rome, 00187 Italy. +39 (06) 4877520. mam@who.it

Nuntavorakarn, Suphakij; Health Systems Research Institute, 5th Floor, AI Nont Building, 70/7 Tiwanon Road, Nonthaburi, NR4 7TJ Thailand. +66 29510169. suphakijn@yahoo.com

IAIA held a special meeting on SEA in Prague in September 2005. At that meeting, the health section sought consensus on ways to address the consideration of health at strategic levels, whether this be through a focus on Health Impact Assessment or through other means.

- There was consensus on the need to address human health within SEA and to build capacity:
- Of the community in terms of land use/sectoral, environmental and health issues so that members of the public can better engage in the SEA process
- In terms of the methods/knowledge used in the consideration of health and well-being within SEA
- In terms of structural incompatibilities, i.e., state institutions may deliver health protection and not promotion
- Generally in all sectors to consider health, including within university curricula

Short-, medium- and long-term strategies were identified as priorities for future focus. These include more radical rethinking of institutional structures within the health sector, and are presented as the basis for stimulating wider discussion and developing agreed actions. The aim is to achieve the desired integration of human health into, and throughout, SEA and improve cross-sectoral understanding between health professionals, policy-makers, and other, IA practitioners.

Making a Healthier Choice an Easier Choice: The Roles of HIA and Institutional Analysis in Thai Renewable Energy Policy

Sukkumnoed, Decharut; Aalborg University, Fibigerstraede 13, Aalborg East, 9220 Denmark. 45 9635 7219. tonklagroup@yahoo.com

Nuntavorakarn, Suphakij; Healthy Public Policy Foundation, Room 405, Baradnaruadune Institute (The 10 floor Building), Tiwanon Rd., Muang, Nonthaburi 11000 Thailand. 66 2 951 0722. suphakijn@yahoo.com

The concept of “healthy public policy” is to create supportive environment for healthy living by putting health in agenda of all policy-making related to health and by making a healthier choice an easier choice for decision-makers.

Health Impact Assessment has been developed as one of the tools for healthy public policy. It has been applied in Thailand to analyze the benefits of renewable energy development in health and other perspectives compared to the existing power development plan and other options. Its results show that renewable energy provides significant positive impacts for Thai society, both in terms of environmental health as well as in terms of economic development. It also provides more flexible and stable investment option in risky energy market.

However, impact assessment in itself cannot adequately lead a healthier choice to an easier choice. This is because investing in new technology scheme also require new supportive institutional frameworks, from the governance structure of power market to the technical standard for interconnection. Therefore, to make a healthier future, HIA cannot only focus on impact analysis and economic valuation. It needs to play more roles in analyzing institutional barriers and providing insightful recommendations and deliberations for desirable institutional changes.

CS 13.3 HIA: METHODS AND TOOLS

Impact Pathway Approach to Health Impact Assessment: Examples of European Research Projects

Bartonova, Alena; Norwegian Institute for Air Research, Instituttveien 18, POB 100, Kjeller, 2027 Norway. + 47 6389 8152. Fax + 47 6389 8050. alena.bartonova@nilu.no www.nilu.no

Briggs, David; Imperial College, Norfolk Place, London W2 1PG, United Kingdom. + 44 (0)207 594 3329. d.briggs@imperial.ac.uk

van den Hazel, Peter; Hulpverlening Gelderland Midden, postbox 5364, 6802 EJ Arnhem, The Netherlands. + 31 26 3773915. Peter.van.den.Hazel@hvdgm.nl

Pacyna, Jozef M.; Norwegian Institute for Air Research, Instituttveien 18, Postboks 100, Kjeller, 2027 Norway. + 47 63898155.

The “impact pathway” methodology for health impact assessment is in Europe developed in research projects co-funded by the EC, aiming to contribute to the EU Environment and Health Action Plan (COM(2004) 416). While the projects focus on different issues and settings, the energy use and production always plays a prominent role, as it constitutes one of the largest pollutant sources impacting the environmental health.

The project DROPS looks at health effects of selected persistent pollutants in relation to man-made emissions that are followed through the “impact pathway” towards their health effects and associated macroeconomic impacts. INTARESE is a pan-European integrated project developing theoretical framework (including integrated environment and health monitoring and surveillance) and applying it at environmental health in areas such as traffic or housing. PINCHE is a newly completed network of stakeholders in children’s environmental health reviewing for policy advice children’s environmental health relative to problem areas such as air pollutants, carcinogens, or neurotoxicants. These projects are all enhancing our theoretical knowledge, but more importantly, provide for a dialogue between scientists and other important societal actors including industries and central decision makers, and thus enhance chances for informed decision making on all levels.

Health Impacts of the Built Environment

Lavin, Teresa; Institute of Public Health in Ireland, 5th Floor Bishop’s Square, Redmond’s Hill, Dublin 2, Ireland. + 353 1 478 6300. teresa.lavin@publichealth.ie

Clearly interpretable, easily accessible information on the links between the built environment and health will support better decision making. The Institute of Public Health in Ireland, an all-island organisation working to promote co-operation in public health, has produced a review paper on this subject. The purpose of this review is to make explicit the multiple pathways through which the built environment may potentially affect health. It will be of interest to planners, public health specialists and others working in these areas. This presentation will highlight the causal pathways between the built environment and health and present the key findings from the research.

Environmental Burden of Disease Studies—Differences Explored

Knol, Anne; National Institute for Public Health and the Environment (RIVM), PO Box 1, Postbak 10, Bilthoven, 3720 BA the Netherlands. + 31 30 2742869. anne.knol@rivm.nl

van Kempen, Elise; National Institute for Public Health and the Environment (RIVM), PO Box 1, Postbak 10, Bilthoven, 3720 BA the Netherlands. + 31 30 2743601. elise.van.kempen@rivm.nl

Staatsen, Brigit; National Institute for Public Health and the Environment (RIVM), PO Box 1, Postbak 10, Bilthoven, 3720 BA the Netherlands. + 31 30 2742869. brigitt.staatsen@rivm.nl

Environmental factors can affect health and quality of life. To compare such problems, which differ in type and scope, integrated measures can be used to quantify their health impact. One of these a measures is the DALY (Disability Adjusted Life Years), which considers the loss of life expectancy due to premature mortality, loss of quality of life due to disease, and the number of people affected.

We have quantified the public health impacts of air pollution (PM10 and ozone), noise, radiation (radon and UV) and indoor dampness using DALYs. Overall, around 2 to 5% (up to 13% including the uncertain effects of long-term PM10 exposure) of the disease burden in the Netherlands is estimated to be attributable to these environmental factors.

DALYs calculated in different studies often vary, and it is important to know what causes this variation – calculation methods, baseline assumptions, definitions or input data – since this influences interpretation and comparability of results. We have compared the results of 17 international environmental burden of disease studies (including our own).

Results of DALY studies mainly vary due to different (indicators of) environment and health determinants being assessed. Sources and methodologies to derive input data generally do not vary significantly.

Guide to Reviewing Published Evidence for Use in Health Impact Assessment

Mindell, Jennifer; University College London, Department of Epidemiology & Public Health, 1-19 Torrington Place, London, WC1E 6BT UK. + + 44 (0)20 7679 1269. Fax + + 44 (0)20. j.mindell@ucl.ac.uk www.lho.org.uk

Taylor, Lorraine; Health Development Agency, London, UK. l.taylor@nice.ac.uk

Lock, Karen; London School of Hygiene and Tropical Medicine, Keppel Street, London, UK. karen.lock@lshtm.ac.uk

Joffe, Mike; WHEPS, London, WC1E 6BT England. m.joffe@imperial.ac.uk

Curtis, Sarah; Queen Mary University of London, London, UK. s.e.curtis@qmul.ac.uk

Boaz, Annette; Queen Mary University of London, London, UK. a.l.boaz@qmul.ac.uk

Boltong, Anna; London Health Observatory.

Biddulph, Jane; University College London.

Reviewing published evidence for use in HIA presents many methodological challenges due to the broad scope of the work and the short timescales for the assessment. Although a comprehensive, systematic review of all relevant literature provide the best evidence, these require resources, including long timeframes, not generally available for HIA. In practice, ‘brief’ reviews are generally conducted or commissioned, taking a few days or weeks. These have been of variable quality. Assessing such reviews is hampered when the methods used are not stated explicitly.

We have produced a guide to reviewing published evidence for use in HIA. It indicates minimum criteria that are essential in any literature review, however limited the resources, and also points to additional elements to be included when circumstances permit, to add to the robustness of a review's conclusions.

The guide has been produced through an iterative process, involving HIA practitioners, academics, and experts on reviewing and synthesising literature. It was informed by qualitative research and has been piloted and peer-reviewed.

The presentation describes the processes used when developing the guide and how it can be used. Printed copies of the guide will be available.

CS 13.4 SOCIAL DETERMINANTS AND HIA

Addressing Socio-Economic Determinants in HIA

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

Socio-economic factors are among the strongest determinants of health. When evaluating the health implications of plans or policies, especially at the strategic level, the role of socio-economic factors is almost invariably important, but difficult to assess. There is, however, a large body of literature on various aspects of socio-economic factors, including absolute and relative deprivation, income and its distribution, education, employment, housing quality, social cohesion: all are strong predictors of health in different contexts and at different levels of aggregation. There are many difficulties in turning such evidence into valid and useful HIA, mainly due to the complex multifactorial nature of the association between health and socio-economic factors. These difficulties may appear insurmountable, yet even small progress in the methodology might substantially improve the quality of HIAs, especially those where the available information is limited and tends to draw the attention to relatively weak health determinants. Also, a more thorough analysis of socio-economic factors may be valuable on HIAs done in settings such as economies in transition or developing countries. For these reasons, this question is currently being addressed in the HIA-NMAC collaborative project (HIA in new EU member states and accession countries).

Health as if the Poor Matter: The Roles of HIA and Social Determinants of Health in Thailand's Poverty Alleviation Policy

Sabrum, Nuntana; Healthy Public Policy Foundation, Tiwanon Road, 126 Bamrasnaradura Infectious Diseases Institute, 4th Floor room 405 (the 10th Floor Building), Muang, Nonthaburi 11000 Thailand. 66-2-590-2304 ext.104. Fax 66-2-590-2311. n_fatcat@yahoo.com www.hpp-hia.or.th

Sukkunnoed, Decharut; Aalborg University, Fibigerstraede 13, Department of Development and Planning, Aalborg East, Aalborg 9220 Denmark. tonklagroup@yahoo.com www.aau.dk

Social Determinants of Health (SDH) have currently been the focus of the World Health Organization to tackle health inequality by addressing structural problems of ill health. In Thailand, the HIA team and other networks have joined together to apply the concept of SDH in Thai society and linking it to poverty problems. The detailed analysis will be performed through several case studies. The synthesis of the conceptual framework on SDH and poverty will be followed.

The development of SDH concept will expand as well as deepen the knowledge on health problems that relates to

social conditions and structures. There are three levels of explanation on SDH, namely issue-based explanation, approach-based explanation and comprehensive conceptual framework. These will be focused on later.

Furthermore, understanding on the SDH concept will extend further the development of HIA, particularly how to explore social and spiritual health aspects more systematically. This also will contribute to the linkages between HIA, SIA, and also other IAs.

Importantly, HIA will be better equipped to deal directly with structural factors and take consideration to health inequalities/inequities, especially among the poor people or disadvantaged groups who are normally affected from unfair development.

Towards a Model for Obesity-Focused HIA

Rutter, Harry; South East Public Health Observatory, 4150 Chancellor Court, Oxford, OX4 2GX United Kingdom. +44 1483 882 543.

harry.rutter@uhce.ox.ac.uk www.sepho.org.uk

den Broeder, Lea; RIVM, PO Box 1, Bilthoven, 3720 BA Netherlands. 0031 30 2742735. Fax 0031 30 2744450.

lea.den.broeder@rivm.nl www.rivm.nl

Veerman, Lennert; Erasmus MC, PO box 2040,

Rotterdam, 3000 CA Netherlands. +31 10 4087732.

j.veerman@erasmusmc.nl http://mgzlx4.erasmusmc.nl

Schuit, Jantine; RIVM, PO Box 1, Bilthoven, OX4 2GX Netherlands. Jantine.Schuit@rivm.nl

Overweight and obesity pose an increasingly important public health problem, contributing to a number of serious diseases such as diabetes, coronary heart disease, musculoskeletal disorders and cancer.

The main determinants of overweight are an unhealthy diet and a lack of physical activity. A range of policy sectors influence these factors, including housing and spatial planning, transport, leisure, agriculture, and trade.

Assessing policies, programmes and project in such sectors for impacts on overweight determinants contributes to healthy public policies. We could call this 'obesity-focused HIA.' Since obesity is not equally distributed in populations, special attention should be paid to vulnerable groups such as children and young people, ethnic minorities and those with poor socioeconomic status.

A model for such obesity-focused HIA will be presented, offering an overview of the impacts to be assessed as well as a guide through all HIA stages (screening, scoping, assessment, appraisal, policy influencing). In the model HIA methodology is combined with insights from the prevention field.

CS 13.5 HIA IN NORDIC COUNTRIES

Discussion on Strategies, Status and Experiences with Implementing HIA in Sweden, Denmark, Finland and Norway

Fosse, Arne Marius.

Abstract not available.

Human Impact Assessment – From Quality to Effectiveness

Nelimarkka, Kirsi; STAKES - The National Research and Development Centre for Welfare and Health, P.O.Box 220, Helsinki, 00531 Finland. + 358-9-3967 2109. kirsi.nelimarkka@stakes.fi

Kauppinen, Tapani; STAKES - The National Research and Development Centre for Welfare and Health, P.O. Box 220, Helsinki, 00531 Finland. + 358-9-3967 2053. tapani.kauppinen@stakes.fi

Perttilä, Kerttu; STAKES - The National Research and Development Centre for Welfare and Health, P.O.Box 220, Helsinki, 00531 Finland. + 358-9-3967 2318. kerttu.perttila@stakes.fi

In this paper, we examine the effectiveness of Human Impact Assessment (HuIA). HuIA includes health impact assessment (HIA) and social impact assessment (SIA).

A properly conducted, high-quality HuIA can provide the conditions for an effective assessment. The relationship between the quality and effectiveness of the assessment process is not unambiguous, however. Quality is not the only factor explaining the effectiveness of a prospective assessment.

What is required in addition to quality analyses is an effectiveness analysis of the assessment process. Effectiveness can refer to the likelihood of a HuIA process achieving the goals set for it. Secondly, effectiveness can be linked to the impact of HuIA process on the preparation of a decision or on the final decision. A third aspect for effectiveness analysis is the impact of HuIA on the people and organizations that participate in it. Such impact can be changes in or reinforcement of opinions, values, cooperation relationships or work procedures. These changes or reinforcements usually emerge as the result of the learning process.

CS 13.6 HIA KALEIDOSCOPE

Post-Normal Science, Local Lay Knowledge and Plural Rationalities

Vohra, Salim; Peter Brett Associates, Caversham Bridge House, Waterman Place, Reading, Berkshire RG1 8DN UK. + 44 (0)118 952 0299. Fax + 44 (0)118 959 7498. svohra@pba.co.uk www.pba.co.uk

This paper outlines three theoretical perspectives that could act as important foundations for moving forward HIA theory by integrating the diverging perspectives on whether HIA should be expert-led or community-led.

The post-normal science perspective argues that when facts are uncertain and decisions urgent - when normal science cannot predict consequences with any degree of certainty and decisions with a strong socio-political dimension need to be made - then using an extended peer community of affected stakeholders to review and 'quality assure' the facts can lead to more consensual, accurate and robust science-based decision-making.

The local lay knowledge perspective argues that individuals and communities have localised experiential knowledge about their social and natural environment; the key individual, organisational and institutional actors that work within them; and how these interact with each other. This knowledge, especially in situations where the science is uncertain, can be incorporated into scientific assessment to better apply the more universal and general findings that science provides.

The plural rationalities perspective argues that individuals, groups and institutions develop a set of values and ways of understanding and interacting with the world. In situations of uncertainty these rationalities or worldviews collide and result in conflict.

Consideration of Climate Change for Arctic Indigenous Peoples in Health Impact Assessment

McClymont Peace, Diane; First Nations and Inuit Health Branch, Health Canada, Jeanne Mance Bldg, AL 1915D, Tunney's Pasture, Ottawa, Ontario K1A 0K9 Canada. 613-946-9663. Fax 613-954-0692. diane_mcclymont-peace@hc-sc.gc.ca

Berry, Peter; Healthy Environments and Consumer Safety Branch, Health Canada, 269 Laurier Ave. West, AL 4905B, Ottawa, Ontario K1A 0K9 Canada. 613-941-3637. Fax 613-957-1886. peter_berry@hc-sc.gc.ca

Owens, Sandra; Université de Laval, Institut national de santé publique du Québec, 945, rue Wolfe, Sainte-Foy, Quebec G1V 5B3 Canada. 418-650-5115. sandra.owens@crchul.ulaval.ca

Climate change, advancing more rapidly in the Arctic than in most other regions of the world, combined with increasing economic and social pressures is creating new challenges for northern Indigenous Peoples. Although they are resilient and adaptable, their way of life is intimately linked to their environment and changes are occurring so quickly they are challenging their ability to adapt. Pressures include unpredictable weather patterns, declining sea ice, changes in permafrost, snow and ice, freezing rain, storm surges and increasing erosion in coastal areas, sunburns, skin rashes, changes in biodiversity (plants and animals) and migration patterns, as well as insecure traditional food sources. All of these factors can have a tremendous impact on peoples' health and culture.

The incorporation of climate change impacts in health impact assessment is therefore critically important. In Canada, knowledge is being gathered through a number of initiatives including the Climate Impacts and Adaptation Research Network (C-CIARN). Because of these changes, we must continue to expand our understanding of the impacts so that appropriate interventions can be taken. Predicting the timing and extent of these changes will present challenges both to examination of biophysical health impacts and to the more holistic and population-based analyses.

Successes in Impact Assessment's Contribution to Millennium Development Goal 6: A Review of the Assessment of HIV/AIDS Impacts of Development Projects

Ramasar, Vasna; Private, Flat 10 Frere Hill, 464 Frere Road, Glenwood, Durban, KwaZulu-Natal 4001 South Africa. 011 8837 801. Fax 011 8837 801. v.ramasar@gmail.com

HIV/AIDS has been recognised as a threat to global security and is specifically targeted in the MDGs through Glao 6 which seeks to "combat HIV/AIDS, malaria and other diseases." Impact Assessment processes have long recognised the importance of assessing health impacts associated with development policies, plans and projects. Initially IA focused predominantly on the environmental health impacts of development. In more recent times the link between environment, poverty and health has led to a greater consideration of other health concerns in society.

In the last ten years a significant body of work has emerged from the IA community in response to the impacts associated with HIV/AIDS. This paper presents an overview of some of the work. It draws on case studies as well as research and capacity building initiatives that have addressed HIV/AIDS impacts in the

IA process. The evidence shows that in response to the HIV/AIDS pandemic, some of the IA community has embraced the call of the MDGs and has made a contribution to the fight against HIV/AIDS.

The paper concludes with some lessons learnt in support of IA's role in tackling HIV/AIDS and other health issues.

CS 13.7 PRACTICES AND TRAINING

Health Impacts from Unleaded Gasoline: Lead Astray?

Int Panis, Luc; VITO, Boeretang 200, Integrated Environmental Studies, Mol, Flanders 2400 Belgium. + 32 14 33 58 87. Fax + 32 14 32 11 85. luc.intpanis@vito.be www.vito.be

De Nocker, Leo; VITO, Boeretang 200, Mol, 2400 Belgium. + 32 14 33 58 86. Fax + 32 14 32 11 85. leo.denocker@vito.be

Torfs, Rudi; VITO, Boeretang 200, Mol, 2400 Belgium. + 32 14 33 58 56. Fax + 32 14 32 11 85. rudi.torfs@vito.be

Negative health impacts of lead have been known for a long time. But although lead was a prominent pollutant in older studies of transport emissions, it has become neglected in recent years. It was for example not studied in the high profile European ExternE project. The introduction of "unleaded" gasoline may have led people into believing that emissions of Pb by transport had effectively been eliminated. In addition, this serious reduction of Pb emissions occurred well before similar reductions were achieved for other pollutants. The study of remaining Pb-impacts was therefore not considered a priority. Nevertheless small quantities of Pb compounds may still be added to petrol today.

Due to the strong emissions reductions for SO₂, NO_x and PM (enforced by a series of stringent European fuel and emissions standards) we hypothesized that health impacts of Pb and other heavy metals may no longer be negligible relative to other emissions. Therefore we have screened the entire Pb health impact pathway, attempted a monetization of its external effects and compared them to other pollutants. We find that external costs of Pb impacts are relatively high when compared to other non-global warming impacts in modern petrol cars.

Local Empowerment through Health Impact Assessment: Case Study of Potash Mining Project at Udon Thani Province, Thailand

Pengkam, Somporn; National Health System Reform Office, 2nd Floor, Building North of Health Park (Sataranasuk Rd. 6), Ministry of Public Health, Tiwanon Rd., Muang District, Nonthaburi, Nonthaburi 11000 Thailand. 66-2-590-2304. Fax 66-2-590-2311. pengkam2000@yahoo.com

Since 1981, 300 million tons of high quality potash deposits have been discovered in Udon Thani. In 2003, the Asia Pacific Potash Corporation has planned to invest \$US 645 million on mining in the area of 25 square kilometers. Without local participation, this project was widely protested by local people.

HIA of potash mining was conducted with the aim to provide the space and process for deliberative learning among all stakeholders on positive and negative impacts. Knowledge and values reflected from various group forums at the community level were applied to empower people on the impact assessment.

Local people have been stimulated to link environmental and health impacts in the broader aspects. They could explain the linkage of mining process and its impacts on the society. HIA not only provides clear information but also provides them

with the opportunity to learn how to present their local wisdom systematically as academics and specialists do.

HIA becomes the entry point for local people in perceiving their right on the development of healthy public policy which requires their active participation. At present, local people in Udon Thani starts working on the direction of city development following the principle of sustainable development.

A Strategy for Integrating Health Impact Assessment into a Business/Project Organisation

Austgulen, Liv-Torill; Statoil ASA, Forusbeen 50, Stavanger, 4035 Norway. + 47 482 79081. litau@statoil.com

In the work of establishing a method for HIA in Statoil, one of the main challenges was to identify key issues for how to succeed in integrating the HIA process into the business line. While methods for conducting a professional HIA is well understood and documented, ref. e.g., OGP guidelines, an effective recipe for integration it into company system was lacking. From the business' point of view a HIA should support business and add value of value to the company/project. It should be cost effective and to the point, helping to identify, as early as possible, main risks regarding cost, reputation, health risks and ethics including possible showstoppers. The HIA strategy that will be presented emphasizes the following key issues:

- Communication with business line/project management
- Link to corporate social responsibility philosophy
- Link to the project execution model, defining specific requirements for the different project phases
- Integration into well known and understood processes, e.g., environmental/social impact assessment and health risk and safety assessments, avoiding double work
- Defining deliverables
- Requirements to in-house competency

Web-Based Training for Health Impact Assessment

McClymont Peace, Diane; First Nations and Inuit Health Branch, Health Canada, Jeanne Mance Bldg, AL 1915D, Tunney's Pasture, Ottawa, Ontario K1A 0K9 Canada. 613-946-9663. Fax 613-954-0692. diane_mcclymont-peace@hc-sc.gc.ca

Gosselin, Pierre; Institut national de santé publique, Université de Laval, 945 rue Wolfe, Sainte-Foy, Québec G1V 5B3 Canada. 418-650-5115 poste 5205. Fax 418-654-3134. Pierre.Gosselin@inspq.qc.ca

Kwiatkowski, Roy; First Nations and Inuit Health Branch, Health Canada, Jeanne Mance Bldg, AL 1915D, Tunney's Pasture, Ottawa, Ontario K1A 0K9 Canada. (613) 952-2828. Fax (613) 954-0692. roy_kwiatkowski@hc-sc.gc.ca

Recent studies by the International Association for Impact Assessment (IAIA) show the "increasing importance of integrated environmental, social and health assessments" that will require multi-disciplinary teams and greater professional expertise of health and social assessments.

The Health Impact Assessment (HIA) training available at Canada's University Laval website is an introductory tool to assist decision-makers in assessing community vulnerability; determining cultural and social impacts; identifying corrective or adaptive solutions; and ensuring governments and communities are equipped to cope with negative health impacts and to maximize positive human health benefits created by development projects, programmes or policies. It is hoped that this web-based guidance will encourage broader implementation of HIAs.

The website introduces HIA through the following topics: what is HIA; why HIA matters; determinants of health; values of HIA; undertaking HIA; HIA practitioners; Aboriginals and HIA; HIA and other processes; conclusion and more information. It includes numerous illustrations, videos and links to scientific papers and other sites.

The next phase of the web course currently being developed is on mining. It is aimed at health professionals and will draw examples from real-life assessments worldwide. It is expected to be online by the end of 2006.

CS 13.8 ROUNDTABLE ON THE PRINCIPLES AND PRACTICES OF HIA

Debating the Principles and Practice of Health Impact Assessment: IAIA Principles Document

Quigley, Robert; Quigley and Watts Ltd, Level 5, LG Centre, 35-37 Victoria St., Wellington, New Zealand. 0064 4 472 0139. rob@quigleyandwatts.co.nz

Bond, Alan; University of East Anglia, School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ England. 0044 1603 593402. alan.bond@uea.ac.uk

IAIA promotes different forms of impact assessment using a variety of means. One of those promotional means is the publication of a principles/guideline document profiling the main values, concepts and practice of each form of impact assessment. A draft guideline paper for health impact assessment has been produced over the past two years. For its third discussion with IAIA participants, this draft document will be available for reading prior to the conference and during the conference. This roundtable will allow participants to voice their opinion on the merit of the document. The outcome will be advice from practitioners on changes required and a mandate to publish the document.

CS 14.1 PUBLIC PARTICIPATION AT GRASS ROOTS LEVEL

Data Collection by the People, from the People and for EIA

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

Stakeholder consultation is a regulatory requirement for EIAs in Nigeria. Shell Nigeria (SPDC) recognizes that effective and continuous consultation is key to the success of any project. Within the Niger Delta, the perceived neglect of Government in terms of infrastructural development and employment has led to increasing conflict between indigenous peoples and multinational companies.

In SPDC, external consultants collect data for EIAs.

Biophysical data is collected over two seasons (wet and dry), social and health are one-time cross sectional studies. There is

demand by indigenous peoples for increased participation in the EIA process, especially during data collection.

For the Gbaran Ubie Integrated Oil and Gas Project (GUIOGP) the community requested increased participation in the EIA study of the field logistics base and jetty construction. This request was accepted and community-nominated consultants were engaged for the data collection. Baseline data has been completed and the report submitted to SPDC.

This paper presents the pros and cons of this method of data collection and seeks the experience of practitioners on this novel approach.

Environmental Assessments of Water Projects at Community Level in South Sudan: From Donor Requirement to Community Practice

Ouma, Douglas; Pact Kenya, Nairobi, Kenya. douglas@pactke.org

Environmentally sound design and management is the purpose for which EIA practitioners strive. However, to translate proposed environmental mitigation measures in practice remains a big challenge at the community level and even a bigger challenge for communities that have been under war for close to 40 years, such as South Sudan. At Pact Kenya, we have made some progress based on a four-pronged strategy and the southern Sudanese communities are implementing these with some degree of success. The four pronged strategy has local institutions (water management committees) as its foundation and its components include: a) Conducting environmental assessments for small scale activities b) mobilizing communities proposed water projects and environmental concerns c) formation of local institutions and defining their mandates which include environmental monitoring d) backstopping local institutions. This paper will discuss how we do these, the challenges and how what initially started as donor requirement has transformed into a community of good practice that communities are demanding from development partners.

Power, Poverty, and Public Awareness: Addressing Electrical Safety Issues in Moldova

Smith, Elizabeth; EBRD, One Exchange Square, London, EC2A 2JN UK. +44 207 338 6504. Fax +44 207 338 6848. smithe@ebrd.com www.ebrd.com

Blank, Lutz; EBRD, One Exchange Square, London, EC2A 2JN UK. +44 207 338 7431. Fax +44 207 338 6848. blankl@ebrd.com www.ebrd.com

Poverty kills in unexpected ways in the Republic of Moldova. It is the root cause of an appallingly high rate of electrocutions associated with power lines and electrical substations—more than 100 times the level of most countries in western Europe. As an investor in the country's electricity sector, the European Bank for Reconstruction and Development (EBRD) became aware of the extent of the problem. After an assessment of the issues and causes, EBRD worked with the Moldovan Ministries of Industry and Infrastructure, Health, Education, the electrical inspectorate, and state and private electrical utilities to address the problem.

The resulting technical cooperation project, funded by the Canadian International Development Agency, comprised three components: training for electrical and labour inspectors, education programme to train teachers who would roll out the programme to three

ages of schoolchildren, and a general public awareness campaign. These initiatives were supported by the Prime Minister, and a national Electrical Safety Week was held in November 2005.

The paper will describe the impetus for the assessment, the development of the programme, and the results of the TC. It is a good example of capacity building.

CS 14.2 PUBLIC PARTICIPATION AND GOOD GOVERNANCE

Good Governance and Public Participation in Impact Assessment of Petroleum Development Projects in Nigeria: Addressing Hostage-Taking Through Poverty Eradication in and Sustainable Development of the Delta Region

Bristol-Alagbariya, Edward; Centre For Energy, Petroleum & Mineral Law & Policy (CEPMLP) University Of Dundee, Perth Road, Dundee, Scotland DD1 4HN United Kingdom.
+ 44(0)7745949549. Fax + 44(0)1382 322 578.
E.T.Bristolalagbariya@Dundee.Ac.Uk

The trio political power (i.e., governance), poverty and sustainability may serve complementary roles in impact assessment of energy and major natural resources development. They are significant in the context of petroleum development in Nigeria.

Nigerian governments and regulatory institutions are yet to administer the extraction of petroleum resources to achieve sustainable development, particularly the Millennium Development Goals. Failure to properly do so and thereby boost Corporate Social Responsibility has given rise to oil-industrial crisis. Restive youth movements in the Delta region are taking expatriate personnel of the multinational oil Companies hostage.

The Willink Commission of Enquiry Report described the Delta region as "poor, backward and marginalised." As petroleum development continues to threaten sustainable development in the Delta region, other parts of Nigeria stand equally threatened by unsustainable socio-economic development actions and initiatives.

Questions to be addressed include how good governance, based on true federalism and accountable democracy, may administer public participation in impact assessment of petroleum development to boost operations of multinational oil companies to achieve environmental protection, poverty eradication, community empowerment and sustainable development in the Delta resources producing region and other parts of Nigeria, including the security of supply to Nigeria's petroleum-consumer nations.

Governance and Public Participation in China—Towards a Sustainable Urbanization Strategy

Enserink, Bert; Delft University of Technology, P.O. Box 5015, Delft, 2600GA The Netherlands. *31 15 2788071.
b.enserink@tudelft.nl

Koppenjan, Joop; Delft University of Technology, P.O.Box 5015, Delft, 2600GA The Netherlands. *31 15 88062.
j.f.m.koppenjan

China is facing a big urbanization challenge as a registered 18 million rural people annually migrate from the countryside to its cities. Uncontrolled migration, rapid economic growth and inefficient use of natural resources lead to excessive pollution and rapid depletion of China's natural resources. The Chinese government is well aware of these environmental challenges and formulated policies and legislation to protect the

environment and have a more sustainable growth. It did the same with respect to migration; it expressed its intention to have a sustainable urbanization strategy. Moreover, rapid modernization of Chinese society also led to first experiments with the organization of public hearings on environmental issues. Hopeful initiatives in themselves—but till now the pace of economic growth, urban sprawl, congestion and environmental degradation seemed uncontrollable and the success of environmental policies very limited.

In this paper we focus on the governance aspects of China's environmental policy making. We will discuss how public involvement and environmental governance relate and how public participation might support the implementation of a sustainable urbanization strategy as was proposed to the Chinese government by the China Council for International Cooperation on Environment and Development.

Development of Public Participation in Environmental Impact Assessment in Thailand

Euamonlachat, Indhira; Office of Natural Resources and Environmental Policy and Planning, 60/1 Pibunwattana 7 Rama 6 Road, Phayathai, Bangkok, 10400 Thailand.
662-2656630. Fax 662-2656629. indhira@onep.go.th
www.onep.go.th/eia

Environmental Impact Assessment has been applied in Thailand for environmental planning and management on the development projects screening approach since 1981. The new Constitution, called the Green Constitution, was enacted in 1997. It was drafted by the fundamental of people's rights and participation. EIA has also been stated in the Constitution that projects which may have serious impacts to environmental quality can not be implemented without EIA and public have their rights to access information from the government agencies before permission of the projects. While there is high demand in public participation, the fundamental of public participation has not been completely applied since it requires the following Act which is in the drafting process.

With attempt to fulfill the fundamental, Office of the Prime Minister has just issued The Public Hearing Regulation in 2005. The Office of Natural Resources and Environmental Policy and Planning also prepares and distributes Guideline for Public Participation and Social Impact Assessment in Environmental Impact Assessment to strengthen the mechanism of public participation. This paper presents key elements in new Public Hearing Regulation and Guideline. Discussion of main constraints in public participation implementation and recommendations for the future is also included.

Public Involvement for Sustainable Society and SEA

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

Public Involvement (PI) is a way of reflecting public opinion to the decision making of the public sector. The term of public participation (PP) is also used to express a way for this purpose. The role of PI and PP are almost the same, but the name depends on if it is said from public sector (PP) or from general public (PI). For creating a sustainable society, the public sector is required to conduct good practice of PI for reflecting public opinions in the decision making of big projects

which might give significant impacts to the environment for fulfill its accountability. For this purpose, it should be conducted from very earlier stage of decision making process. SEA is a way for this purpose through scientific analysis and a democratic process based on information disclosure and participation. But sometimes such proponents as road construction or hydric dam construction bodies argue that they could manage this through PI and not by SEA. The difference between PI and SEA is intervention from outside of the proponents. The paper discusses what the merits and demerits of PI and SEA are for the goal of creating sustainable society. The recent discussions in Japan are illustrated as some examples.

CS 14.3 PUBLIC PARTICIPATION: NEW SPACES OF GOVERNANCE

Is There Value in Public Participation Processes in Environmental Assessment Decision Making?

Sham, Monique; University of Johannesburg, 40 Dan Pienaar Ave., Florida North, Johannesburg, Gauteng 1709 South Africa. + 27729895119. moniquesham@hotmail.com

Holgate, Claudia; Monash University, 1131 Plovers Nest, P.O.Box 641 Featehrbrooke, Mogale City, Gauteng 1746 South Africa. + + 27 11 662 2276. holgate@worldonline.co.za

In South Africa, open deliberation is becoming a popular form of decision-making, where the involvement of the public is seen as a means of improving democratic processes while at the same time increasing the sustainability of decisions. Most Environmental Impact Assessment (EIA) applications legally require public participation (PP) processes, however, what has emerged from much literature on public participation in EAs is how limited PP really is. This paper focuses on case studies of EIA projects in the West Rand of Johannesburg, where the outcome of EIAs has been examined in an attempt to identify the value of the PP process. This examination of the role of the PP process focuses on the value of the process in influencing decision-makers. While it is assumed that the process will contribute positively to decisions being made, these cases highlight that although the process contributes to the public's involvement, the weighting given to PP and the concerns of the residents was minimal. Therefore, although the process is intended to promote the social aspect of sustainable development, its value in EAs is in many cases over-rated, where the authorities do not take the concerns of the community into consideration.

Mediated Representativity in Agenda Setting and Policy Analysis: The VPA AIDS & Rural Development

Witteveen, Loes; Larenstein University of Professional Education, PO BOX 7, Deventer, AA The Netherlands. + 31570684643. Fax + 31570684600. l.m.witteveen@larenstein.nl

Enserink, Bert; Delft University of Technology, PO BOX 5015, Delft, 2600 GA The Netherlands. + 31152788071. b.enserink@tudelft.nl

Lie, Rico; Wageningen University, PO BOX 8130, Wageningen, 6700 EW The Netherlands. + 31317482599. Fax + 31317486094. rico.lie@wur.nl

The AIDS epidemic destructs the social fabric and generates new demands on infrastructure, technology and the communication information system that go far beyond health issues and conflict with the slow pace of mainstreaming HIV/AIDS issues in rural development organisations. This justifies elaborating innovative interventions on short notice,

which are sufficiently grounded in empirical knowledge and consented with direct stakeholders.

Filmed interviews can be used for problem framing, agenda setting and policy analysis. This has been exploited in the Visual Problem Appraisal (VPA) where users "meet" stakeholders through filmed interviews. By bringing "distanced" or otherwise "overlooked" stakeholders in a mediated way to the doorstep of decision makers we have the ambition to facilitate the consideration of their stories, concerns and proposals. This form of "mediated representativity" creates new spaces of governance as it allows indirect stakeholders and policy makers to "learn" in semi-interaction with direct stakeholders.

Advantages for interviewees in rural communities are the local setting, its sole interference and extended reach. Mediated representativity has disadvantages too, but is preferred over the absence of direct stakeholders due to transport constraints and impairments due to HIV/AIDS and stigmatization.

This paper shares our experiences with the VPA AIDS & Rural Development.

Time for a New Approach to Environmental Assessments: Promoting Cooperation and Consensus for Sustainability

Sinclair, John; Natural Resources Institute, University of Manitoba, Winnipeg, Manitoba R3T 2N2 Canada. 204 474-8374. Fax 204 261-0038. jsincla@ms.umanitoba.ca

Doelle, Meinhard; Marine and Environmental Law and Policy (MELP) Institute, Dalhousie University, Halifax, B3H 4R2 Canada. 902 494-1030. mdoelle@dal.ca

One of the fundamental challenges of project based environmental assessments (EA) has been to deliver on the promise of meaningful public participation leading to decisions that put affected societies on the path to sustainability. The record to date has been less than promising, leading the authors to propose that it is time to consider a different approach to legislating public participation in project assessments, one that starts with the ultimate objective of cooperation and consensus building. The authors work back from this objective and propose an EA process specifically designed to encourage all participants to participate constructively. In the process, the authors identify how the proposed process will address various criticisms made of the traditional approach to EA by proponents, government officials and members of the public alike. Through a fundamental shift from process requirements to a focus on the outcomes of EA, the authors propose a way forward for project based EA to deliver on the promise of becoming a central tool on the path to sustainability.

Collaborative Problem Solving in Public Participation: Changing the Interpretation of the World Bank Inspection Panel's Rules of Conduct

Sirg, Kadri; Pace University School of Law, 78 North Broadway, White Plains, New York 10603 USA. 9143165546. kadri.sirg@gmail.com

The public's opportunities to express their concerns, interests and feelings in the World Bank's decision-making processes are limited. Furthermore, this rarely happens in a form of dialogue. A shortage of opportunities to participate in the Bank's decision-making is one of the main reasons for submitting complaints to the Inspection Panel. Arguably the public consultation in the World Bank Inspection Panel's

investigations—assessing the Bank’s compliance with its own policies and procedures—does not help to resolve underlying conflicts. To address this problem, collaborative problem solving could be integrated to the Inspection Panel’s rules of conduct by changing their interpretation. Collaborative problem solving allows affected stakeholders to participate in identifying information and developing flexible responses that satisfy everyone’s primary interests and concerns. Moreover, collaboration adds flexibility to the rules and finality of formal decision-making. The International Financial Corporation’s Compliance Advisory Ombudsman procedures are example of advanced problem solving design for a compliance system and its application in practice. I argue that Inspection Panel is capable of jointly reaching creative solutions in a flexible investigation process to make decisions with a broader support base. Political willingness, however, is another question.

CSI 4.4 PUBLIC PARTICIPATION AND LEARNING

Learning Through Participation in EA: Case Studies from Canada

Fitzpatrick, Patricia; Natural Resources Institute, University of Manitoba, Sinnott Building, 70 Dysart Rd, Winnipeg, MB R3T 2N2 Canada. 204-474-6169. Fitzpat3@cc.umanitoba.ca

Can organizations learn through participation in environmental assessment (EA)? This was the focus of a recent study examining linkages among sustainability, EA, public participation and learning. Research design involved a comparative case study of two concurrent but geographically separate projects, the Wuskwatim generation station and transmission lines projects in Northern Manitoba, Canada, and the Snap Lake Diamonds Project, in the Northwest Territories, Canada. The EAs of these proposed developments provided multiple opportunities for public involvement, including comments on the scope of the assessment, information requests, and public hearings. Data collection included participant observation, semi-structured interviews with EA participants, and documentation generated through the course of the reviews. Data were organized using QSR Nvivo, a qualitative database software system. Results indicate that participants of EA engage in individual, organizational and policy oriented learning. Findings revealed the importance of creating opportunities for discussion and debate as a means of engaging organizations in, and encouraging learning through EA. Results also show that with repeated engagement in sector-specific EAs, participants learned use project specific EAs to compel the development and implementation of regional planning initiatives. These findings suggest that higher order learning for sustainability may be occurring through project based EA.

Public Consultation or the Empowerment of Elderly Men?

Faith-Ell, Charlotta; WSP Civils, SE-12188, Stockholm, Sweden. +46 8 6886544. charlotta.faith-ell@wspgroup.se

Jacobsson, Yvonne; Swedish Road Administration, SE-17190, Solna, Sweden. +46 8 6274113. yvonne.jacobsson@vv.se

The Swedish Road Act states that public consultation must be carried out in connection with road planning. Usually this consultation manifests itself in the form of hearings. One of the goals of the Swedish Road Administration is to provide all people with an equal opportunity to travel, no matter what their gender, age or background might be. A pilot study has been carried out in order to evaluate the public consultation process undertaken in the Initial Study of the Stockholm

Eastern Link with regard to the goal of equal opportunity. The study aimed at the perception of the participants in the consultation process. The study evaluated the results of a questionnaire, distributed on two occasions in 2004. Participants were required to respond to 13 statements, according to a six-graded scale. A 66 percent response rate was achieved for the first sample and 57 for the second. The questionnaires highlighted some interesting issues. First, the hearings were dominated by men. Second, an over representation of people older than 65 years could be identified. Also, the women who were present at the hearings gave a lower grade on average for the statement regarding the opportunity to have their opinion heard.

Planning Hydroelectric Power Plants with the Public: A Case of Organizational and Social Learning in Mexico

Verduzco-Chavez, Basilio; Universidad De Guadalajara, Periferico Norte 799, Piso 3, Zapopan, Jalisco 45000 Mexico. 52 33 3770 3404. Fax 52 33 3770 3404. basiliov@cucea.udg.mx www.ajciencias.org EDIF M

For different reasons the need to bring public participation to the planning process of hydroelectric power plants has increased around the world. This represents a challenge for the public and the utility companies. The incorporation of public participation in an environmental impact assessment requires a social and organizational learning process.

This paper presents findings of an experience of participatory assessment conducted in five municipalities of two states in western Mexico. In this experience, public participation was conceived as a long term process that starts in the early stages of the assessment and continues during the construction and operation of the power plant. Methods and strategies used emphasized the need to blend technical knowledge and popular beliefs about environmental change and to create opportunities for social interaction based on trust. Stakeholders worked together to develop strategies for impact mitigation that would be socially acceptable.

The paper explains the process highlighting the strategies used to overcome challenges and findings regarding the connection between progress in the social and organizational learning process and the willingness of stakeholders to participate in a consensus building effort that contributes to identify mitigation measures and areas of opportunity for regional development and environmental sustainability.

CS 14.5 PUBLIC PARTICIPATION LARGE PROJECTS

Consensus Building Process of Making a Waste Management Plan—A Case Study on Chushin Area in Nagano Prefecture, Japan

Sunaga, Youhei; Tokyo Institute of Technology, G5-9, 4259 Nagatsuta, Midori-ku, Yokohama, 226-8502 Japan. +81 45 924 5550. Fax +81 45 924 5551. youheisunaga@hotmail.com

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

SEA on a waste management project plan is essential for minimizing potential impacts caused by it. However, the

SEA act has not been made yet on the national level and SEA practices are still limited in Japan.

The paper aims to analyze the consensus building process of making the waste management plan for Chushin region in Nagano Prefecture. The process is considered as one of the most advanced SEA cases in contemporary Japan. It was done through a committee composed of hybrid of experts and stakeholder (application of ESH model). The study was conducted by three steps. Firstly, a process model was built based on the knowledge of planning discipline and systems analysis discipline. Secondly, the discussed contents of the committee were clarified using the minute. Thirdly, the process of consensus building was interpreted according to our process model.

Two conclusions were obtained by the analysis. The process was proceeded not quickly straight forward but slowly by repeating back and forth. Two patterns of repeating going back and forth were observed in the whole consensus building process. The first pattern was succeeded by the second pattern on the way to the consensus building.

Public Participation around Mainports: The Schiphol Case

van Kamp, Irene; National Inst. Public Health and the Environment, PoBox 1, Bilthoven, 3720 BA Netherlands. + 31302743222. Fax + 31302744451. irene.van.kamp@rivm.nl

Leidelmeier, Kees; RIGO, De Ruyterkade 139, Amsterdam, 1011 AC Netherlands. + 31 20 - 522 1111. Fax + 31 20 - 627 6840. kees.leidelmeijer@rigo.nl

Houthuijs, Danny; National Inst. Public health and the Environment, PoBox 1, Bilthoven, 3720 BA Netherlands. + 31302743804. Fax + 31302744451.

danny.houthuijs@rivm.nl

van Breejen, Femma; RIGO Research and Advise BV, De Ruyterkade 139, Amsterdam, 3720 BA Netherlands. + 31 20 - 522 1111. femma.van.breejen@rigo.nl

Breugelmans, Oscar; National Inst Public health and the Environment, PoBox1, Bilthoven, 3720 BA Netherlands. + 31302743804. oscar.breugelmans@rivm.nl

Stellato, Rebecca; National Inst Public health and the Environment, PoBox1, Bilthoven, 3720 BA Netherlands. rebecca.stellato@rivm.nl

van Wiechen, Carla **Error! Bookmark not defined.**; RIVM carla.van.wiechen@rivm.nl

Marsman, Gooitske; previously RIGO

A recent study into the perceptions of residents around Schiphol airport (Leidelmeijer, van Kamp, Houthuijs, 2005) has shown that apart from noise exposure and sudden changes in noise, non-acoustical factors strongly influence reaction to environmental noise. Trust and expectations as well as historical context showed to be important predictors for annoyance, sleep disturbance, concern about safety, and the number of complainants. The processes that play around mainports are in principal comparable to those around smaller scale interventions in the physical environment, but these latter situations often get less attention from the media. More insight in these processes could therefore be valuable in a broader sense in order to understand the effects of (changes in) the physical environment on the quality of life experience and founded on this information, find ways for improvement.

This paper will present some of the findings of a longitudinal study around Schiphol Airport as well as results from focus group meetings among residents and NGO's that are active in the area. The starting points from both sources for policy recommendations will be compared and the tensions between qualitative and quantitative information will be analysed.

EIA For Dummies—A Web-Based Toolkit for Improving Public Participation

King, Nick; Endangered Wildlife Trust, P/Bag X11, Parkview, 2122 South Africa. + 27 11 4861102. nickk@ewt.org.za www.ewt.org.za

Considerable concerns are often raised about both the transparency of EIA processes and the understanding and related quality of participation by I&APs. In particular, I&APs are often barred from adequate participation by their lack of familiarity with, and understanding of the EIA process, their ignorance of their legal rights and the legal obligations of developers, their inability to access relevant information, and a cumulative uncoordinated and ineffective reactive approach to development planning.

The Endangered Wildlife Trust (EWT), a leading South Africa environmental NGO, has and is repeatedly approached by I&APs seeking guidance on their rights and responsibilities and opportunities to participate in development planning processes. In response, the EWT is developing a practical, user-friendly, on-line 'EIA Toolkit' that provides clear outlines of key EIA processes and lends guidance to I&APs.

The Toolkit differs substantially from other such tools which seem not to have addressed this public need. The Toolkit is demand-driven in response to key, unsolicited public inquiries and will provide practical, step-by-step guides to rights, responsibilities and permissible actions of I&APs in order to facilitate public capacity building. A draft of this EIA Toolkit will be presented for discussion.

Technology and Public Participation Methods

Gonzalez, Ainhoa; Department of Environment & Planning, Dublin Institute of Technology, Bolton Street, Dublin, Ireland. 00353876224879. ainhoag@yahoo.com

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

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

Sweeney, John; National Centre for Geo-computation, Department of Geography, National University of Ireland, Maynooth, Ireland. 0035317086024. john.sweeney@nuim.ie

Fry, John; School of Biology and Environmental Science, Belfield, Dublin, Ireland. 0035317163333. john.fry@ucd.ie

Current international and European Community legislation requires provision for citizen involvement in the assessment of potential environmental effects of certain plans, programmes and projects. An international on-line survey, carried out as part of ongoing research, revealed that public participation is common practice in most European countries. Expert opinion differs when evaluating the effectiveness and impact of existing participative methods. A number of issues are observed to hinder public involvement in EIA/SEA processes.

The survey focused on methodological approaches and addresses technology-aided information and communication methods such as GIS. These methods are perceived as having the potential to break down communicative, educational, social and gender barriers inherent in traditional public participation structures. Similarly, GIS can overcome logistical obstacles to public consultation by increasing community knowledge and

improving involvement through communicating information more effectively. Variable accessibility to technology and data quality remain issues. Combining GIS with more conventional ways of gathering, evaluating and presenting data offers a solution to the need to enhance the integration of public perceptions into environmental assessment processes. This paper discusses the survey findings, proposes measures for making GIS feasible and available to the general public, and makes recommendations to improve current public participation methods.

CS 15.1 SIA I – CHALLENGES RAISED BY THE INTEGRATION OF SOCIAL IMPACT ASSESSMENT IN EIA

Towards Social Indicators for Project Life Cycle Management Purposes

Brent, Alan; University of Pretoria, Dep. of Eng. & Tech. Management, Engineering 2, Pretoria, Gauteng 0002 South Africa. +27 12 420 3929. Fax +27 12 362 5307. alan.brent@up.ac.za www.up.ac.za

Labuschagne, Carin; Sasol, Sasol, Sasolburg, South Africa. 016 960 4468. Fax 011 219 0925. carin.labuschagne@sasol.com www.sasol.com

Industry has experienced a shift in stakeholder pressures from environmental to social-related concerns, where new developments in the form of projects and technologies are undertaken. However, the measurement of social impacts and the calculation of suitable indicators are less well developed compared to environmental indicators in order to assess the potential liabilities associated with undertaken projects and technologies. A Social Impact Indicator (SII) calculation procedure is subsequently introduced based on a previously introduced Life Cycle Impact Assessment (LCIA) calculation procedure for environmental Resource Impact Indicators (RIIs). The practicability of the SII procedure is demonstrated in the context of the process industry in South Africa. The case studies establish that social footprint information as well as project and technology social data are not readily available in the South African process industry. Consequently, the number of social categories that can be evaluated are minimal, which results in an impaired social picture when compared to the environmental dimension. It is concluded that a quantitative social impact assessment method cannot be applied for project and technology life cycle management purposes in industry at present. It is recommended that checklists and guidelines be used during project and technology life cycle management practices.

Social Impact Assessment in Regional Land-Use Planning

Sairinen, Rauno; Centre for Urban and Regional Studies, Luolamiehentie 7, PL 9300, Helsinki Univ. of Techn., Espoo, 02015 TKK Finland. +358 - 50 - 44 231 46. Fax + 358 - 9 451 4071. rauno.sairinen@tkk.fi

Heikkinen, Timo; Centre for Urban and Regional Studies, Luolamiehentie 7, PL 9300, Helsinki Univ. of Techn., Espoo, 02015 TKK Finland. + 358 - 9 451 4093. Fax + 358 - 9 451 4071. timo.heikkinen@tkk.fi

The social dimension of impact assessment has been poorly developed in regional land-use planning. This is a clear shortcoming, because the questions of social sustainability have become more important challenge in regional development.

The purpose of this paper is to analyse and compare the contents, methods and working practices of social impact assessment (SIA) in regional land-use planning in Finland. In Finland, there are very recent new developments in this area. The new Land Use and Building Act (year 2000) brought impact assessment as an integral part of land-use planning.

The research was divided into following subquestions:

- What are the contents and methods of social impact assessment in regional land-use planning?
- How is social impact assessment integrated into the regional planning process and decision-making?
- How can plan-making benefit from social impact assessment? Does social impact assessment alter the planning processes and the contents of regional plan-making? If so, what does this mean?

The methodology: The SIAs of regional plans were analysed and validated as well as complemented by non-structured interviews of the local planners. The gathered knowledge of assessment practices were presented as a report of best practices.

The Impact of a Non-Legislative Framework of SIA

Verheyen, Wouter; Resource Analysis, Wilrijkstraat 37, Antwerp, 2000 Belgium. 03/270 00 41. Fax 03/270 00 31. wve@resource.be www.resource.be

In Europe—and more specifically, Belgium—the environmental impact assessment (EIA) is getting more and more implemented for big and small (infrastructure) projects. There are sufficient guidelines and legislation. Next to that, the disciplines that are integrated in an EIA are getting more and more extensive: not only soil, air, vibrations, fauna and flora, etc., are included, but also disciplines such as spatial planning, transport and mobility, monuments & landscapes and health are included. This list may sound exhaustive, still often one theme stays unpronounced and assessed, i.e., the social/sociological aspect that is connected with every project.

For the first time in Belgium, a SIA has been conducted next to an EIA: i.e., for the infrastructure project of the Masterplan of Mobility in Antwerp. In this paper the role and position of a non-legally based SIA next to an EIA will be discussed in the light of the experiences from this project. It is argued that there is need for a kind of really integrated Societal Impact Assessment where the environmental and social aspects are combined in order to achieve a high-quality impact assessment.

CS 15.2 SIA II – SOCIAL IMPACT ASSESSMENT INTEGRATED IN PROJECT LEVEL EIAs

Power to the People – Lessons Learned in Linear Social Impact Assessments in South Africa

Aucamp, Ilse; Strategic Environmental Focus, CSIR Campus, Meiring Naude Street, Pretoria, Gauteng 0040 South Africa. +27 12 349 1307. Fax +27 12 349 1229. ilsea@sefsa.co.za

Attempting to address the growing demand for electricity, Eskom, the South African national electricity service provider, is in the process of erecting a number of new power lines. According to South African legislation, EIAs must be conducted for each proposed line. These assessments include SIAs as specialist studies. Other social science studies required includes Visual and Tourism Impact Assessments. By nature, power lines are highly visible structures covering vast distances and thus impacting on a number of communities. For the purpose of the paper, SIAs required for linear development will be referred to as linear SIAs. Linear SIAs provides unique challenges, and the local context of limited timeframes, resources and budgets add to these challenges. This paper presents lessons learned from three SIAs conducted in the last year. These SIAs were conducted in rural areas, with one of the assessments done in an area with high tourist potential. The relationship between SIA and Visual Impact Assessment in these case studies will be discussed briefly. The paper starts with a background discussion of each project, followed by an analysis of strengths and weaknesses and concluding with a summary of lessons learned in the process.

Issues and Impacts Generated by a Road Network in a Remote Area—Hydro-Québec’s Northern Access Follow-up Program

Pierre, Senécal; Hydro-Québec, 75 René-Lévesque-west blvd, 10th floor, Montreal, Quebec H2Z 1A4 Canada. 1-514-289-2211, ext. 4233. Fax 1-514-289-5038. Senecal.Pierre.B@hydro.qc.ca

Until the 1970s, the James Bay territory located in Northern Québec, in one of the largest taiga forests in the world, was inaccessible by land. The only people who lived on this territory were the Cree, an aboriginal group who had travelled over large distances in canoes for thousands of years in order to hunt, trap or fish its animal resources. The La Grande hydroelectric project has affected its way of life in many ways. With reservoirs, the large-scale road network built in order to access power plants and other types of installations has clearly emerged as the most important source of social impacts triggered by this project. To a large extent, trucks are now used in combination with planes and snowmobiles to access the land. The road system has also attracted to the pristine area many Southerners from Canada or the United States such as hunters or tourists, generating other repercussions. The paper describes the environmental impacts and discusses the social issues triggered by the road system, as well as the mitigation measures which were implemented. It also highlights the follow-ups which have tracked its human impacts, especially Hydro-Québec’s Northern Access Program.

Socio-Economic Impact Assessment Mitigation for Aboriginal Peoples in Canada

Klein, Heidi; Gartner Lee Limited, 3015 5 Ave NE Suite N195, Calgary, Alberta T2A 6T8 Canada. (403) 262-4299 x 5422. Fax (403) 264-8412. hklein@gartnerlee.com www.gartnerlee.com
Wlodarczyk, Tomasz; Gartner Lee Limited, 300 Town Centre Blvd., Suite 300, Markham, Ontario L3R 5Z6 Canada. (905) 477-8400 x 234. Fax (905) 477-1456. twlodarczyk@gartnerlee.com www.gartnerlee.com

Interest in socio-economic impact assessment and mitigation has been growing in Canada. This paper will review socio-economic impact assessment in two jurisdictions and the mitigation measures that have resulted for aboriginal peoples and aboriginal groups.

CS 15.3 SIA III – CONTRIBUTIONS OF SOCIAL IMPACT ASSESSMENT TO LAND MANAGEMENT ISSUES

Instituting Community Involvement: The Role of Social Impact Assessment (SIA) in Urban Regeneration in Hong Kong

Law, Winnie; Centre of Urban Planning and Environmental Management, The University of Hong Kong, Pokfulam Road, Hong Kong, Hong Kong. 852-28578647. wwylaw@hku.hk

Recent international debates on concepts of sustainable development and “governance beyond government” have both highlighted the need to engage communities in the planning and development process. Parallel to these trends, objectives of social impact assessment (SIA) have evolved to include more participatory elements. This paper explores the role and functions of SIA in the case of urban regeneration in Hong Kong. It argues that in cities where a participatory plan-making process is underdeveloped, such as Hong Kong, the role of SIA is particularly important in extending beyond impact prediction to community engagement. The paper relates the attributes and process of SIA to the local governance and sustainability theories and contributes to international debates on how principles and concepts of sustainability can be put into practice at the local level. The paper concludes with a detailed framework which describes and explains how the “process” and “methodology” of impact assessment can contribute to promoting a participatory culture that nurtures sustainable development.

Social Impacts of the Second Home Boom: The Case of the Jersey Shore

Roehl, Wes; School of Tourism & Hospitality Management, Temple University, 1700 N. Broad Street, Philadelphia, PA 19122 USA. 1-215-204-5861. Fax 1-215-204-8705. WROEHL@TEMPLE.EDU

Analysts in Europe and the USA have noted a boom in the second home market. The purpose of this paper is to examine change in the number and share of second homes along the 127-mile long Atlantic coast of New Jersey and to investigate implications these changes have had on property values, rents, and demographic characteristics of their communities. Communities that had a higher percentage of housing stock in second homes in 2000 compared to 1990 tended to also have higher rates of household poverty in 2000 than in 1990. At the same time an increase in percentage of second home units was related to higher median values for owner-occupied units. This study reinforces the idea that second home development is accompanied by winners and losers. Communities with more second home units have lower median incomes than are found elsewhere in the study area. Yet, owner-occupied units in these communities are more valuable than those found elsewhere. Equity issues related to this pattern of results should be investigated. Finally, if long-time residents are priced out of these areas the implications go beyond residential succession and may begin to threaten business and community viability.

CS 15.4 ROUNDTABLE EMPOWERING PEOPLE TO PARTICIPATE IN SIAS

CS 16.1 TRANSPORT SEA

A Practical Example of Tiering–Linking SEA of Different Levels of Transport and Land Use Planning in Wales

Fundingsland Tetlow, Monica; Centre for Sustainability, TRL, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire RG40 3GA England. +44 (0)1344 770146. mtetlow@trl.co.uk

Gardner, Robert; Centre for Sustainability, TRL, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire RG40 3GA England. +44 (0)1344 770575. rgardner@trl.co.uk

The Welsh Assembly Government is currently undertaking a Strategic Environmental Assessment (SEA) for the emerging Wales Transport Strategy. The national transport strategy is due to be finalised in 2006, and will be implemented through four Regional Transport Plans. These are due in 2007 and will each require a separate SEA. The transport strategy is one of the national actions to arise from the Wales Spatial Plan, which was adopted in November 2004. This plan is currently under revision and will also be subject to an SEA, as will some of its individual components.

The nature and timing of these SEA activities presents a unique opportunity to develop a coherent approach that enables SEA to effectively support transport and land use planning activities in Wales. A coordinated approach to SEA is therefore being taken to avoid duplication of effort in activities such as setting objectives and indicators, baseline data collation and monitoring. This paper seeks to apply some of the tiering concepts considered by Jos Arts and Paul Tomlinson at IAIA Prague. It outlines a common framework that is being developed for the SEA activities in Wales, and provides a practical example of vertical and horizontal tiering across different planning sectors.

Strategic Environmental Assessment and Landscape Fragmentation

Andil, Petr; EVERNIA Ltd., t. 1. máje 97, Liberec, 460 01 Czech Republic. +420 485 228 272. andel@evernia.cz

The paper deals with the role of strategic environmental assessment in the regulation of landscape fragmentation in the Czech Republic. The basic problem is the fragmentation caused by transport that includes two basic parts: (a) maintaining non-fragmented areas large enough to ensure partial populations, (b) decreasing the barrier effect as a basis for migration between the partial populations. The methodology for assessment of both aspects is described. The principle is in defining unfragmented areas with traffic and establishing their quality (quantifying suitable biotops and quantifying risk of further fragmentation). This unfragmented areas are compared with the prepared motorways and roads. The possibilities of SEA process are demonstrated in two practical examples: (i) SEA for “Transport policy of the Czech Republic for 2006 – 2013” and (ii) SEA for “Land-use plan of region Karlovy Vary (CZ).” In both cases the results were evaluated as successful and Ministry of Environment recommended this methodology for further applications.

Transposition of the European SEA Directive and Implications for English Local Transport Plans.

Fundingsland Tetlow, Monica; Centre for Sustainability, TRL, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire RG40 3GA England. +44 (0)1344 770146. mtetlow@trl.co.uk

This paper presents the findings from a study into how the SEA Directive has been transposed for English Local Transport Plans, focussing on a review of internal and external threats to a successful SEA.

The appraisal process that was in place for assessing the environmental implications of Local Transport Plans prior to the SEA Directive entering into force had limited influence on plan preparation. The requirement for taking SEA into account therefore presents an unprecedented opportunity for strengthening the influence of transport appraisal in England, and ultimately for improving the environmental outcome of Local Transport Plans. However, aspects of the institutional and regulatory context within which the SEA requirements for Local Transport Plans are being implemented represent potential threats to the successful implementation of this requirement. Some of these threats are within the control of individual authorities and SEA/ Local Transport Plan practitioners, whereas others are not.

This paper investigates ways to optimise the opportunities presented by the requirement to take SEA into account during plan preparation, whilst minimising the threats to successful implementation of this requirement. Using the English transport planning and appraisal system as a basis, the paper identifies issues that may be of relevance to other countries.

Tiering SEA And Project EIA: Lessons From Highway Planning in São Paulo, Brazil

Sánchez, Luis; Universidade de São Paulo, Av. Prof. Mello Moraes, 2373, São Paulo, SP 05508-900 Brazil. +55 11 3091-5186. lsanchez@usp.br

Silva-Sánchez, Solange; Consultant, Rua Judith P. Esteves, 255/14C, São Paulo, SP 05625-030 Brazil. solss@usp.br

Constructing highways in dense urban areas is always a challenge. In São Paulo Metropolitan Region, heavy truck traffic contributes to clog streets and expressways alike. As part of the traffic neither originates nor heads to the region, a peripheral highway has been proposed to reduce traffic problems. This project, called Rodoanel, encompasses a 6 to 8 lane expressway 175 km long linking major highways radiating from São Paulo.

The agency in charge, Dersa, filed a first environmental impact statement, considered as insufficient by the State Department of Environmental Impact Assessment. Thus, Dersa commissioned a strategic environmental assessment of a revamped project, called Rodoanel Program.

This paper discusses the decision-making implications of such as change, critically reviews the SEA report and elaborates on the shortcomings of a second EIS prepared after the SEA report and based on its major findings and recommendations. Authors argue that, far from featuring a genuine SEA process, Rodoanel SEA was merely intended to facilitate project approval, and failed to satisfactorily take account of significant strategic issues. Among these, the highway potential effect of inducing urban sprawling over water protection zones was the most critical issue considered in the environmental decision-making processes.

CS 16.2 SEA GUIDANCE AND ITS DEVELOPMENT

Scoping for SEA in The Netherlands: Generic or Tailor Made?

van Eck, Marja; The Netherlands Commission for Environmental Assessment, PO Box 2345, Utrecht, 3500 GH The Netherlands. + 31 30 2347 666. Fax + 31 30 2304 382. meck@eia.nl

Verheem, Rob; Commission for EIA, PO Box 2345, Utrecht, 3500 GH The Netherlands. + 31 30 234 7636. Fax + 31 30 233 4382. rverheem@eia.nl

This paper discusses some first lessons learned on scoping in SEA under the new EU SEA Directive in The Netherlands. It argues that generic guidelines for the information to be provided in the SEA in most cases will be insufficient: the character of the plans and programs that are covered under the Directive is too diverse. In the paper some practical case examples are discussed, ranging from SEA for regional spatial plans to SEA for the strategic dimension of megaprojects. Particular attention is given to the cases where plans may affect protected nature area under the Habitat and Bird Directive. What does this mean for the level of detail and qualitative versus quantitative nature of the information to provide? The paper concludes that tailor made guidance for the scope of SEA will be indispensable in order to get to effective SEA.

Development and Implementation of Strategic Environmental Assessment (SEA) in Korea

Song, Young-Il; Korea Environment Institute (KEI), 613-2, Bulgwang-Dong,, Eunpyeong-Gu, Seoul, 122-706 Korea. 82-2-380-7674. Fax 82-2-380-7622. yisong@kei.re.kr www.kei.re.kr

Lee, Hyun-Woo; Korea Environment Institute (KEI), 613-2, Bulgwang-Dong,, Eunpyeong-Gu, Seoul, 122-706 Korea. 82-2-380-7768. Fax 82-2-380-7622. hwlee@kei.re.kr www.kei.re.kr

Lee, Kwan-Kyoo; Korea Environment Institute (KEI), 613-2, Bulgwang-Dong,, Eunpyeong-Gu, Seoul, 122-706 Korea. 82-2-380-7678. Fax 82-2-380-7622. kkleee@kei.re.kr www.kei.re.kr

Joo, Yong-Joon; Korea Environment Institute (KEI), 613-2, Bulgwang-Dong,, Eunpyeong-Gu, Seoul, 122-706 Korea. 82-2-380-7666. Fax 82-2-380-7622. yjjoo@kei.re.kr www.kei.re.kr

Bae,Sujin; Korea Environment Institute (KEI), 613-2, Bulgwang-Dong,, Eunpyeong-Gu, Seoul, 122-706 Korea. 82-2-380-7694. Fax 82-2-380-7622. sjbae@kei.re.kr www.kei.re.kr

Han, Sang-Wook; Kwangwoon University, 447-1, Wolgye-Dong, Nowon-Gu, Seoul, 139-701 Korea. 82-2-940-5087. Fax 82-2-918-5683. swhan39@hanmail.net www.gwangwoon.ac.kr

In Korea, similar to the Strategic Environmental Assessment (SEA), the Prior Environmental Review System (PERS) was adopted in 1993 as an important means towards the achievement of environmental conservation and sustainable development. In the PERS system, environmental impacts on major administrative plans and programs were reviewed in the early stage of decision-making process. However, 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 advanced precautionary environmental management policies including SEA has been emphasized continuously in Korea since 1990s. With recognition of these matters, the government amended "Framework Act on Environmental Policy" which is legal basis for the PERS to enhance the system. Through the amendment, the PERS has been consolidated toward achievement of the effectiveness of

SEA implementation. In the new regulatory system, a guideline for the PERS implementation have been suggested as one of the major enhancement. This paper reviews:

- Formation of PERS committee for the preparation of environmental statements.
- Function of the PERS committee.
- Considerations in making environmental statements.

SEA Directive in Swedish Detailed Planning: Role, Effectiveness and Efficiency

Tölander, Ida; WSP Civils, SE-121 88, Stockholm, Sweden. + 46 8 688 68 90. Fax + 46 8 688 69 10. ida.tolander@wspgroup.se

Faith-Ell, Charlotta; WSP Civils, SE-121 88, Stockholm, Sweden. + 46 8 688 65 44. Fax + 46 8 688 69 10. charlotta.faith-ell@wspgroup.se

This study aimed to investigate the role of the EC SEA Directive in Swedish detailed planning. According to Swedish legislation, an EIA should be carried out for any detailed plan that is considered to bring about significant environmental effects. To find out if EIA improves the environmental quality of Swedish planning, a survey was conducted among town planners in nine Swedish municipalities. The study group were given opportunity to explain their views on the role of EIA in detailed planning. Furthermore, this study compared how effectively the Directive was implemented in Sweden, compared to other countries.

The study concluded that the Swedish method of implementing the Directive at the detailed planning level might be interpreted by municipalities as a justification for delaying environmental assessment until a later stage in the planning process. This might, in turn, lead to the window of opportunity for avoiding unnecessary environmental impact being closed. If the assessment of possible environmental impacts is fragmented into several detailed plans, instead of addressing the issue on a regional level, the perception of impact extent might be distorted.

SEA Handbook for EU Cohesion Policy for 2007-2013

Dusik, Jiri; Regional Environmental Center for Central and Eastern Europe, Ady Endre 9-11, Szentendre, 2000 Hungary. + 420 (60) 321 4487. JDusik@rec.org www.rec.org

Jurkeviciute, Ausra; Regional Environmental Center for Central and Eastern Europe, Ady Endre 9-11, Szentendre, 2000 Hungary. + 36 20 5 4 8 9790. AJurkeviciute@rec.org

The Handbook has been prepared within a project under Greening Regional Development Programmes (GRDP), which is a European-wide network funded by the EU InterregIIIC programme, by the GRDP partnership through a collaborative process. It was initiated to answer to requests for guidance on the environmental assessment of Cohesion Policy plans and programmes.

During the preparation of the Handbook, good practices, practical solutions, and challenges in integrating the environment into regional development were analysed. This work has shown that one of the best opportunities for integration of environment into programmes and funding plans is sound, rigorous and participatory environmental assessment of proposed plans and

programmes. Key finding of the work was that “Member States should be encouraged to share and adopt good practices for SEA of National Strategic Reference Frameworks, Operational Programmes, and other regional development programmes. It is crucial that environmental objectives be considered at the earliest possible stage of programme development.”

The paper will highlight the main resources needed and procedural guidance in order to carry out SEA for the Cohesion Policy strategic documents. The most important benefit of the Handbook is considered to be the practicality of the approach and methods.

CS 16.3 SEA TIERING AND MONITORING

Ideas for a Conceptual Approach for SEA Monitoring of Regional Plans

Hanusch, Marie; UFZ Center for Environmental Research, Permoserstr. 15, Leipzig, 04318 Germany. +49-341-235-2181. Fax +49-341-235-2534. marie.hanusch@ufz.de www.ufz.de

SEA monitoring as required by the EC SEA Directive is a crucial and challenging element of systematic impact assessment (IA) follow-up. As a start, the paper explores the role of SEA monitoring and its functions based on the legal background of the EC SEA Directive and the theoretical background of IA follow-up.

Having clarified role and functions of SEA, monitoring conceptual ideas for SEA monitoring of regional plans are presented. Primarily the potential of an objective-led monitoring approach is discussed, taking into account critical issues characteristic of SEA monitoring of regional plans, like:

- The abstractness of regional plans and the inherent difficulty to identify testable predictions applicable for monitoring.
- The comprehensiveness and complexity of regional plans making it difficult to establish causal relationships however making it possible to handle cumulative effects within monitoring.
- The subsequent implementation of regional plans and the question of tiering in terms of monitoring.
- The long implementation periods of regional plans that imply changes in both environmental and policy conditions.

The conceptual ideas are illustrated by means of monitoring approaches of selected SEAs of German regional plans.

Linking SEA Follow Up with EMS in Local Authorities

Cherp, Aleh; Lund University & Central European University, Nador u. 9, Budapest, 1051 Hungary. +46462220280. cherpa@ceu.hu

Emilsson, Sara; Linköping University, Linköping University, Linköping, 58183 Sweden. +46 13 28 56 47. sarem@ikp.liu.se

Hjelm, Olof; Linköping University, Linköping University, Linköping, 58183 Sweden. +46 13 28 56 47. olohj@ikp.liu.se

SEA seeks to address the future which is often uncertain rather than predictable and strategies which are often emergent rather than deliberate. Thus, the SEA effectiveness critically depends upon its follow up, i.e., those monitoring, management and communication which are undertaken after the SEA report has been completed.

Currently, conceptual frameworks for SEA follow up are only emerging and its documented practice remains very limited.

Research project SEAMLESS, part of the MiSt research programme, aims to enhance the understanding of SEA follow up through investigating its potential linkages with EMS in local authorities in Sweden.

The paper will present the results of world-wide benchmarking of such linkages and first observations from empirical studies.

Criteria for Indicator Selection for Use in SEA

Donnelly, Alison; Centre for the Environment and Department of Botany, School of Natural Sciences, Trinity College Dublin, Dublin, 2 Ireland. +353 1 608 1641. Fax +353 1 608 1147. Alison.Donnelly@tcd.ie

Jones, Mike; Department of Botany and Centre for the Environment, University of Dublin, Trinity College, Dublin 2, Ireland

O'Mahony, Tadhg; Environmental Protection Agency, Ireland

Byrne, Gerry; Environmental Protection Agency, Ireland

The primary aim of Strategic Environmental Assessment (SEA) is to provide for a high level of environmental protection and to integrate environmental considerations into the planning process. The SEA Directive recommends environmental monitoring to determine the impact of the implementation of plans and programmes. Environmental indicators are a useful tool through which this impact may be assessed. However, careful consideration must be given to choosing a set of indicators specific to a particular plan or programme. In this presentation, we demonstrate the effectiveness of a workshop based approach to develop suitable criteria for indicator selection. A multi-disciplinary team was used in the approach which consisted of representatives from each of four environmental fields, i.e., biodiversity, water, air and climatic factors, together with SEA experts, planning experts, academics and consultants. The team reviewed sets of criteria, already in existence, for indicator development but not specifically for SEA indicators. The results of this review together with original criteria were applied to the final list of criteria agreed upon. Some criteria developed included, relevance to plan, ability to prioritise and limit conflict with other plan or SEA objectives. The following is a comprehensive account of the outcomes and conclusions of the workshop.

Policy-Level Strategic Environmental Assessment (SEA): Completing the Cycle

Alton, Charles; Global Environmental Solutions, 9745 Conservation Drive, New Port Richey, Florida 34655 USA. 5033512142. charles.alton@earthlink.net

Underwood, Benjamin; Global Environmental Solutions, 3 Queen St., Unit 301, Charleston, South Carolina 29401 USA. 8438708008. globalenviron@aol.com

For the past several years the International Association for Impact Assessment has explored opportunities to maximize the capabilities of the policy-level SEA. A vital need toward insuring real and legitimate decision-making both for the immediate policy/project and future actions is monitoring. How can a policy-level SEA be monitored and appraised? Can it be used as a dynamic process? Can it expedite project-specific planning and implementation?

Through the use of a case study from one of the US Department of Energy's Power Marketing Agencies, Charles Alton and Ben Underwood will demonstrate how policy-level SEA can integrate efficient and effective

monitoring tools to complete the cycle of policy/project development and implementation. As will be demonstrated, a well managed SEA process is an extremely valuable tool for the practitioner and has proven to be scientifically sound, politically and institutionally feasible, and legally defensible.

CS 16.4 OTHER SEA APPLICATIONS

Strategic Environmental Assessment Implementation in China — A Case of SEA for National Economy and Society Development Plan

Wu, Jing; Research Center for Strategic Environmental Assessment, Nankai University, College of Environmental Sci. & Eng., Nankai University, Tianjin, 300071 P.R.China. 86-22-23508348. Fax 86-22-23508348. wujing@nankai.edu.cn

Xu, He; Research Center for Strategic Environmental Assessment, Nankai University, College of Environmental Sci. & Eng., Nankai University, Tianjin, 300071 P.R.China. 86-22-23508348. Fax 86-22-23508348. seacenter@nankai.edu.cn

The legal status of environmental impact assessment (EIA) for a plan which is a type of strategic environmental assessment (SEA) was enacted by the adoption of EIA Law of China in October 2002. Similar to the SEA experiences in most countries, the EIA Law does not apply to policies and the national economy and society development plan, which is the at the highest level of Chinese planning hierarchy. In 2005, the State Environmental Protection Administration (SEPA) launched 3 pilot studies in Wuhan, Dalian and inner Mongolia, to conduct SEA for national economy and society development plan for these three regions respectively. This is one of the three pilot studies that considers how to integrate SEA into the higher level government decision making. This paper also explains the methodology and management procedure of SEA in China.

Strategic Environmental Guidelines for Sustainable Rural Water and Sanitation Delivery in Ghana

Amoako, Richmond; AY & A Consult Ltd, # 2 Botwe Street, Dzorwulu, Accra, P O Box OS 2922, Osu, Accra, Greater Accra Region, Ghana. +233 21 772153. Fax +233 21 772153. richmond.amoako@ayaconsult.com www.ayaconsult.com

Acquah, Emmanuel; AY & A Consult Ltd, # 2 Botwe Street, Dzorwulu, Accra, P O Box OS 2922, Osu, Accra, Greater Accra Region, Ghana. +233 21 772153. Fax +233 21 772153. emmanuel.acquah@ayaconsult.com www.ayaconsult.com

Larmie, Seth; AY & A Consult Ltd, # 2 Botwe Street, Dzorwulu, Accra, P O Box OS 2922, Osu, Accra, Greater Accra Region Ghana. +233 21 772153. Fax +233 21 772153. seth.larmie@ayaconsult.com www.ayaconsult.com

The attainment of the Millennium Development Goals (MDG) for rural access to potable water and sanitation has recently received a big boost in Ghana following the adoption of the African Development Bank (AfDB) rural water supply and sanitation Initiative for Africa. Under this Programme, the Ghana Community Water and Sanitation Agency (CWSA) will assist four districts in the Ashanti Region of Ghana populated by about 620,000 rural persons to access potable water and sanitation facilities over a 5 year period. A Strategic Environmental Assessment study was required as a necessary instrument to fulfilling the Ghana Environmental Protection Agency Act 1994 (Act 490) and Environmental Assessment Regulations, 1999 (LI 1652) for development programmes, and also to confirm the importance and relevance of proposed programmes in line with the Government of Ghana Poverty Reduction Strategy (GPRS). The study led to the formulation of among many other things, environmental principles and

guidelines for general and specific issues with respect to community sensitization, project identification, community involvement and ownership, operation and maintenance of facilities, etc. The Study assured programme sustainability in Ghana, and the employment of best practices.

Preliminary SEA of Great Western Development Strategy in China

Li, Wei; School of Environment, Beijing Normal University, No.19, Xin Jie Kou Wai St., Beijing, 100875 CHINA. 86-10-58804440. weili@bnu.edu.cn

The procedure of this SEA was to analyze Great Western Development Strategy (GWDS) development plans, at central and provincial levels and establish the Critical Decision Components (CDCs), e.g., planned objectives and key activities. Once the CDCs were identified, they were grouped in accordance with the five Key Developmental Domains (KDDs), including water, land, energy, biodiversity and tourism, and used to form the basis of the analysis. Two methodologies were used to assess the likely environmental impacts: i) Scenario Analysis, and ii) Assessment Matrix. Throughout the assessment process, the findings were subject to expert consultations. Findings and predictions for the consequences of the GWDS, for each KDD, are summarized at the province level. Meanwhile, a selection of the countermeasures for critical issues that have emerged is raised as key recommendations for each province. While this assessment was prepared after the initial launch of the GWDS, it is hoped that the extremely long-term perspective of the GWDS will mean that appropriate design modifications can be incorporated as new findings and guidance are developed. It is also hoped that this initiative will provide a template and a baseline against which future assessments in Western China can be implemented.

Capacity Development for SEA Application in the Newly Independent States (NIS)

Martonakova, Henrieta; UNDP Regional Centre for CIS and Europe, Grosslingova 35, Bratislava, 81109 Slovakia. +421 2 59337411. Fax +421 2 59337450. henrieta.martonakova@undp.org www.undp.sk

Dusik, Jiri; Regional Environmental Centre for Central and Eastern Europe, Ady Endre 9-11, Szentendre, 2000 Hungary. +420 37 743 1728. JDusik@rec.org www.rec.org/environmental

Jurkeviciute, Ausra; The Regional Environmental Centre for Central and Eastern Europe, Ady Endre 9-11, Szentendre, 2000 Hungary. +370 52 714 164. AJurkeviciute@rec.org www.rec.org/environmental

So far, four NIS countries have signed the SEA Protocol to the UNECE Espoo Convention. Relevant factors affecting transposition of the SEA Protocol requirements in the NIS countries are:

Environmental assessment of plans and programmes is currently regulated by, for the region, a unique system, different from that outlined by the SEA Protocol, in its purpose, role of key players and the specific procedural requirements. Current EA systems can be characterized by low level of participation and transparency, and insufficient capacity for SEA of plans and programmes resulting in rare application in practice.

Reflecting on the above, UNDP and the REC, with inputs from the UNECE, have carried out projects (in 2004-2006) to support capacity development for SEA application in the selected NIS countries. SEA pilots were

implemented in Armenia and Belarus, and capacity development (CD) manuals for the SEA Protocol implementation were elaborated in Georgia, Republic of Moldova and Ukraine.

The aim of the presentation is to present: (a) CD approach and framework applied within the project, and (b) lessons learned including future opportunities and remaining challenges for the effective SEA systems development in the NIS region.

CS 16.5 THEORY BEHIND SEA: ENHANCING SEA'S EFFECTIVENESS

How Strategic Environmental Assessment Becomes Successful Environmental Assessment

Runhaar, Hens; Utrecht University, Copernicus Institute for Sustainable Development and Innovation, PO Box 80,115, Utrecht, 3508 TC Netherlands. + +31-30-253 3050. h.runhaar@geo.uu.nl www.copernicus.uu.nl/esp

Driessen, Peter; Utrecht University, Copernicus Institute for Sustainable Development and Innovation, PO Box 80,115, Utrecht, 3508 TC Netherlands. + +31-30-253 5771. p.driessen@geo.uu.nl www.copernicus.uu.nl/esp

The assessment of environmental and sustainability impacts at the strategic level of public decision-making has become popular in the scientific and professional environmental community. This trend is reflected in a stream of publications on Strategic Environmental Assessment (SEA) and Sustainability Impact Assessment (SIA). Expectations of SEA and SIA regarding the integration of environmental and sustainability concerns into policy-making are high. However, up to now evidence of their impact is only indirect which in addition seems to be modest.

We propose an approach for a systematic assessment of SEA/SIA impact on decision-making, conceptualising SEA/SIA as a hindrance race. In order to improve the environmental performance of decision-making, analysts must overcome several barriers: e.g., in the "scoping" stage "most environmentally friendly alternatives" or "best sustainable alternatives" must be developed that are preferably as extreme as possible. Each of these barriers must be overcome by finding a proper balance between the ambition of "greening" or sustaining decision-making and the need to gain support for SEA/SIA outputs by decision-makers and other stakeholders in order to be used in decision-making. We discuss some results of a small-scale application of our approach as well.

Effective SEA in Italy and in the UK

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

Fischer, Thomas B.; University of Liverpool, Department of Civic Design, 74 Bedford Street South, Liverpool L69 7ZQ England-UK. +44 (0) 151 794 3113. fischer@liv.ac.uk

If SEA is to develop into an effective decision support instrument globally, it should not just rely on the input provided by a selected group of countries only. In this context, the understanding of how to apply SEA effectively in different planning systems is unlikely to improve if the knowledge about those systems is limited. This paper establishes what appears to make SEA effective in two countries with different planning systems; Italy and the UK. Italy is chosen as an example, representing a specific Southern-European/Mediterranean planning culture, which to date has not contributed to the SEA literature to any great extent. Based on

empirical observations, it is suggested that the SEA effectiveness elements normally portrayed in professional literature are not fully valid. The UK is chosen as an example which represents a specific Northern-European planning culture. Countries representing this planning culture have contributed heavily to the international SEA literature and have influenced the development of SEA theory strongly. Here, SEA effectiveness criteria portrayed in the professional literature indeed appear to be valid. As part of a PhD research project, this paper builds on the presentations at the IAIA meetings in Vancouver and Boston.

The Emperor's New Clothes—Reflections on SEA Practice in South Africa

Retief, Francois; North West University (Potchefstroom campus), Hoffman Street, Potchefstroom, North West Province South Africa. +27 (0)18 299 1586. Fax +27 (0)18 299 1580. ggffpr@puknet.puk.ac.za

Jones, Carys; University of Manchester, Oxford Road, Manchester, M13 9PL United Kingdom. +44 (0)161 275 6873. Fax +44 (0)161 275 6893. carys.jones@man.ac.uk

Jones, Stephen; Sheffield Hallam University, Howard Street, Sheffield, S1 1WB United Kingdom. +44 (0)114 225 3211. s.a.jay@shu.ac.uk

This paper presents the results of a three year research project which aimed to evaluate the performance of SEA practice in South Africa. It concludes that a combination of factors such as an enabling legal framework combined with a strong consultancy sector, can introduce extensive SEA practice on a wide front. This consultancy driven SEA practice also represents a technical rational approach to SEA, which is technocratic, information driven, objective, extensive and expensive as well as procedurally structured and isolated. At some risk of oversimplification, the conclusions of the research do bear resemblance to the moral of the fable, "the emperor's new clothes." Despite the lack of agreement and a clear understanding of what SEA is (and being "invisible" to most), it is widely embraced and promoted. A situation emerges where SEA essentially means everything to everybody. The dangers of a lack of critical feedback, aptly highlighted in the fable, are also borne out by the research because as the results suggest, the naked truth is that notwithstanding the time and resources allocated, SEA in its current form is not achieving its objectives within the South African context.

Sustainability Assessment: Lessons from the EU BioScene Project

Sheate, William; Collingwood Environmental Planning / Imperial College London, Centre for Environmental Policy, South Kensington Campus, London, SW7 2AZ UK. +44 (0)20 7594 9299. w.sheate@imperial.ac.uk www.bioscene.co.uk

Partidário, Maria Rosário do **Error! Bookmark not defined.**; Department of Civil Engineering and Architecture Instituto Superior Técnico (IST), Av. Rovisco Pais,, Lisboa, 1049-001 Portugal. +351 218 418 341. Fax +351 218 497 650. mrp@civil.ist.utl.pt http://www.civil.ist.utl.

Bina, Olivia; Centre of Urban and Regional Systems (CESUR) Instituto Superior Técnico, Av. Rovisco Pais, Lisboa, 1049-001 Portugal. +351 91 7451961. olibina@gmail.com

Byron, Helen; European Programmes & Training Department RSPB, The Lodge, Sandy, Bedfordshire SW7

2AZ UK. +44 (0)1767 680551. +44 (0)1767 683211
www.rspb.org.uk

BioScene (Scenarios for Reconciling Biodiversity Conservation with Declining Agriculture Use in Mountain Areas in Europe) was a three-year EU 5FP funded research project (2002-2005) that analysed the biodiversity processes and outcomes of different scenarios of agri-environmental change in six countries (France, Greece, Norway, Slovakia, Switzerland and the United Kingdom). The project included the development and application of a tailor-made sustainability assessment (SA) methodology.

Each study area had a multi-disciplinary team, including ecologists and socio-economic experts, which sought to develop a comprehensive understanding of the drivers for change and their implications for sustainability. A sustainability assessment (SA) team (from the UK and Portugal), independent of any study area, developed and oversaw the application of the SA methodology, assisting national teams and developing a cross-country understanding of sustainability. This paper reports on the conclusions of the Bioscene project with respect to the application of SA, including the results of the SAs in the study areas, and the attitudes and expectations of stakeholders. The paper reflects on the experience of working in what was variously a multidisciplinary, interdisciplinary and trans-disciplinary environment, and the role SA can play in helping to facilitate interdisciplinary working.

CS 16.6 SEA METHODS AND TECHNIQUES/CAPACITY BUILDING

How to Make Words Count

Arbter, Kerstin; Arbter - SEA consulting & research, Vorgartenstraße 145-157/2/16, Vienna, 1020 Austria. +43-1-218 53 55. Fax +43-1-218 53 55. office@arbter.at
www.arbter.at

Communication—a main SEA success factor. The paper deals with our practical communication experience during and after SEA processes. In Austria, we have developed the SEA Round Table, a highly participative SEA approach. It brings together the stakeholders concerned in order to reach a consensus on the plan or programme. Four main aspects of communication are to be considered during such SEAs. Firstly, at the Round Table, SEA teams establish rules for their internal communication during the SEA workshops. Secondly, for communication with those outside the Round Table, e.g., by internet, one main agreement is that there is no communication without informing the other team members. A balance between transparency and confidence has to be found. A third and crucial point is that team members have to communicate the results back to their organisations during and at the end of the process. Support from other SEA team members can be helpful in conveying the findings to the respective organisations. Finally, after reaching a consensus on the draft plan or programme, a delegation of the SEA team communicates the SEA results to decision makers and to the public. This enhances credibility and demonstrates that the whole team supports the results.

From Theory to Reality: Landscape Indicator Assessment and Mapping

d'Auria, Lianda; University College Dublin, 47 Westfields, Ennis, Co. Clare, Ireland. 00353 86 2647174.
lianda.dauria@ucd.ie

Strategic Environmental Assessment has now become an established policy, plan and programme support instrument for a variety of administrations and bodies across a wide

range of situations. The need for sustainable development and particularly for indicators of sustainability is a key requirement to implement and monitor the development of such policies, plans and programmes.

The overall objective of this research project is to develop a conceptual and methodological framework for the mapping of landscape indicators within a Local Authority in Ireland.

This paper outlines progress on the development of the DPSIR framework methodology and the set of indicators adopted and tested in a case study area in the west of Ireland. The development of the method structure and comprehensive set of indicators incorporates a spatial dimension developed using GIS.

Multiple-scenario testing within the GIS system will show for example how changes in policy or future developments affect the suitability of areas for a given type of development over time and space. Therefore, this research will play a critical role in providing the foundation for monitoring development, policy effectiveness and the decision-making processes within County Clare.

Alternatives, Options and Scenarios in Strategic Environmental Assessment

Desmond, Margaret; University College Cork, Western Road, Cork, Ireland. 00353217332465.
m.desmond@ucc.ie

While environmental assessment is already established practice for many types of projects, the Strategic Environmental Assessment (SEA) Directive (2001/42/EC) requires environmental protection at a higher level of planning through the assessment of significant potential environmental effects of plans or programmes. Assessment is further required of different or alternative options which may also fulfill the goals of the plan or programme.

Alternatives can be described as the range of rational choices or options open to decision makers in response to specific problems. However, alternatives can also be used as ways of achieving a future vision or scenario such as the objective(s) of the plan/programme. Thus, in SEA, a set of alternatives can lead towards a predefined plan or programme goal or they can be placed within a set of future scenarios.

In this research paper, a pilot SEA of a proposed regional waste management plan in Ireland is used to: 1) access how alternatives and scenarios are identified, described and evaluated such that likely environmental impacts may be considered early in decision making; 2) access how the 'best' option was chosen to fulfil the objectives of the plan.

Using the New Manual on SEA from EUTREN in Finding Better Ways of Working in Regional Transport Planning

Eriksson, Inga-Maj; Swedish Road Administration, Röda vägen 1, Borlänge, S-781 87 Sweden. +46 243 75131.
inga-maj.eriksson@vv.se

I would like to point out the most useful parts of the new SEA Manual of the EUTREN. There is an ongoing work in preparing for an effective and efficient application of SEA in coming regional transport plans in Sweden. Previous applications has shown a lack of

adaptation of the planning process. Planning with SEA must show that the product is useful for the following project planning. Project planning should refer to, e.g., that more than one transport mode has been dealt with when the project was identified or born. The experience of using a “four step principle” is helping in generating also non-infrastructure alternatives.

CS 16.7 SEA IN THE WORLD BANK

SEA at the World Bank: Evolution in SEA Approaches

Ahmed, Kulsum; The World Bank, 1818 H Street, NW, Washington DC, 20433 USA. 202 473 1130.
kahmed4@worldbank.org

In June 2001, the World Bank's Environment Strategy was approved. This Strategy highlighted the use of SEA as a key tool for mainstreaming environmental considerations into sectoral decision-making and planning processes at early stages and made a strong commitment to promote the use of SEA as a tool for sustainable development. In June 2006, the Strategy's five year time frame comes to an end. This paper will present the evolution in thinking at the World Bank on SEA approaches based on the experience of the last five years. In particular, the advancement in thinking on how SEA can be used for sustainable policy-making, and for strategic decision-making with respect to plans and programs, and to support improved environmental management and governance will be described.

Outcome of an Ex-Post Review of SEA and SEA-Like Processes at the World Bank 1995-2002

Mercier, Jean-Roger; World Bank, Room MC5-139, 1818 H Street NW, Washington, DC 20433 USA. + 1-202-473-5565.
jmercier@worldbank.org

Pillai, Poonam; World Bank, ppillai@worldbank.org

Verheem, Rob **Error! Bookmark not defined.**

An internal review of SEA and SEA-like processes has been conducted internally at the World Bank. The review included a systematic use of good practice criteria, largely based on IAIA's criteria, with an extension to incorporate more concerns about the influential nature of the processes. Good practices have been identified. They are described briefly in the paper. Their use as pedagogic tools has started with interesting results on World Bank staff.

Strategic Environmental Assessment of the New Forest Bill in Kenya

Loayza, Fernando; World Bank, 1818 H Street NW, Washington DC, 20433 USA. 202-458-7117.
floayza@worldbank.org www.worldbank.org

Diji, Chandrasekharan; World Bank, 1818 H Street NW, Washington DC, 20433 USA. 202-458-8882.
dchandrasekharan@worldbank.org www.worldbank.org

Kenya has recently adopted a new Forest Bill to promote growth and reduce poverty. This Bill establishes a new policy involving a major restructuring of the forest sector including, the following adjustments: (i) participatory forest management; (ii) commercial plantations are opened to lease arrangements; (iii) the creation of a new Forest Service; and, (iv) an enabling environment for attracting private investors. In implementing this policy, questions remain regarding the reform of the Forest Department and the level of stakeholder engagement in this process. There is need for analytical work on alternative ways of implementing key parts of the Forest Bill. There is also need to enhance interaction among key

stakeholders. To address these pressing issues, an strategic environmental assessment (SEA) of the implementation of the Forest Bill has recently started. This paper discusses the approach adopted by this SEA to identify and assess environmental and social priorities. It analyses the arrangements established to factor these priorities into the implementation of the new Forest Bill. Finally, it reviews the progress achieved in the SEA process and draws some preliminary lessons on how SEA can influence policy for sustainability.

SEA Legislation: Results of a Nine-Country Review

Ahmed, Kulsum; The World Bank, 1818 H Street, NW, Washington DC, 20433 USA. 202 473 1130.
kahmed4@worldbank.org

Fiadjoe, Yvonne; The World Bank, 1818 H Street, NW, Washington DC, 20433 USA. 202 473 9153.
yfiadjoe@worldbank.org

Increasingly countries are beginning to incorporate SEA in their national legislation. This paper examines select national legal instruments that address SEA, highlighting strengths and weaknesses with respect to their content, based on current thinking on the use of SEA as a tool to foster sustainable development. The review findings indicate that overall SEA legislation needs to evolve to catch up with the fast-moving evolution in SEA concepts and methodologies as an approach for sustainable development. However, the review also highlights a number of good practice examples that suggest a way forward for countries developing future SEA legislation.

CS 16.8 SEA IN SPATIAL/LAND USE PLANNING

SEA on Land Use Planning Toward Sustainability

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

Kim, Tae Geun; Department of Environmental Engineering, Cheongju University, 36 Naedok-Dong, Sandang-Gu, Cheongju, Chungbuk 360-764 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, Sandang-Gu, Cheongju, Chungbuk 360-764 Korea. 82-43-229-8576. Fax 82-43-229-8432. sphong@cju.ac.kr
cyber.cju.ac.kr/~sphong

Kim, Kwang Yul; Department of Environmental Engineering, Chungbuk National University, 12 Gaeshin-Dong, Heungduk-Gu, Cheongju, Chungbuk 360-764 Korea. 82-43-261-2466. Fax 82-43-267-2466.
kykim@chungbuk.ac.kr

SEA in Korea is not sufficient for land use planning toward ESSD. The tool and criteria used in land use planning can not achieve the purpose of strategic SEA.

The purpose of this study is to suggest what and how to do for sustainability of land use planning by application of SEA.

This study searches for the problems of land use related systems and legal aspects such as zoning system and Land Suitability Assessment System based on the Act on Planning and Utilization of National Territory, EIA based

on Act on the Assessment of Impacts of Works on Environment, Traffic, Disasters, etc., Prior Environmental Review System containing the content of SEA based on Framework Act on Environmental Policy, and Total Pollution Load Management System based on Act on River Watershed Management & Community Support.

Cumulative impact assessment, integration of land use and Total Pollution Load Management System and transportation, application of sustainability indicator system, and development of Land Suitability System based on physical factors such as slope and altitude, regional and locational factors, etc., will be suggested for the application of SEA which will be implemented June 2006 in Korea.

Enhancing Sustainable Territorial Systems: Integrating Strategic Environmental Assessment (SEA) into Territorial Planning in Case of the new Hungarian Spatial Development Concept (RDC)

Peti, Marton; Váti Hungarian Public Non-Profit Company for Regional Development and Town Planning Strategic Planning Directorate, Gellertheagy 30-32, Budapest 1016 Hungary. +36 306337723 Fax +36 1 2243290. mpeti@vati.hu www.vati.hu

Salamin, Geza; Váti Hungarian Public Non-Profit Company for Regional Development and Town Planning Strategic Planning Directorate, Gellertheagy 30-32, Budapest 1016 Hungary. +36 305559762. Fax +36 1 2243290. gsalamin@vati.hu www.vati.hu

The authors believe that the regional dimension of sustainability is at least as important as the global one, and the territorial planning is the most important trustee of validation of sustainable principles. Thus one of the main functions of territorial planning must be the enhancement of sustainability in transparent regional systems via harmonising economic, social, environmental factors of a given region, mobilising its endogenous resources.

Territorial planning can play the above role only in case of sound integration of sustainability: the integration has to be implemented in different forms from the early phase of a planning process, beyond the simple environmental impact assessment of a plan.

The planning process of SDC was the first on policy level that dealt with environmental integration issues. SDC has an environmentally-related texture inside that consists of vertical (aims) and horizontal (principles) considerations. In this manner, those features that need direct interventions became vertical aims, and the others that are to be validated in each and every development actions became horizontal principles. The SDC also defined some tools of creating a sustainable regional planning system.

SDC provides adaptable solutions for a deeply integrated SEA approach for territorial policies.

The Role of SEA in a Complex Planning Situation

Nilsson, Kristina L; Department of Urban and Rural Planning, Swedish University of Agricultural Sciences Ultuna, Ulls väg 28A, P.O.Box 7012, Uppsala, SE-75007 Sweden. +46 18 672682. Fax +46 18 673512. Kristina.nilsson@sol.slu.se

Hedlund, Anders; Department of Urban and Rural Planning, Swedish University of Agricultural Sciences Ultuna, Ulls väg 28A, P.O.Box 7012, Uppsala, SE-75007 Sweden. +46 18 672531. Fax +46 18 673512. Anders.hedlund@sol.slu.se

The paper discusses if and how Strategic Environmental Assessment (SEA) can support or facilitate planning and decision-making in complex planning situations. Basic data comes from a current Swedish case where SEA is used in parallel and partly overlapping planning processes.

Kiruna is a small town in the very north, dependent on ore mine industry. It is exposed to hard climate conditions, surrounded by areas of interest to the natural environment, national infrastructure as well as nomads. The mine plans to excavate iron ore under the existing town. This means a third of the built environment needs to be moved or rebuilt, together with the national railway and road. Several actors are involved in the plans. The local authority has a process of comprehensive planning expected to improve sustainable development and deliberative process. The plan is submitted to (strategic) environmental assessment according to EC directive 2001/42. Both National Road and Railway Administrations are presently planning relocation of road E10 and railway line, where use of SEA is required. Altogether these conditions give extreme complex context.

The results are expected to give new knowledge valuable for planning practice and education together with contribution to discussion of relation between SEA and spatial planning.

Good Practices in SEA of Spatial Plans in Sweden and The Netherlands

Rihm, Sandra; Lund University, Klockaregårdsv. 88, Fjälkinge, 290 34 Sweden. 0046-44-50797. sandra.rihm.732@student.lu.se

Martins Dias, Luis; DHV, Environment and Transportation, P.O. Box 1132, Amersfoort, 3800 BC The Netherlands. 0031-33-4682604. Fax 0031-33-4682801. luis.martinsdias@dhv.nl

The EU SEA Directive requires, among others, the performance of strategic environmental assessment (SEA) for spatial plans. Two EU countries, Sweden and The Netherlands, have already long experience in carrying out environmental impact assessments (EIAs) for certain types of spatial plans.

Nonetheless (or perhaps due to this experience), these countries encounter problems in performing SEAs according to the requirements of the Directive. This paper focuses on these problems and good approaches to them.

Firstly, the Swedish and Dutch SEA systems are discussed. Interesting to notice is that both countries (with long tradition in EIA for spatial plans) only implemented the minimum requirements of the SEA Directive.

Secondly, the encountered problems in applying SEA for spatial plans are discussed. These are, e.g., lack of knowledge and experience of competent authorities with the SEA procedure in general and regarding alternative development and impact prediction in particular, and their lack of motivation for performing SEAs.

Thirdly and last, good practices to address these problems are presented and discussed.

The IAIA participants at the conference are invited to discuss if the problems are unique for these two countries and if previous EIA experience has advantages or disadvantages for implementation of the SEA Directive.

CS 16.9 LEARNING AND GOVERNANCE I

Role of SEA in Transitional Countries: Return of Planning?

Borysova, Olena; Kharkiv National Academy of Municipal Economy, 12 Revolutzii, Kharkiv, 61002 Ukraine. + 380-57-7073331. Fax + 380-57-7174319. borysova@velton.kharkov.ua

The former Soviet Union Countries in Eastern Europe, Caucasus and Central Asia are going through transition from centrally planned to open market-based economies. During this process they mainly abolished the existing highly sectoralized and standardized system of economic planning, but the alternative has not been sufficiently developed yet. The experience of Ukraine that in 2003 joined the Protocol on Strategic Environmental Assessment to the Espoo Convention shows that SEA may become a tool of planning system "rehabilitation." Although SEA practice in the country is limited, evidence has been obtained, in the process of development of the National Strategy for Introduction of SEA and Implementation of the UNECE SEA Protocol requirements under the workplan of the Third Meeting of the Parties to the Espoo Convention, that the SEA process may by itself become a learning instrument to the participating organizations. If national expertise in planning is transformed and updated in order to meet the requirements of SEA Protocol by SEA capacity building process, not only SEA is started to be implemented, but also the concepts of "environmental planning" and "planning for sustainability" are introduced into national planning and prognosis system. Lessons learnt may be applicable to other transitional countries implementing SEA Protocol requirements.

Capacity Building for SEA in Brazil: Initial Considerations for Effective SEA Implementation

Kirchhoff, Denis; University of Waterloo, 350 Columbia St W, Waterloo, Canada. 1 (519) 888-4567 ex. 3303. dkirchho@fes.uwaterloo.ca

Strategic Environmental Assessment (SEA) has a prominent position in the ongoing search for instruments that can help governments and other organizations to pursue the goal of sustainability. However, SEA faces challenges and barriers to its effective implementation, such as lack of political will, institutional resistance, lack of clear accountability and responsibility, lack of resources (information, expertise...), limited public involvement and lack of requirements for taking the results of SEA into account. These difficulties have implications for the effectiveness of SEA. This is particularly important in a developing country context, where SEA experience remains recent and limited.

This research is about describing and critically assessing the understanding of what constitutes effective SEA, identifying the most likely barriers to effective SEA implementation in Brazil, and identifying capacity gaps and associated capacity building needs for SEA considering the Brazilian context. A systemic capacity building approach will be used to address the barriers to implementing SEA. It is expected that the use of this framework to analyse past and present capacities of the EIA/SEA system will reveal the systemic gaps to be plugged by SEA capacity building initiatives in order to promote effective SEA implementation.

Towards a Framework for *ex post* SEA: A Theoretical Exploration

Persson, Åsa; Stockholm Environment Institute, Box 2142, Stockholm, S-103 14 Sweden. + 46-8-412 14 02. asa.persson@sei.se

Nilsson, Måns; Stockholm Environment Institute, Box 2142, Stockholm, S-103 14 Sweden. + 46-8-412 14 15. mans.nilsson@sei.se

Most SEA practice and research has focused on the pre-decision stages, whereas post-decision stages (usually monitoring, evaluation, and management) have been given far

less attention. These stages, also referred to as SEA follow-up or *ex post* SEA, are an integral part of any effective and learning-oriented SEA. This paper takes the first step towards a framework to guide further efforts, by analysing the requirements for *ex post* SEA according to the European SEA Directive, reviewing existing experiences and literature on how to perform *ex post* SEA, and exploring lessons from the adjacent fields of EIA follow up and policy/programme evaluation. The paper argues that the SEA Directive is seriously constrained and that a more ambitious interpretation of *ex post* SEA is necessary to enable a strategic decision making and learning cycle. Learning from the policy/programme evaluation literature could strengthen *ex post* SEA by giving it analytical rigour in relation to establishing causality and providing insights into the use and acceptance of *ex post* SEA among decision makers and stakeholders. Further explorations into policy evaluation toolkits and practical applications are needed to enhance the potential of *ex post* SEA in supporting strategic decision making.

Sustainability Assessment: A Dialogue of the Deaf or a Social Learning Process?

Pope, Jenny; Institute for Sustainability and Technology Policy, Murdoch University, South St, Murdoch, Western Australia 6150 Australia. + 618 9431 7554. Fax + 618 9431 7031. jennypope@bigpond.com

Western Australia has adopted a "learning by doing" approach to implementing sustainability assessment processes for major infrastructure projects. Three very different sustainability assessments have now been conducted by the Western Australian Government, and the informal "sustainability assessment learning community" that has developed around these experiences has been able to extract valuable lessons about effective process methodologies and institutional arrangements for sustainability assessment. But perhaps the most significant lessons has been the conclusion that a well-designed sustainability assessment process can itself be a vehicle for social and institutional learning. In this paper I will contrast two of the Western Australian case studies: the Gorgon gas development, which degenerated into a "dialogue of the deaf"; and the South West Yarragadee Water Supply Development which provided spaces for social learning that led to a redefinition of the project itself; influenced the policy and institutional context within which the assessment was conducted; and challenged assumptions and beliefs with respect to the management of water, our most vital natural resource. I argue that such learning is the most valuable contribution to sustainability that assessment processes can make, not only inside organisations, but between organisations and across society as a whole.

CS 16.10 LEARNING AND GOVERNANCE II

Beyond Hurdle Jumping: Managing the Impact Assessment Process for Environmental Performance

Arts, Jos; Ministry of Transport, Public Works & Water Management, PO Box 5044, Delft, 2600 GA The Netherlands. + + 31 15 2518461. Fax + + 31 15 2518555. e.j.m.m.arts@dww.rws.minvenw.nl

Morrison-Saunders, Angus; Murdoch University, School of Environmental Science, South Street, Murdoch, West

Australia WA 6150 Australia. + + 618 9360 6125. Fax + + 618 9360 6787. A.Morrison-Saunders@murdoch.edu.au

The IA toolbox contains an array of instruments: from sustainability appraisal and SEA at the strategic end of decisionmaking to “traditional” project-based EIA and operational level environmental management systems (EMS). Development of new instruments has been accompanied by regulation to guide their application. For practitioners, however, it is not obvious which IA instrument should be applied in a particular situation or when and how these might interrelate with other environmental management tools. Mostly this depends on *ad hoc* choices and too often these instruments are treated just as hurdles to jump. How might IA instruments be applied in a sensible way to make better decisions and improve environmental performance (the underlying objective of all these instruments) as well as to enable learning? We contemplate a framework in which more explicit design of IA occurs throughout the planning process to optimise environmental management outcomes. This requires consideration of both content and process dimensions. The framework includes choice of instruments and IA techniques, management of risks, division of roles and responsibilities for IA undertakings, engagement of stakeholders and information as well as learning and capacity building. Managing the IA process not only guides practice, but is essential for maximising environmental management performance.

Do Nothing – But Do It Well: Experience from SEA Practice

Morrison-Saunders, Angus; Division of Science and Engineering, Murdoch University, South St., Murdoch, WA 6150 Australia. + 618 9360 6125. Fax + 618 9360 6787. A.Morrison-Saunders@murdoch.edu.au

Marshall, Ross; National Environmental Assessment Service, Environment Agency, Waterside House, Waterside North, Lincoln, LN2 5HA United Kingdom. + 44 01522 785885. ross.marshall@environment-agency.gov.uk

The “Do Nothing” concept is a long ingrained concept in impact assessment (IA) that is rarely questioned or challenged. “Do Nothing” provides the foundation for evaluating the condition of the existing baseline environment and the potential impacts of new proposals against other reasonable and practicable alternatives (including if the proposal were not to proceed). Thus it is equivalent to analysis of project need and whether the benefits of the project outweigh its impacts. But what does “Do Nothing” mean in practice? Options range from “Business as Usual” (do whatever you are doing currently) to “Do the Minimum” (some basic new level of intervention) both of which can be costed and compared to proposed new activities and the “True Do Nothing” option (walk away from the activity and do absolutely nothing). This paper reviews the current status of “Do Nothing” in EIA and SEA practice, including how this interacts with the strategic purpose and nature of SEA. Are new demands and interpretations being placed on this well established IA concept? The paper examines practical application of the “Do Nothing” options in EIA and SEA using case studies from Australia and UK experience and considers how doing nothing can be done well!

Scenario-Based Approaches in Strategic Environmental Assessments

Bartlett, Samuel; ECON Analysis, Biskop Gunnerus’ gt. 14A, Oslo, 0185 Norway. 47 4540 5000. Fax 47 2242 0040. srb@econ.no www.econ.no

Brunstad, Bjørn; ECON Analysis, Biskop Gunnerus’ gt. 14A, Oslo, 0185 Norway. 47 4540 5000. Fax 47 2242 0040. bbr@econ.no www.econ.no

Strategic environmental assessment (SEA) often deals with public policy making problems characterised by, *inter alia*: broad spatial and temporal scales; complexity within and connectivity between problems; pervasive risk, uncertainty and ignorance; irreversible and cumulative impacts; and intense demands for increased community participation in both policy formulation and management. Conventional EIA-inspired SEA studies have often struggled to accommodate these challenging characteristics, and SEA professionals are exploring a range of new tools and approaches. Scenario methods are one such tool. Scenario-based approaches are centred on developing a set of stories about plausible futures and outcomes, in contrast to seeking to identify one fixed prediction on the most likely impacts. The objective of scenario-based approaches, as in many SEAs, is to stimulate debate and learning and to provide a basis for robust long-term planning and strategy-making. Scenario methodologies are well developed in the field of strategic management, and have been applied to a limited degree in environmental assessment. This paper reviews these emerging applications, proposes a typology of scenario methodologies, explores the potential for applying these methods in SEA and describes two recent SEA case studies that have piloted scenario-based approaches.

Three Models of Potential Innovative Collaboration in SEA?

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

Groups of individuals working together have more potential for generating innovation than people working in isolation. This paper discusses the possibility of three different models of potential innovative SEA practice: Peer SEA Review, Shared SEA Team, and SEA Team Swap. A key assumption is that these models might spring up partially prompted from the lack of resources: “necessity is the mother of all invention.” Peer SEA review is when two (or more) responsible authorities peer review the SEA outputs of each other. The shared SEA team, on the other hand, is when responsible authorities can only spare one member of staff to do the SEA work but ideally an SEA team is needed. In a shared SEA team model each participating responsible authority provides one or more members of staff to the SEA team. The idea of SEA team swap is when responsible authorities swap SEA teams in order to keep independence of the strategic decision making process. The paper concludes with examples of the potential application of these three models (e.g. the SEA team swap has been suggested to be applied between two local authorities in England).

CS 16.11 LEARNING AND GOVERNANCE III

The Role of SEA in Evaluating Local A21

Waaub, Jean-Philippe; GEIGER, Geography, UQAM, CP 8888 succ. Centre-Ville, Montreal, Québec H3C 3P8

Canada. 1 514 987 3000 8908#. Fax 1 514 987 6784.
waaub.jp@uqam.ca

Thuillier, Émilie; GEIGER, Geography, UQAM, CP 8888 succ.
Centre-Ville, Montreal, Québec H3C 3P8 Canada. 1 514 987
3000 8908#. Fax 1 514 987 6784. emiliethuillier@yahoo.fr

The new model of development involving sustainability and equity issues needs implementing local Agenda 21 (Rio, 1992). A local Agenda 21 consists in a particular planning exercise involving multidimensional analysis and participatory decision process. In practice, it looks like nothing is done to evaluate the strategic impact of such a planning process. Pursuing sustainability objectives does not mean that the strategic issue compromises are obvious or that a unique planning scenario will emerge by itself. What kind of assessment do we need for such a planning exercise? We will discuss the strength, weakness, opportunities and threads of three models: classical strategic environmental assessment (only dealing with environmental issues even in a broad acceptance of the term environment), strategic assessment including environmental issues and sustainability assessment. Discussion will focus among other points on the coherence with sustainability principles, the influence of diverse theoretical basis such as socio-constructivism, communicative planning, adaptative or ecosystem planning, integrated resource management.

Norwegian and Nordic Perspectives on the Linkages Between EIA and SEA

Tesli, Arne; Norwegian Institute for Urban and Regional Research (NIBR), Sinseneveien 47 B, Oslo, 0313 Norway. +47 2295 8804. Fax +47 2222 3702. arne.tesli@nibr.no

Lerstang, Tor; Norwegian Center for Transport Research (TØI), Postboks 6110 Etterstad, Oslo, 0602 Norway. +47 2257 3800. Fax +47 2257 0290. lerstang@bluezone.no

This paper summarizes some of the findings from three research projects on EIA and SEA in Norway and the Nordic countries, and discusses some of the main challenges linked to EIA and SEA in these countries.

The issues relate to:

- Application of EIA for the appropriate projects and at the right level.
- Decentralised management of EIA and quality control.
- Commitment for mitigating measures and follow-up work.

Critical characteristics of SEA:

It must relate to overarching decisions—made in Parliament, regional councils, district councils (or municipal councils), and these decisions must have clear implications for follow-up programs or plans.

It must be documented that environmental concerns have been taken properly into account in connection with the above-mentioned overarching decision. For this purpose, it is necessary—as well as useful—to have clear criteria to determine how to bring the environmental concerns into the decision making. We will here refer to the experiences of using certain environmental criteria for triggering EIAs for particular Annex II projects. Similar criteria can be identified to ensure that environmental concerns are taken into account in overarching decisions.

Improving EIA to Enable SEA

Partidário, Maria Rosário do **Error! Bookmark not defined.**; IST, Av. Rovisco Pais, Lisbon, 1049-001 Portugal. +351-21-8418341. mrp@civil.ist.utl.pt www.civil.ist.utl.pt/~mrp

One of the motivations for the emergence of strategic environmental assessment (SEA) was the need to improve environmental impact assessment (EIA). That is argued in most SEA literature and is generally presented as one of the fundamental SEA objectives. And what practice is showing is that SEA is playing that role so well that it is even replacing EIA! As a consequence, SEA finds its strategic nature highly limited, incapable of imposing itself as a strategic concept.

In this paper the argument is presented that perhaps we need to improve both EIA and SEA. Improve EIA so that SEA can be released from its replacement functions, which are currently used to cover for the incapacities of EIA. And improve SEA so that we can rehabilitate a concept originally defined as having a strategic nature, as earlier defined in Wood and Djeddour in 1989.

SEA should be conceptualized as a strategic process, as well as it should be used strategically in relation to its object of assessment. What is currently happening is that neither is happening in most cases. Some exceptions, however, confirm the added-value of using an SEA that is truly strategic.

The EIA and SEA as Instruments of Democratization in Countries with Economy in Transition. Role of NGOs in Implementation of EIA and SEA

Darbinyan, Nune; NGO Eco-Globe, Mkhitar Heratsi 18 / 3, Yerevan, 375025 Armenia. (37410) 57 55 27. Fax (37410) 22 12 95. nuneemil@yahoo.com armneap2@arminco.com

Ashikyan, Hrach; NGO Eco-Globe, Mkhitar Heratsi 18 / 3, Yerevan, 375025 Armenia. (37410) 57 55 27. Fax (37410) 22 12 95. hrhil@yahoo.com armneap2@arminco.com

SEA and EIA are in the agenda of NGO Eco-Globe since 2001. A number of projects and capacity building initiatives have been implemented since then to build capacities and lobby the implementation of SEA and EIA in Armenia.

Eco-Globe involvement in UNECE Espoo Convention and SEA Working Group is the confidence that both legal instruments create a suitable basis for activation of democratic processes as promotion of active public participation, rights protection and promotion public interest for living in healthy environment, application of public knowledge, etc. NGOs have to play important role in lobbying of SEA and EIA in countries with the economy in transition, where the environmental and health protection are often neglected by the governments.

Eco-Globe Projects are:

- SEA training with the support of Norwegian Government and Espoo Secretariat.
- Conducting an SEA by local experts (Norway, Espoo Secretariat, NGO Eco-Globe).
- Workshop dedicated to Espoo Convention and SEA Protocol (Norway, Espoo Secretariat, NGO Eco-Globe).
- Promotion of SEA and EIA during the NGO Forums and Exhibitions (NGO Eco-Globe, USAID).
- Training of Parliamentarians and Parliament Experts (NGO Eco-Globe, OSCE).

- Translation of several issues of UNECE Espoo Convention Newsletter "UPDATE" into Russian as PA initiative.
- Collaboration with IAIA.

CS 16.12 INTRODUCING SEA IN DIFFERENT SYSTEMS AND COUNTRIES

Importance of SEA for Mining Regions–The Serbian Example

Maricic, Tamara; IAUS - Institute of Architecture and Urban&Spatial Planning of Serbia, Bul. kralja Aleksandra 73/II, Belgrade, Serbia 11000 Serbia and Montenegro. +381-63-8200-820. Fax +381-11-328-4454. tamara.m@sezampro.yu www.iaus.org.yu

Josimovic, Bosko; IAUS - Institute of Architecture and Urban&Spatial Planning of Serbia, Bul. kralja Aleksandra 73/II, Belgrade, 11000 Serbia and Montenegro. +381-11-3370-185. bosko@iaus.org.yu www.iaus.org.yu

Strategic Environmental Assessment (SEA) represents a significant tool for environmental evaluation of plans and programmes. Inclusion of mandatory SEA in Serbian national legislation is at the same time important prerequisite for synchronisation with European Union legislation.

The first part of the paper will concentrate on representing the system of SEA in Serbia, which arose as reflection of current geopolitical and environmental trends. It is based on newly adopted Law on SEA, whose main characteristics, advantages and lackages will be described.

Considering the economical importance of the mining regions, but also the damage to the surrounding environment, in the second part of this paper author will try to review the significance of implementing SEA in spatial planning of development of mining regions. Lignite basins in Serbia are extremely important from an economical point of view, but at the same time they generate pollution and damage in all aspects of natural environment. The main question on which the author will try to give an appropriate answer: with new regulation on SEA, will it be possible to improve the environment and provide better quality of life for people living in mining regions?

An Analytical Overview of SEA Framework in Kenya

Onyango, Vincent; Brandenburg University of Technology, Wilhelm-Kulz-Str.50, Cottbus, 03046 Germany. 017620346229. vin_onyango@yahoo.com

Kenya is among the only two sub-Saharan countries to have legislated SEA laws, through the Environmental Impact Assessment and Auditing Regulations 2002 (ER 2002) which entered into force 2003. The legal, regulatory, policy and institutional frameworks are yet to be tested because there isn't enough body of practice as yet. Nevertheless certain regulatory, conceptual, methodological and procedural elements are significantly different or similar to standard international SEA frameworks. Certain definitions (or lack of) and the procedural provisions set out in the ER 2002 are potential impediments to enforcement and/or implementation. This article examines these differences and their potential implications to SEA practice in Kenya.

Introducing the SEA-Like Approaches into the Environmental Assessment of Master Plans in the Russian Federation: The Example of Kazan City Master Plan (Pilot Project)

Zhurba, Alexander; Shaneco Group, 2-nd Vysheslavtsev per.,17, str.2, of.320, Moscow, 127018 Russian Federation. +7-495-730-8028. alexandre_jourba@mail.ru

Vasiliev, Sergey; Moscow Environment Centre, Krasnokazarmennaya st.,14, str.1, Moscow, 111250 Russian Federation. +7-495-319-6996. mec@mnepu.ru

Baibakov, Eduard; Volga Environmental Assessment Centre, ab.box 290, Kazan, 42021 Russian Federation. +7-843-247-3119. veac@mail.ru

Khotuleva, Marina; Environment Assessment Centre Ecoline, Valovaya str.,32/75, off.408, Moscow, 127018 Russian Federation. +7-495-236-0240. mkhotuleva@eac-ecline.ru

Jurkeviciute, Ausra **Error! Bookmark not defined.**; Regional Environmental Centre for Central and Eastern Europe, Ady Endre ut. 9-11, Szentendre, Hungary. +7-3626-504-000. AJurkeviciute@rec.org

Due to the existing Environmental Assessment (EA) regulations in the Russia, all drafts of regional Spatial Planning (SP) documents, should be subject to State Environmental Review (SER). To successfully fulfill the SER procedure, it is required to conduct an Assessment of Environmental Impacts for an SP document, also referenced as OVOS. There is an evident trend towards the reform of the national EA system in this area, which may result in substantial changes, especially in the area of EA application of civil construction.

The main objective of the paper is to discuss the issues of the system of Master Plans as an example of SP document in Russia. It presents the challenges and benefits of application of SEA elements to the assessment of Kazan master plan within the TACIS project "Strengthening of local-planning in the Russian Federation through SEA" in combination with the official procedure of OVOS. The authors will provide a summary of outcomes of the EA of Kazan master plan, lessons learnt from the attempt of combination of SEA with the existing assessment system and problems posed by the current SER procedure.

CS 17.1 ENVIRONMENTAL LAW AND ECONOMIC DEVELOPMENT POLICIES

The Use of the Ugandan Legal and Policy Systems to Address Environmental and Social Safeguard Issues in the World Bank and African Development Bank Projects

Kasimbazi, Emmanuel; East African Association for Impact Assessment, Faculty of Law, Makerere University P.O BOX 7062, Kampala, Uganda. 256-77-447121. ekasimbazi@law.mak.ac.ug

The operational policies of development institutions like the World Bank and African Development Bank are vital to efforts aimed at promoting poverty reduction and sustainable development. As a result, such institutions have developed policies that require that potentially adverse environmental impacts and selected social impacts of investment projects be identified, avoided or minimized where feasible, and mitigated and monitored. However, the development of these safeguards did not take into consideration the local constraints both technical and institutional that are continuously faced by developing countries like Uganda. Thus, since the late

1990s, the safeguard policies have come under pressure for supposedly being too cumbersome, and for making Banks' projects too expensive.

As such, the use of country systems has been proposed as a viable alternative to the safeguard measures. Uganda has since been chosen as a pilot study for the use of the country systems. The purpose of this paper is to assess the effectiveness of the Uganda's legal environmental and social safeguards as a viable alternative to environmental and social safeguards and make recommendations on how the system can be improved

Power, Poverty and Sustainability: The Role of Environmental NGOs and Voluntary Associations in Environmental Litigation in South Africa

Coni, Catherine; Tshwane University of Technology, c/o Nelson Mandela and Church Streets, Pretoria, Gauteng Republic of South Africa. 0927-12-3186226. Fax 0927-12-318-6354. conic@tut.ac.za

With the advent of the Constitution of South Africa Act No 108 of 1996, the South African environmental legal regime underwent a paradigm shift. Much new and progressive environmental legislation has been enacted since then, which gives environmental non-governmental organisations (NGOs) and voluntary associations rights and powers they did not have before.

However, in spite of this, environmental NGOs and voluntary associations still experience many difficulties. One of these is the overwhelming proliferation of environmental disputes which arise, linked to the lack of access to funding and the resultant lack of access to environmental legal expertise.

This paper will use case studies to illustrate the type of legal battles which environmental NGOs currently have to wage, such as objecting to proposed new developments where the relevant government authorities have granted the required permits, either without considering the environmental NGO viewpoint, or issuing the permits in the face of objections made by the relevant NGOs. A brief analysis will be made of the legislation on which the case studies were based, followed by an outline of the case itself, and the relevant stakeholders' positions. The paper will conclude with lessons learned from the case studies.

Beyond SEA and EIA: Greening Regional Development Programme—Environmental Integration into Structural Funds

Karacsonyi, Zoltan; University of Debrecen, Centre for Environmental Management and Policy, Egyetem ter. 1, Debrecen, 4032 Hungary. + 36 52 512 921. Fax + 36 52 512 928. karacsonyiz@envm.unideb.hu www.envm.unideb.hu

One of the most important European Union funds is Structural Funds (SF). Numerous developments have been implemented by its support. These developments are significant particularly for countries and regions below the average European development level (new Member States, Objective 1 and 2 regions). Programmes being implemented by the support of SF (operational programmes) are the subjects of Strategic Environmental Assessment (SEA). Some of the projects are subjects for Environmental Impact Assessment (EIA) while others are not (soft projects). In case of these latter the integration of the environment is really important as being one of the horizontal priorities of the EU.

The research completed (University of Debrecen as partner in an Interreg project) analysed the regional development programmes and projects of the programming period until 2006. This research analysed the application of SEA in case of national operational programmes while in case of projects not

falling under the application of EIA the realisation of horizontal environmental priorities have been analysed. Based on this, recommendations have been developed for the application in the programming period of 2007-2013 in regional development programmes (SEA Guideline, Interreg GRDP project) and in development projects not obligated for EIA report but with significant environmental impact.

CS 17.2 ENVIRONMENTAL LAW IN PRACTICE AND REGULATION MANAGEMENT

Writing Environmental Impact Management Law: A South African Perspective

Britz, Amanda; Department of Environmental Affairs and Tourism, 317 Pretorius Street, Pretoria, Pretoria, Gauteng 0001 South Africa. 27 12 310 3485. Fax 27 12 310 3688. abritz@deat.gov.za

Fourie, Wynand; Department of Environmental Affairs and Tourism, 317 Pretorius Street, Pretoria, Gauteng 0001 South Africa. 27 12 310 3703. Fax 27 2 310 3688. wfourie@deat.gov.za

The paper focuses on the process followed to draft the National Environmental Management Act, 107 of 1998 (NEMA) and new EIA regulations with specific focus on problems experienced and lessons

The fact that the South African Constitution provides that "environment" is a concurrent national and provincial function can be regarded as one of the problems experienced. Since South Africa has nine provinces, it follows that those nine provincial environmental departments must work together with the national department when drafting legislation concerning the environment. Consultations held between government departments as well as with clients contributed to the end product but necessitated a balancing of needs and considerations.

Procurement processes within government and the finding of a suitable consultant proved to be more complicated than expected. At times, expectations and demands were unrealistic and had to be countered by bureaucratic realities.

Lessons learnt included that law should be based on practical experience. Since legal drafting is a time-consuming exercise it does happen that the goalposts are shifted and new thinking needs to be incorporated during the project.

It is hoped that the sharing of these experiences will assist others who embark on the road to drafting or amending legislation.

Institutionalizing Mitigated FONSIs: Another Step Away from the Precautionary Principle

Paterson, Robert; School of Architecture, University of Texas, 1 University Station B7500, Austin, TX United States. 512-471-0734. Fax 5124710716. rgfp@mail.utexas.edu

Rawlins, Rachael; School of Architecture, University of Texas, 1 University Station B7500, Austin, TX 78712 United States. 512-471-0933. Fax 5124710716. rawlinslaw@sbcglobal.net

Although it once took a position against this practice, the United States Council on Environmental Quality is currently on a potentially misguided course to

institutionalize the long environmental assessment (EA) used to support “mitigated Findings of No Significant Impact (FONSI).” The EA was initially conceived as a short concise document used to determine whether there may be significant impacts which would require a full environmental impact study. Today, however, agencies frequently rely on uncertain estimates based on inadequate data as to the value of future mitigation measures to support the FONSI and evade a full environmental impact study (EIS). Although the long EA may be similar in form, this paper argues that to allow it to effectively replace the EIS stabs at the very heart of our National Environmental Policy Act and its precautionary principal. Federal interagency work groups are working on recommendations which will address public participation, consideration of alternatives and mitigation monitoring for the “long EA.” However, unless there are clear requirements for statistical certainty, flimsy FONSI conclusions may undermine any subsequent analysis. There must be an honest admission of the possibility of significant impacts to force a real consideration of alternatives.

Trial of Including EA in Project Appraisal System in Lao PDR

Souvannavong, Somphath; Department of Investment Monitoring and Evaluation, Committee for Planning and Investment, Luangprabang, Vientiane Capital, 01001 Lao PDR. 856 210222063. Fax 8560210241286. urago@icnet.co.jp

Urago, Akiko; IC Net Limited, IC Net Training Center, 4-14-3 Shimo-ochiai, Chuo-ku, Saitama 338-0002 Japan. + 81-48-840-1703. Fax + 81-48-851-6011. urago@icnet.co.jp

Lao PDR has just started trying to include Environmental Assessment into project appraisal system since 2005. Before then Committee for Planning and Investment, that is a responsible organization for final appraisal of all sectors projects, did not know Environmental consideration at all. We have just developed a comprehensive format for project proposal and project appraisal manual. Because of existence of EIA regulation in developing our system we had discussed with Science Technology and Environment Agency, which is a responsible organization for EIA, and agreed with both procedures of EIA audit and project appraisal. Now we are changing our decrees and regulations of project appraisal. We are going to introduce our trial and procedures and if possible we would like to exchange information EIA cost or approval system with other countries.

Putting Policy into Practice: The Opportunities and Challenges of the Richtersveld Land Claim

Walmsley, Bryony; Southern African Institute for Environmental Assessment, PO Box 380, Noordhoek, Cape Town, Western Cape 7979 South Africa. + 27-21-789-0251. Fax + 27-21-789-0257. bw@saiea.co.za

Barbour, Tony; Tony Barbour Consulting, PO Box 1753, Sun Valley, Cape Town, Western Cape 7975 South Africa. + 27-21-789-0222. tbarbour@telkomsa.net

When diamonds were discovered along an 85km strip of coastal land in the Northern Cape Province in 1927, the South African government removed the Richtersveld community from the land without compensation. Over the years, mining has left a legacy of unrehabilitated land, rendering the area unfit for any future beneficial use. In 2003, the Constitutional Court ruled in favour of the Richtersveld community in its land restitution claim, but one of the outstanding issues still before the Court is the determination of the amount of compensation required to restore the land to its previous condition. It was recognised that it would not be pragmatic to restore the entire area to a “pristine” condition, but a land use

plan was required to guide the Court in its deliberations on the nature and extent of restoration required.

This paper examines how the community has been empowered to develop its own LUP based on their aspirations as well as the natural resources of the area. The LUP has been developed within the broader context of regional planning initiatives and has tried to put into effect national policy imperatives regarding sustainable development, equitable access to resources, biodiversity conservation and socio-economic upliftment.

CS 17.3 COMPARING NATIONAL EA SYSTEMS

Comparing EIA Procedures and Contents in Kenya, Tanzania, Mozambique and EU

Rebelo, Cristina; ICAT - Instituto de Ciência Aplicada e Tecnologia, Edifício ICAT, Campus da FCUL, Campo Grande, Lisboa, 1749-016 PORTUGAL. 0351 217500006. Fax 0351 217500172. cristina@icat.fc.ul.pt

José, Guerreiro; ICAT - Instituto de Ciência Aplicada e Tecnologia, Edifício ICAT, Campus da FCUL, Campo Grande, Lisboa, 1749-016 PORTUGAL. 0351 217500006. Fax 0351 217500172. jose.guerreiro@icat.fc.ul.pt

EIA is a key instrument of the EU environmental policy. Its practice and laws have been significantly improved since Directive 85/337/EEC came into effect. On the other hand, most developing countries in Africa have evolved substantially over the past decade due to the introduction of legal requirements or general procedures for EIA.

PUMPSEA is an EU-funded project being applied in Mozambique, Tanzania and Kenya that will develop technology for using constructed mangrove wetlands for the secondary treatment of domestic sewage water. One of the specific objectives of this project is to perform an Environmental Incidence Study about the use of mangrove wetlands for sewage filtration.

This work will provide a comparative overview of EIA procedures and of contents in these three countries and in the EU. The differences are outlined and, in particular, it can be said that the EIA should be carried out by registered experts in the three countries, although such is not specified in the EU Directive. In Tanzania public consultation is mandatory during the scoping, and in Kenya the EIA study report should contain measures to prevent health hazards, to ensure employee safety within the work environment and for emergency management.

Strengthening EIA: The Case of Central America

Cedeno, Marianela; IUCN/ ORMA, Costado Sur, Parque Moravia, Moravia, San José 146-2150 Moravia Costa Rica. (506) 241-0101. Fax (506) 240-9934. marianela.cedeno@iucn.org

Aguilar, Grethel; IUCN/ ORMA, Costado Sur, Parque Moravia, Moravia, San José 146-2150 Mor Costa Rica. (506) 241-0101. Fax (506) 240-9934. grethel.aguilar@iucn.org

The Central American region has been immersed in a process of harmonization, modernization and strengthening of environmental impact assessment at country and regional level.

The Ministers of Environment subscribed an Agreement (2002) with the intention to strengthen the EIA systems

in Central America through a logical systematization and coherent system, facilitating the commercial integration, regional competitiveness and sustainable development. Based on this Agreement, a regional Plan of Action was approved by each country's EIA Authority. The work done has been focused on public participation and gender equity, decentralization, Strategic Environmental Assessment, transboundary impacts, technical guidelines and legislation.

The region is facing new projects (Plan Puebla Panama, Free Trade Agreements). All these projects and initiatives will bring development to the region in many aspects, and also have the intention to reduce poverty, increase economical development, and include social participation and equity in the region through the promotion of sustainable development.

This work has been achieved by means of reinforcement, promotion and development of the EIA process. In this process, many institutions, organizations and civil society have been trained, informed and assisted by IUCN/ ORMA, CCAD and The Netherlands Ministry of Foreign Affairs, supported by many important actors.

Cultural Heritage in Environmental Assessment: Current Practice and Future Developments in NW Europe

Slinn, Paul; EIA Centre, University of Manchester, Oxford Road, Manchester, M13 9PL UK. +44 (0)161 275 6881. Fax +44 (0)161 275 6893. paul.a.slinn@manchester.ac.uk

The Planarch 2 project was a regional partnership that sought to examine and advance the protection and management of cultural heritage through its greater integration into spatial planning, including specific research on EIA.

A series of parallel studies covered the Netherlands, 4 English counties, the Nord Pas de Calais area of France, the Flanders and Wallonia regions of Belgium and the Rhineland in Germany. The various jurisdictions involved in the project have a common legislative framework, through the EU's EIA Directive and through a series of international conventions on cultural heritage. Despite this, practice was found to vary greatly in important respects, including the conduct of baseline studies and mitigation planning, while more general weaknesses were identified in the treatment of cultural landscapes, effects on the 'setting' of sites and in the weighting given to cultural heritage issues by decision-makers in comparison to other aspects of the environment.

The individual regional study results have been drawn together into a single synthesis report, and this paper will present key findings from the synthesis, highlighting issues from current practice and pointing the way to the future through ten 'Guiding Principles', intended to assist cultural heritage specialists and decision-makers.

A Critical Appraisal of EIA Screening Practice in EU Member States

Pinho, Paulo; Faculty of Engineering, University of Oporto, Rua Roberto Frias s/n, Porto, 4200-465 Portugal. +351225081903. Fax +351225081486. pcpinho@fe.up.pt

Santos Cruz, Sara; Faculty of Engineering, University of Oporto, Rua Roberto Frias s/n, Porto, 4200-465 Portugal. +351225081903. Fax +351225081486. scrucz@fe.up.pt

Correia, Rita; Faculty of Engineering, University of Oporto, Rua Roberto Frias s/n, Porto, 4200-465 Portugal. +351225081903. Fax +351225081486. mea04001@fe.up.pt

Mayer, Sabine; Federal Environment Agency Austria, Spittlauer Laende, Vienna, 4200-465 Austria. +431313043311. Fax +431313043700. sabine.mayer@umweltbundesamt.at

To date, a large number of studies have been carried out to analyse the comparative performance of EIA systems in

Europe. Most of these studies include a chapter on screening. However, few studies particularly dealt with the analysis of this important step of the EIA process. IMP3, a one year research project funded by the 6th Framework Programme, revealed, inter alia, significant differences in screening regulations and screening practices across Member States, despite the EIA Directive clearly defines a particular screening approach to be adopted. This paper, presenting the partial results of the research undertaken by the IMP3 consortium, typifies these differences in screening practices across European countries and regions. In addition, it provides a critical appraisal of the most common solutions that have been adopted so far. A number of suggestions and alternative options to move forward, improving the screening approaches, are presented and justified.

CS 17.4 THE FUTURE DEVELOPMENT OF EA AND PRACTICE

Environmental Assessment in Canada: The Next Generation

Streiner, Scott; Canadian Environmental Assessment Agency, 22nd Floor, 160 Elgin Street, Ottawa, Ontario K1A 0H3 Canada. 613-948-2665. Scott.Streiner@ceaa-acee.gc.ca

Sylvester, Peter; Canadian Environmental Assessment Agency, 22nd Floor, 160 Elgin Street, Ottawa, Ontario K1A 0H3 Canada. 613-948-2662. Fax 613-957-0897. Peter.Sylvester@ceaa-acee.gc.ca

Canada's environmental assessment (EA) regime has existed in some form for over three decades. There is widespread acceptance that EA is an integral part of efforts to reconcile the imperatives of economic development and environmental sustainability. However, Canada's EA regime has come under growing criticism in recent years for three reasons: fragmented governance, both within the federal government and between that government and its provincial counterparts; a purported failure to take adequate account of indigenous peoples' rights and interests; and an alleged lack of attention to the broad regional and cumulative impacts of proposed projects. This paper will begin with a brief overview of the development of Canada's EA regime. It will then examine each of the three criticisms noted above, and outline some of the current and proposed measures that respond to them. It will conclude with a discussion of where the EA system in Canada is likely headed, and a brief exploration of possible lessons of the Canadian experience for other countries facing similar challenges.

Modernizing EIA Implementation in the United States—A Status Report

Miller, Anne Norton; Office of Federal Activities, USEPA, 1200 Pennsylvania Avenue, NW, (2251-A), Washington, DC 20460 USA. 202-564-5400. Fax 202-564-0070. miller.anne@epa.gov

Greczmiel, Horst; Council on Environmental Quality, 722 Jackson Place, NW, Washington, DC 20503 USA. 202-564-5750. Fax 202-456-0753.

Horst_Greczmiel@ceq.eop.gov

The EIA process in the United States can and needs to be brought into the 21st Century. The Council on Environmental Quality (CEQ) in April 2002 established

the National Environmental Policy Act (NEPA) Task Force. Composed of federal agency employees with diverse skills, expertise, and perspectives, it interviewed NEPA practitioners from federal agencies; reviewed public comments, literature, reports, and case studies; and spoke with individuals and representatives from state and local governments, tribes, interest groups and the public. Comments were submitted by more than 700 respondents representing federal, state, and local governments, tribes, organizations, and individuals.

In September 2003 the Task Force submitted its report to CEQ, with over fifty recommendations. CEQ then sponsored four Regional NEPA Roundtables around the country to discuss the recommendations and solicit opinions from NEPA experts on what the priorities should be, recognizing that all cannot be addressed simultaneously.

In May 2005, the Chair of CEQ launched implementation with the selection of seventeen practical recommendations that had received broad support. Workgroups chaired and staffed by federal agency volunteers were convened. By the time of IAIA '06 preliminary results should be in and undergoing broad review before submission to the CEQ Chair for his action.

The Relationship Between the EU EIA and SEA Directives

Sheate, William; Collingwood Environmental Planning/Imperial College London, Centre for Environmental Policy, South Kensington Campus, London, SW7 2AZ UK. +44 (0)20 7594 9299. w.sheate@imperial.ac.uk www.cep.co.uk

Byron, Helen; RSPB, The Lodge, Sandy, Bedfordshire SG19 2DL UK. +44 (0)1767 680551. helen.byron@rspb.org.uk

Bennet, Suzan; Collingwood Environmental Planning, 4.2.3 The Leathermarket, Weston Street, London, SE1 3ER UK. +44 (0)1771 624732. s.bennet@cep.co.uk www.cep.co.uk

Cooper, Lourdes; Imperial College London, Centre for Environmental Policy, South Kensington Campus, London, SW7 2AZ UK. +44 (0)20 7594 9299. lmcooper@talk21.com

This paper reports on a study carried out for the European Commission DG ENV during 2004/2005 to identify and explore the potential areas of overlap between the EIA and SEA Directives among the EU 15 Member States. The study included a wide ranging literature review, a questionnaire to Member State experts, academics, practitioners and NGOs, and interviews. The study focused on a series of illustrative case study countries, which were examined in some depth in order to understand the range of specific situations that might give rise to potential problems.

Key areas identified as likely to give rise to potential overlaps between the Directives were:

- Large projects made up of sub-projects
- Project proposals that require the amendment of land use plans
- Plans and programmes which, when adopted or modified, set binding criteria for subsequent consent of projects
- Hierarchical linking between SEA and EIA.

Possible solutions to problems of overlap include the use of parallel procedures where SEA can operate in parallel to EIA and joint procedures where both the requirements of the EIA and SEA Directives are met simultaneously. A series of recommendations to the European Commission and Member States were made.

The Water Framework Directive, Assessment, Participation, and Protected Areas: What are the Relationships?

Sheate, William; Collingwood Environmental Planning, 4.2.3 The Leathermarket, Weston Street, London, SE1 3ER UK. +44 (0)20 7407 8700. Fax +44 (0)20 7407 8701. w.sheate@cep.co.uk www.cep.co.uk

Bennett, Suzan; Collingwood Environmental Planning, 4.2.3 The Leathermarket, Weston Street, London, SE1 3ER UK. Tel: +44 (0)1771 624732. s.bennett@cep.co.uk www.cep.co.uk

The Water Framework Directive (WFD) has significant interconnections and linkages with other EU legislation. The focus of this study is on the similarities and overlaps between the WFD and the Environmental Assessment Directives (EIA and SEA), Public Participation Directive, and the Birds and Habitats Directives. Work on the study began on the 9th January 2006 and is due to be completed by mid-July 2006.

This study includes a close examination of the legal texts of the above Directives, followed by an emailed-based questionnaire survey of key stakeholders in the seven River Basin Districts (RBDs), under the WFD) in Ireland, to identify more specific issues of overlap for further detailed case study examination across the RBDs. Up to four case studies will then be selected to provide illustrative cases (rather than representative) of where the WFD is most likely to interact with the other key Directives in Ireland, and to provide the basis of recommendations for policy makers and stakeholders on how to address potential problem areas arising out of these overlaps.

CS 17.5 TRANSBOUNDARY IMPACT ASSESSMENT

Aligning Russian and Norwegian EIA processes—A Prerequisite for Joint Environmental Evaluation of Barents Sea Offshore Petroleum Operations?

Pflästerer, Heike; Statoil ASA, Forusbeen 50, Stavanger, 4035 Norway. +47-991 28 825. hpfl@statoil.com

Larsen, Lars-Henrik; Akvaplan niva, Polar Environmental Centre, Tromsø, 9296 Norway. +47-777 503 15. Fax +47-777 503 01. lars@akvaplan.niva.no

Yarygin, Gennady A.; DIEM, 12, Butlerova St., B-485, Box 45, Moscow, 117485 Russia. +7-095-3336345. Fax +7-095-3338023. office@diem.ru

International cooperation on petroleum operations in the Arctic requires joint understanding and insight in different approaches to impact assessment (IA). In the Barents Sea, Norway and Russia have many joint topics of interest.

The study outlines the Environmental Impact Assessment (EIA) process implemented in Russian and Norwegian practice, illustrated by examples from Norwegian and Russian projects.

Based on the aligning, major consistencies and major differences between the two systems are presented, and suggestions for harmonisations are outlined. The suggested harmonisations are made on project specific, co-operational, communicational, and research levels.

Each recommendation is combined with an evaluation of its contribution to:

- Improved projects
- Reduced environmental impacts
- Increased public participation

- Improved Russian –Norwegian cooperation

The EIA as Part of International Trade Agreements— Example: North American Free Trade Agreement (NAFTA) Operations?

Podhora, Aranka; Berlin University of Technology, Straße des 17. Juni 145, Sek. EB 5, Berlin, 10623 Germany. 0049 - 30 - 314 734 93. podhora@ile.tu-berlin.de

Köppel, Johann; Berlin University of Technology, Straße des 17. Juni 145, Sek. EB 5, Berlin, 10623 Germany. 0049 - 30 - 314 22 34 4. koeppele@ile.tu-berlin.de

As the first transnational trade agreement the North American Free Trade Agreement (NAFTA) is amended by an environmental treaty. It is signed by NAFTA's three members: Canada, the United States and Mexico. The Commission on Environmental Cooperation promotes its goals and controls its defaults.

An important role plays the environmental protection in a transboundary context and with it the EIA. Canada, the United States and Mexico have national requirements to the EIA. But because of the differences in legislation, administration and appliance, the three countries need to find solutions for a transboundary cooperation. As demanded in the agreement the Commission shall establish recommendations for the border areas concerning the

- Assessment and evaluation of environmental impacts of certain projects.
- Mitigation of the environmental impacts.
- Cooperation between the affected countries.

A strong environmental agreement and with it a strong EIA could be an important step towards the integration of environmental aspects into world trade. It gains importance especially in terms of NAFTA's possible enlargement including all Latin American countries.

The paper is based on a current Ph.D. thesis at the Berlin University of Technology. It discusses possible solutions to the problem (e.g., twinning for projects, empowerment of institutions).

Phase 1B of the Lesotho Highlands Water Project: A Transboundary Impact Assessment Case Study

Willemsse, Nico E; Southern African Institute for Environmental Assessment, Robert Mugabe ave., Ausspanplatz, Windhoek, Namibia. + + (0)61 284 2726. versacon@iway.na

The LHWP was developed to curb the projected increase in water demand in South Africa's Gauteng Province while making water Lesotho's only export commodity. The project promised to benefit grassroots people and boost economic development but instead was publicized for severe social harm, corruption and negative impacts on the environment. A full EIA was done that recognized transboundary impacts but did not consider such impacts in detail. An Instream Flow Requirement (IFR) study was done after Phase 1B of the LHWP had commenced, and the altered flow of the Senqu-Orange River has negative impacts on the middle and lower Orange River and its riparian states:

- Transboundary impact on the environment and its users
- Biodiversity threats
- Promotion of water borne diseases
- Effects of changes in geomorphology and hydrology of the river
- Aggravating water scarcity in the region

- Orange River Mouth Ramsar site
- Lessons learned
- The role of political power in transboundary development projects
- Negative effects of hurried project implementation
- The need for broader consultation during development
- Failure to adequately acknowledge transboundary impacts
- Negative effects

CS 18.1 THE MARRAKECH ACTION PLAN AND FOLLOW-UP

Building Awareness of IA Capacity Building Among Decision Makers

Mercier, Jean-Roger; World Bank, 1818 H Street NW, Room MC5-139, Washington, DC 20036 France. +1-202-473-5565. jmercier@worldbank.org

Leonard, Peter; Hydro Québec, 75 Blvd René Lévesque Ouest, 10th Floor, Montréal, PQ H4A 3M7 Canada. 1 514 289 2211 ext:4282. leonard.peter@hydro.qc.ca

Ramasar, Vasna; Private, 464 Frere Road, Glenwood, Durban, KwaZulu-Natal 4001 South Africa. 083 564 4841. v.ramasar@gmail.com

A four-pager has been prepared in draft version. Its objective is to inform decision makers about the benefits of capacity building for Impact Assessment as a key tool to enhance governance at regional, national, sub-national and/or local levels. The draft will be presented and finalized with the participants in this very interactive session.

Identifying and Adopting Effective Approaches for Capacity Building

Abaza, Hussein; UNEP Economics & Trade Unit, 11-13 Chemin des Anémones, Geneva, Chatelaine 1219 Switzerland. +41 22 917 8178. Fax +41 22 917 8075. hussein.abaza@unep.ch

In order to enhance national and institutional environmental assessment capacity building, it is essential to identify and adopt effective approaches for capacity building. The development of such programmes should initially be based on a needs assessment conducted by national experts and institutions. Such a needs assessment should include the identification of target groups for capacity building, including policy and decision makers, and government practitioners, as well as practitioners in national research institutions, the private sector, non-governmental organizations, industry, and financial institutions. It should have a long-term perspective and go beyond the traditional approach of formal training courses. The capacity building programmes need to be geared to address the development priorities of countries, including how the enhanced capacity in this area will assist countries develop sustainable development policies, sustainable trade, and poverty reduction. National institutions and experts should take the lead in implementing capacity building activities and programmes. Based on past experience and lessons learned, compiling a reference document on best practices for effective capacity building should be a useful tool for trainers to design

effective environmental assessment capacity building programmes.

CS 18.2 THE MARRAKECH ACTION PLAN AND FOLLOW-UP

Review of the Status of the Marrakech Declaration and Action Plan

Leonard, Peter; HydroQuebec, On file, Quebec, Canada. 1 514 289 2211 ext 4282. leonard.peter@hydro.qc.ca

Presentation of the results of the IAIA'05 sessions and status of the Marrakech Declaration and Action Plan for capacity development followed by an extensive discussion period to complete and reach agreement on the Action Plan's revised and updated outputs, ranking, lead and collaborators by activities, their summary content and time frame.

Criteria for Assessing Good Practices in IA Capacity Building

Mercier, Jean-Roger; World Bank, 1818 H Street NW, Washington, DC 20036 USA. +1-202-473-5565. jmercier@worldbank.org

Leonard, Peter; Hydro Québec, 75 Blvd René Lévesque Ouest, 10th floor, Montreal, PQ H4A 3M7 Canada. 1 514 289 2211 ext4282. leonard.peter@hydro.qc.ca

Ramasar, Vasna; Private, 464 Frere Road, Glenwood, Durban, KwaZulu-Natal 4001 South Africa. +2783 564 4841. v.ramasar@gmail.com

A small and useable set of criteria to assess good practices in IA capacity building is proposed. It focuses on developing countries' conditions. The set addresses three key aspects of capacity building:

- Institution building
- Training and technical capacity building
- Networking

The interaction with participants will allow an improvement of the criteria and a plan of action will be developed on site to test and disseminate these criteria.

CS 18.3 THE MARRAKECH ACTION PLAN AND FOLLOW-UP

Experiences from International Collaboration on Capacity Building through the First Ever Distance Learning Course on SEA for China

Au, Elvis; Environmental Protection Department, Hong Kong Special Administrative Region Government, 46th Floor, Revenue Tower, 5, Gloucester Road, Wan Chai, Hong Kong, China. 852-25946033. Fax 852-25753371. elvis_au@hk.super.net

Partidário, Maria Rosário do; Dept of Civil Engineering and Architecture, IST - Technical University of Lisbon, Av. Rovisco Pais, Lisboa, 1049-001 Portugal. +351 218 418 341. Fax +351 218 497 650. mrp@civil.ist.utl.pt

Capacity building is vital to the success of the implementation of any Strategic Environmental Assessment (SEA) directive or legislation in any country. In the past two years, the authors served as the IAIA co-team leaders to collaborate with World Bank and China's State Environmental Protection Administration (SEPA) on a Distance Learning Course on SEA for China. This initiative of an international collaboration on SEA for China was developed at an informal international

roundtable in December 2002 in Hong Kong. With close partnership with World Bank and SEPA, IAIA SEA experts have been making significant contributions to the course materials and the actual delivery of training. The training materials have now been widely disseminated in China. This is the first ever, the biggest of its kinds in terms of breadth and depth of the matters covered and the number of SEA international and local experts taking part. The authors would share their experiences and lessons learned- from its inception, the mobilisation of SEA experts, the programme delivery, and the feedback. Such experiences contribute to the Marrakech Capacity Building Action Plan in respect of distance learning and capacity building in developing countries.

The CBBIA Program

Treweek, Jo; IAIA-CBBIA, Chancery Cottage, Kentisbeare, Cullompton, Devon EX15 2DS UK. +44 1884 266798. jo@treweek.fsnet.co.uk

This brief presentation will provide an update on activities being undertaken through IAIA's Capacity Building for Biodiversity and Impact Assessment (CBBIA) Program. It will identify areas of success and also some of the challenges to successful capacity building in this area. Examples will be drawn from the main focal regions for the program: Southern Africa, South-Central America and South/South-East Asia.

Capacity Building in EIA for Mexican NGOs

Ducoing, Edmundo; GEA-UAMI, Av. San Rafael Atlixco # 186, Col. Vicentina, Mexico, D.F. 09340 Mexico. 5255-5804-4747. Fax 5255-5804-4738. edch@xanum.uam.mx

Cendejas, Josefina; GEA, Evaristo Molina 41, Frac. Mariano Michelena, Morelia, Michoacan 58190 Mexico. 5255-5804-4747. Fax 5255-5804-4738. josecen@att.net.mx

Ramírez-Romero, Patricia; UAMI, Av. San Rafael Atlixco # 186, Col. Vicentina, Mexico, D.F. 09340 Mexico. 5255-5804-4747. Fax 5255-5804-4738. patt@xanum.uam.mx

Mendieta, Enrique; UAMI, Av. San Rafael Atlixco 186, Col. Vicentina, Mexico, D.F. 09340 Mexico. 5255-5804-4733. enme@xanum.uam.mx

The Basins Environmental Initiative is a program financed by USAID in which international and national entities participate. The objective is to promote and support processes that allow the establishment of favourable conditions to advance in the design and instrumentation of public policies, programs and projects directed to the sustainable management of natural resources and biodiversity in Mexico, with a basins approach. To professionalize NGOs, there was a call for proposals for a project entitled Conservation Organizations Strengthening in EIA. To accomplish this we selected a strategy to teach a mixed course with distance and presence classes which will reach about 200 NGOs. The objective is to enhance NGOs EIA knowledge with a conservation and management of natural resources approach through these activities: a diagnostic poll to find out the knowledge level of the NGOs, the building of a web page based on a tutorial pedagogic model, and a presence workshop to consolidate the acquired knowledge that will be applied in a case study.

The web page is ready and the poll is being answered directly in the web, the lessons are being build by the group of experts. Results of the first three modules will be presented at the meeting.

CS 19.1 SEA DEVELOPMENT IN ASIA

SEA, Environmental Information, and National Development Planning: Policy Linkages in the Kingdom of Bhutan

Annandale, David; National Environment Commission, P.O. Box 466, Thimphu, Bhutan. +975 2 323 384. Fax + 975 2 323 385. annandale@nec.gov.bt

Rapten, Karma; National Environment Commission, P.O. Box 466, Thimphu, Bhutan. +975 2 323 384. Fax + 975 2 323 385. karma@nec.gov.bt

Bhutan has one of the strongest SEA laws of any jurisdiction. As with many developing countries, it also has a dominant 5-year national development planning process. Over time, this planning process is evolving into a sustainable development plan/PRSP. SEA thinking has the ability to substantially assist with mainstreaming of environmental issues into national development planning. However, this can only occur if there is adequate provision for reliable environmental information. This paper outlines the close linkages between SEA, national planning, and environmental information as they are progressing in the Kingdom of Bhutan. It also aims to provide ideas and guidance for other developing countries that are in a similar situation.

The Trend of SEA Movement in Japanese Local Governments

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

Sugimoto, Takuya; Tokyo Institute of Technology. tsugimoto@depe.titech.ac.jp

Shimizutani, Takashi; Tokyo Institute of Technology. shimizu@depe.titech.ac.jp

Though the movement of introducing SEA system into Japan has been observed, it is still difficult. It requires advanced information disclosure and public participation. Alternative plans or policies for mitigating environmental impacts should be considered in the early stage of decision-making process. Japanese government has been examining the SEA system since the end of the 1990s. But it is very hard because of very competitive Ministries in charge of big construction projects in Japan. The situation might be better in local governments as they could take a more comprehensive approach than the national government.

A survey was conducted on the state-of-the-art of SEA in major local governments in January 2006. There are 47 prefectures and 13 big cities in Japan. Some of them are conducting studies for making SEA systems. The survey was done by the mailing method based on questionnaire sheets and additional interviews were also conducted for necessary respondents. All of the 60 autonomies responded to our survey. The analyses, including statistical ones, tell us the symptoms of the SEA movement, though it is not dominant in Japan. As we conducted a panel survey in 2002, comparative analysis between 2002 and 2006 was also done.

Comparative Study of SEA-Like Approaches in Japan

Hayashi, Kii; Mitsubishi Research Institute, 2-3-6, Otemachi, Chiyoda-ku, Tokyo, 100-8141 Japan. +81-3-3277-0446. Fax +81-3-3277-0512. maruhaya@mri.co.jp

Strategic Environmental Assessment (SEA)-like approaches are currently in place in Japan, which are mostly introduced by several local governments, such as Tokyo metropolitan government, Saitama perpetual government, and is also

conducted by the Ministry of Land, Infrastructure and Transport, which they call PI system.

These approaches are limited in the target PPPs and process for assessment. And it is difficult to say that these are SEA in the real sense of the term. In this presentation, the focus is on the differences of these approaches, such as PI and selected local governmental approaches in Japan, and world SEA experiences (however, it may be difficult to explain the definition of SEA). Then I will discuss the possible SEA system in Japanese planning process.

Using Environmental Assessment to Overcome Financial Barriers to Renewable Energy Options

Owens, Gene; Foreign Economic Cooperation Center, Ministry of Agriculture, 55, Nongzhan Beilu, Chaoyang District, Suite 712, Beijing, 100026 China. +86-137-1837-8717. geneowens2@aol.com

Yan, Jerry (Jinyue); Foreign Economic Cooperation Center, Ministry of Agriculture, 55, Nongzhan Beilu, Chaoyang District, Suite 712, Beijing, 100026 China. +86-136-7102-2617. yanjy@ket.kth.se

The Panel will examine, through selected case studies, how the use of environmental assessment tools can assist in identifying and measuring environmental values (both market and non-market values) that might be used to overcome the financial barriers of high up-front cost of investments in renewable energy (RE) options faced by developing countries. The main theme is that environmental benefits that accrue from RE technologies can, in some instances, provide the catalyst to cover the initial high overhead cost that will lead to longer term sustainable investments in RE. How do we measure or derive market values for these, and how do we collateralize them to promote investments in RE? How can we lower the risks faced by low-income villagers in order to scale up investments from the village-level to broader scale, sustainable investments?

Cases will be drawn from China and other Southeast Asian economies, as well as others as appropriate.

CS 19.2 EIA DEVELOPMENT IN ASIA

Environmental Economic Impact Assessment in China: Problems and Prospects

Lindhjem, Henrik; ECON Analysis & Department of Economics and Resource Management, Norwegian University of Life Sciences, Biskop Gunnerus Gate 14A, Oslo, N-0185 Norway. +4798263957. hli@econ.no

Song, Guojun; Institute of Environmental Economics, Renmin University, Beijing, Beijing, China. 139118261194. songgj@public3.bta.net.cn

Wu, Jian; Institute of Environmental Economics, Renmin University, Beijing, Beijing, China. 139118261194. rdwujian@public3.bta.net.cn

Zhang, Shiqui; College of Environmental Sciences, Peking University, Beijing, Beijing, N-0185 China. 139118261194. zhangshg@ces.pku.edu.cn

Vennemo, Haakon; ECON Analysis, Biskop Gunnerus Gate, Oslo, Norway. +4791136716. hve@econ.no

Ma, Zhong; Beijing, China. 139118261194. zhongma@vip.sina.com

Magne Skjelvik, John; ECON Analysis, Oslo

Tao, Hu; Policy Research Center for Environment and Economy of the State Environmental Protection Authority of China

The use of economic valuation methods to assess significance of environmental impacts of projects and policies has grown considerably in recent years. However, economic valuation seems to have developed independently of regulations and practice of environmental impact assessment (EIA), despite its potential benefits to the EIA process. Economic valuation may be useful in judging significance of impacts, finding the right level of mitigation, comparing alternatives, and generally enabling a more objective analysis of tradeoffs. In China, a recent EIA law requires the use of economic analysis, but current practice lags behind regulations. This paper reports from research assessing the prospects and problems involved in introducing economic valuation into the EIA process in China. The study draws on international and Chinese research and best practice and conducts four case studies of economic valuation of environmental impacts based on the EIA reports of investment projects (a coal-fired power plant, a wastewater treatment plant, regional wastewater irrigation, and a road construction project). The case studies demonstrate the potential usefulness of economic valuation but also bring up several gaps and limitations to the introduction of economic valuation in EIA, many of which are likely to be of relevance far beyond the Chinese context.

Regional Environmental Assessment for Sanitation and Sewerage

Villaluz, Maya; World Bank Office Manila, 23rd, Emerald Ave., Ortigas Ctr., Pasig City, Philippines. 632-9173074. Fax 632-9173050. mvillaluz@worldbank.org

The objective of this Regional Environmental Assessment is to promote an integrated assessment of the environmental effects of the proposed investments on sanitation and sewerage in Metro Manila, considering the concession agreements specifying sewerage and sanitation targets, the paucity of wastewater management systems, and the disjointed regional planning and socio-economic pressures.

The major waterways in the metropolis consisting of the Pasig River, Marikina River, and Laguna Lake are polluted because of continuous dumping of wastes to these water bodies. Pasig River, the main watercourse of the metropolis, receives 70% of pollution from untreated or inadequately treated domestic wastewater. Metro Manila, home to 10 million people, is composed of 17 cities and 5 municipalities and receives 168 MT of BOD per day from domestic sources, to double as the population increases in ten years.

Among the pressing concerns of the metropolis are housing, employment, health, solid waste, wastewater management, traffic, air and water pollution. Presently, less than 8% of the Metro Manila is sewered. 85% of the population relies on ISTs, most of which are improperly designed and ill maintained. The remainder of the population resorts to pits and latrines while the rest have no access to basic sanitation facilities.

Streamlining the Environmental Impact Assessment (EIA) Process in Indonesia

Purnama, Dadang; Ministry of Environment, Republic of Indonesia, Jl. DI Panjaitan Kav. 24 Kebon Nanas, Building A, 6th Fl, Jakarta Timur, DKI Jakarta 13410 Indonesia. + 62 21 8590 4925. Fax + 62 21 8590 6168. dpurnama@menlh.go.id www.menlh.go.id

Effectiveness is always an issue in the application of EIA during planning stages. Complaints due to time-consuming and bureaucratic process are always raised along the EIA process before an approval is granted to a project proposal.

This becomes a critical issue in the application of an EIA system, especially in developing countries like Indonesia.

Environmental authority in Indonesia assigned a special team and launched a program to revitalize its EIA system. This program reviews the overall EIA system which has been implemented since 1986. A crucial output is the streamlined EIA process without neglecting the quality of assessment. This program was supported by the World Bank through a series of studies.

A concept of streamlined EIA mechanism has been created and this needs field exercise. This gains momentum when the government plans developments in the post tsunami area in Aceh. The streamlined EIA meets the need of many donor agencies where EIA could also be utilised to represent the accountability of their donations. The UNDP assists the introduction of new EIA mechanism. The exercise shows a significant time reduction in the EIA process and it is hoped to implement this mechanism national-wide.

Is EIA Follow-up Casting a Shadow on Open Cast Coal Mining in India?

Thakur, Urmila Jha; University of Liverpool, 74 Bedford Street South, Department of Civic Design, Liverpool, L69 7ZQ U.K./India. 0044 7760152904. Fax 0044 151 794 3125. urmi@liv.ac.uk

Fischer, Thomas B; University of Liverpool, 74 Bedford Street South, Department of Civic Design, Liverpool, L69 7ZQ U.K. 0044 151 794 3108. Fax 0044 151 794 3125. fischer@liv.ac.uk

Rajvanshi, Asha; Wildlife Institute of India, Chandrabani, Post Bag#18, Dehradun, Uttarakhand 248001 India. 0091 135 640111. Fax 0091 135 640117. ar@wii.gov.in

Since the stipulation of EIA as a regulatory process for environmental decision-making in India, emphasis has been laid on developing institutional procedures and capacity to co-ordinate and monitor environmental status and policies. However, project specific follow-up has been neglected. This has reduced EIA in many cases to a sheer exercise on paper.

The aim of this paper is to review the current practices of EIA follow-up in the open cast coalmines in India. In order to achieve this a number of EIA reports of open cast coal projects submitted to the Impact Assessment Agency (IAA) during the period 1997 to 2004 were reviewed. The work further investigated the Indian follow-up mechanism by drawing from case studies of three open cast coalmines situated in three different states in India.

The study revealed that even after a decade since EIA has been made mandatory in India, some of the projects are still operating without an EIA clearance. Although there are several authorities shouldering overlapping responsibilities for observing compliance, follow-up is yet to become a reality. The study helped in exploring possible evidences of regional variation, which may hold the key to improve future follow-ups.

Analyzing Impacts of Bioenergy Expansion in China Using Strategic Environmental Assessment

Owens, Gene M.

Abstract unavailable.

CS 20.1 URBAN DEVELOPMENT: HOW IA CONTRIBUTES TO (LOCAL) CAPACITY BUILDING AND DECISION MAKING (I)

Mixed Use Outline Planning Applications—What Constitutes Good Practice in the UK?

Bailey, Andy; Institute of Environmental Management & Assessment, St Nicholas House, 70 Newport, Lincoln, LN1 3DP UK. 01522 540069. Fax 01522 540090. a.bailey@iemma.net

Social demand for housing and house price rises have led to an increased level of house building within the UK. This, coupled with an increased understanding of the need for housing developments to be sustainable communities, has led to an increase in the number of housing proposals incorporating other social and economic uses—the sustainable mixed use development.

Given uncertainties in the market and the planning regime many of these applications are in outline. Whilst this approach maintains the flexibility needed to respond to market conditions over a lengthy timescale it can result in insufficient detail to undertake an adequate assessment of the environmental effects.

EIAs for outline planning applications have been challenged in the UK courts. The resulting judgements confirm that the level of detail within the planning application, and commitment to delivering proposals within set parameters, is important in meeting the requirements of the EIA Directive.

Whilst lessons from court judgements have largely been taken on board by applicants a number of approaches to the assessment of effects have been taken. Some are more effective than others at describing the proposals and demonstrating a commitment to delivering a development that will meet the requirements of a “sustainable development.”

“Auroville—The City the Earth Needs”: A Successful Case of an Innovative and Integrated Sustainable Development

Kishor Bhati, Lalit; Auroville’s Town Planning Service & Centre for Urban Research, ACUR Building, Administrative Area, Auroville, Tamil Nadu, 605101 India. +91-413-2622 170, 2622 25. Fax +91-413-2622 055. lalit@auroville.org.in www.auroville.org

It is about developing a new mind set towards the harmonious co-existence of all. The conference theme relate to the consciousness of people which determines the life style which in turn requires power in its various forms. Consciousness is the greatest human power. Auroville’s case is a ray of hope in this direction—an inspiring, human aspiration powered integrated vision and transforming development on ground.

Auroville, established in 1968, is a Universal Township near Pondicherry, South India, which today has 2,000 Aurovilian residents representing over 40 nationalities. Auroville’s ideals, innovative approaches and experiments in various fields of life have earned it a name synonymous to sustainable community living. It was completely barren land that has been transformed into a lush green forest within a small period of 20 years, thus recharging the ground water table and creating a habitable environment for all, and thus also bringing unique social integration and experiments and acceptance to various alternative forms of power in different fields and emerging as a role model, especially for the developing world where there is “poverty” and huge “power” requirement. A living example of a vision driven society

positively impacting its environment while making an urban area and vice versa.

Ecophysiological Study for More Environmental Spatial Planning

Kowalczyk, Jaroslaw; Ecoplan Ryszard Kowalczyk, Szpitalna 3/9, Opole, 45-010 Poland. 0048 609617572. jkowalczyk@ecoplan.pl www.ecoplan.pl

Spatial planning is a first stage where environmental protection measures can be applied, where their costs are much lower than at the latter stages, and the outcomes are more visible. However, before planner can think of environmental issues while planning, there must be a tool to inform and make him aware of existing and potential environmental issues, problems and conflicts that can be created due to bad spatial decisions.

Polish planning system, although permanently under construction and rebuilding, has created a tool that is called “physiographic study.” In recent years there has been a shift toward more sustainable planning and hence we have “ecophysiological study” now. Ecophysiological study is a tool that can be used to inform a planner, and help him to make more sustainable and more environmentally friendly decisions while planning.

This paper shows a real life examples how “ecophysiological study” helped to develop more sustainable spatial plans. Good ecophysiological study is also the best starting point for strategic environmental assessment of a proposed spatial plan, and together with SEA creates a framework for environmentally friendly planning process in Poland.

Evaluation of the Salubrity of Briqueterie in Yaounde-Cameroon

Mafodonzang Fouedjo, Christiane Félicité **Error!** **Bookmark not defined.**; ACAMEE, PO Box 5767 Yaoundé - Cameroon, Yaoundé, Centre Cameroon. 00237 983 93 79. christianetankam@yahoo.com

Monkiedje, Adolphe; PO Box 812 University of Yaoundé I Yaoundé- Cameroun, Yaoundé, Centre Cameroon. 00237 762 80 61. monkiedje@yahoo.com

Yaounde is facing a spatial and demographic expansion since the 1980s. Consequences are, to name just few: proliferation of spontaneous houses, poor knowledge on land occupation, and lack of roads.

The headquarter Briqueterie is one of the spontaneous neighbourhoods of Yaounde. The actions to ameliorate the living conditions of the population have been initiated in this headquarter. On this view, we have carried out a study (November 2004 - January 2005) to point out the evaluation of the level of salubrity.

The physico-chemical analyses have pointed out that Abiergue River has essentially submitted to organic pollution. This is due to house waste, dirty water and waste water. Abiergue revealed significant pollution from bacteria of waste contamination.

The epidemiological study has revealed the rate of malaria as 40.12% in 316 patients’ neighbourhood dwellers aged from zero to five years. An analysis of this document proved that, after the launching of the project “precollet” of house waste. The rate of malaria is rolled back and the rate of gastro-enteritis is rolled up.

This work points out that this sanitary state is ameliorating a little bit but, much is to be done to manage dirty water, waste water and house waste.

CS 20.2 URBAN DEVELOPMENT: HOW IA CONTRIBUTES TO (LOCAL) CAPACITY BUILDING AND DECISION MAKING (II)

DPWH Policy Responds to the Challenges of Environmental Sustainability Through a Three-Phase Strategy on Environmental Governance

Navida, Criste; Department of Public Works and Highways, Bonifacio Drive, Port Area, Manila, 1018 Philippines. + 632304-3525. Fax + 6323043415.

Navida.criste@dpwh.gov.ph

From a traditional engineering and construction oriented agency, the Department of Public Works and Highways (DPWH), has gradually managed to introduce and establish EIA/SIA to the development of infrastructure projects.

The Three-Phase Strategy on Environmental Governance

Phase 1. Continuing institutional capacity building. The DPWH embarked on its first Capacity Building Program on EIA in 1996. Under the Program on Strengthening the DPWH Capacity on Environmental Impact Assessment (1996-2000), the twenty core staff have received training on various aspects of EIA.

Phase 2. Environmental and Social Guidelines. To facilitate the further integration of various environmental and social issues into road and other infrastructure planning and construction, manuals were developed. The development of such manuals underwent a series of consultations with stakeholders to ensure that they contribute to the development of infrastructures in a sustainable fashion.

Phase 3. Organizational Structure. Under the Rationalization Plan, a permanent EIA units will be established at the central, regional and district offices.

DPWH as a Learning Organization. The DPWH as a learning organization will continue its three-phase strategy to ensure environmental governance through an improved management of environmental and social safeguards for infrastructure projects in a sustainable manner.

Indicator-Based Sustainability Assessment of Housing and Settlement Structures within the Metropolitan Area of Ho Chi Minh City

Storch, Harry; Department of Environmental Planning; Brandenburg Technical University (BTU) Cottbus, P.O. Box 101344, Cottbus, Brandenburg D-03013 Germany. + 49 (0)355 - 69 21 22. storch@tu-cottbus.de

The paper presents significant initial experiences of a sustainability assessment (SA) research project of housing and settlement policies at the urban planning level in Ho Chi Minh City (HCMC), Vietnam. This research project is financed as part of the new research programme "Megacities of Tomorrow" by the German Federal Ministry of Education and Research (BMBF). The objective is to develop an integrated approach to sustainable development of housing and settlement structures to balance urban growth and redevelopment in HCMC. The initial two-year phase of the project runs from 2005 to 2007.

The contribution outlines the methodology of an indicator-based SA and SEA. Urban and regional planning within the metropolitan area of HCMC has been identified as one of the critical policy areas that will need a SA framework to evaluate effectiveness of planning policies based on quantitative and qualitative baselines for urban indicators. A special focus will be laid on methodological issues of sustainability goals and their spatial representation by urban indicators for the

evaluation of housing and settlement strategies. The overall objective of the GIS-based sustainability indicator framework is to promote a better understanding of environmental and social impacts of planned developments in HCMC.

Strategic Transport Management as a Regional Development Competence

Jeppesen, Sara Lise; Centre for Traffic and Transport - Technical University of Denmark, Bygningstorvet, DTU - Building 115, Kgs. Lyngby, 2800 Denmark. + 45 4525 1549. slj@ctt.dtu.dk

Leleur, Steen; Centre for Traffic and Transport - Technical University of Denmark, Bygningstorvet, DTU - Building 115, Kgs. Lyngby, 2800 Denmark. + 45 4525 1530. sl@ctt.dtu.dk

One characteristic trend of the current globalisation is a growing competition between regions and metropolises. The paper addresses this issue by examining one of these competitive features referred to as Strategic Transport Management (STM). The content of this parameter and the boundaries for the use of it as a measure is analysed. The paper also makes available some of the results obtained so far in the ongoing STM INTERREG IIIA project in the Øresund Region (STMØ) by discussing and placing STM in the context of the development of the Øresund Region.

In the STMØ project, subjects such as transport logistics and technique, business, transport law, transport structure, economics, transport networks, planning and environment are treated from different viewpoints. Particular issues in this aspect are discussed relating to sustainable development, integration and so-called holistic planning. Some conclusions are given at the end together with a perspective as concerns the consequences of implementing the results of the STMØ in planning, administration and practical transport management. Emphasis is given to the possibilities for using this knowledge to improve the abilities of planners and transport professionals and thereby increasing the competitive competence of the Øresund Region in a European and global context.

The Importance of Impact Assessment as a Tool to Improve Development Planning in Developing Countries

Mazariegos, Pablo; Pablo Mazariegos Consultancy, 9 Calle 12-77, Zona 2, Guatemala City, Guatemala 01002 Guatemala. (502) 2288 7422. Fax (502) 2288 7422. p_mazariegos@yahoo.com

Developing countries actually have many problems looking for the opportunity to improve their social, economical and physical conditions. All these social, economical and physical conditions define their poverty situations that certainly are quite alarming. Additionally, if we add the lack of a good legal regulation frame; social, economical and development politics; and lack of a national development vision, it is furthermore awfully difficult to improve the poverty conditions; where there are systems which are completely against the sustainability concept.

Without a clear development vision and will to achieve it, is very difficult to make a national change.

As a result of the poverty condition, normally there is a lack of national development planning that includes land use and urban planning. The impact assessments (EIAs, SEA, ERA, cumulative impact assessments, etc.) in

practice are useful tools to determine the sustainability for plans, programs and projects propositions. Therefore, the impact assessments are very important, especially wherever there is a lack of development planning tools. That is why it is very important to improve and fortify the impact assessment process, to contribute to guide a better development planning in developing countries.

Multiple Criteria Decision Making Analytic Hierarchy Process for Environmental Assessment of Urban Underground Infrastructure

Bobylev, Nikolai; United Nations University, 53-70, Jingumae 5-chome, Shibuya-ku, Tokyo, 150-8925 Japan. + 81-3-3499-2811. Fax + 81-3-3406-7347. bobylev@hq.unu.edu
http://www.unu.edu/esd

The paper addresses the problem of developing hierarchy structures for multiple criteria environmental assessment of urban underground infrastructure.

Urban underground infrastructure is a vital part of a modern, sustainable city. Carefully planned and designed, it can make a significant positive contribution towards cities' sustainability and increase environmental quality in urban areas by addressing transport, spatial, and environmental problems. However, underground space development can have significant adverse environmental impacts. Thus, development of methodologies for comprehensive environmental assessment is an important area of research. Multiple criteria decision making methods can be successfully utilized for urban underground infrastructure environmental assessment. Generating a reflective analytic hierarchy process is one of the core tasks for multi-criteria assessment. Different approaches for composing environmental indicators into a hierarchy structure will be analyzed. Addressing urban underground infrastructure assessment at different levels (project, program, plan, policy), applications of multiple criteria decision analysis for EIA and SEA will be shown. Assessment results obtained using several multiple criteria decision making software programs will be discussed.

CS 21.1 CAPACITY BUILDING AND NETWORKING IN DEVELOPING COUNTRIES (I)

Building on Success Factors: A Capacity Development Model for Environmental Management in Viet Nam

Pawley, Kim; ESSA Technologies Ltd., 206-411 Roosevelt Ave., Ottawa, ON K2A 3X9 Canada. 613-798-0419. Fax 613-798-5331. kpawley@essa.com www.essa.com

MacCallum, Mary Ellen; ESSA Technologies Ltd., 1012 Frederick Rd., North Vancouver, BC V7K 1H8 Canada. 604-904-9618. Fax 604-904-9619. memacallum@essa.com
www.essa.com

Patterson, John; ESSA Technologies Ltd., 8th floor, Khach San Cong Doan, 18 Tran Binh Trong, Hoan Kiem district, Hanoi, Viet Nam. 84-4-822-4841. Fax 84-4-822-4850.
vcep@netnam.vn

Grieg, Lorne; ESSA Technologies Ltd., 77 Angelica Ave., Richmond Hill, ON K2A 3X9 Canada. 905-770-6334. Fax 905-770-0197. lgrieg@essa.com

The Viet Nam Canada Environment Project (VCEP) successfully developed environmental management capacity at the national level and in seven provincial Departments of Natural Resources and Environment (DoNRES) over a 10-year period. A Stakeholder and Beneficiary Analysis determined the

benefits of VCEP were far reaching and significant in assisting VCEP's counterpart provinces to fulfill their environmental management mandates. To sustain these benefits and build on VCEP's success, our counterparts requested an "Institutional Model for DoNRE Development" based on VCEP's approach and experience. This paper provides an overview of this model, which has been used to build capacity for EA, environmental monitoring, industrial pollution management, and awareness raising. Model development began with identification of key VCEP "success factors," which were then used to define essential capacity building components (Core Building Blocks). The building blocks – the project's management systems, resources, project specific "ways of working," and the learning environment – combined to create a unique empowering environment within which environmental management agencies/staff have grown in confidence and competence. When replicated, these core building blocks form the "model," a legacy that will guide future efforts to equalize environmental management capacity throughout Vietnam, and which has broader external applicability.

CBBIA: The Asian Way

Saeed, Ahmad; IUCN - The World Conservation Union, 1 - Bath Island Road, Karachi, 75530 Pakistan. (92)(21) 5374073. Fax (92)(21) 5838106. ahmad.saeed@iucnp.org

The CBBIA Asia Project seeks to build capacity in the South / South East Asian regions through training, knowledge transfer, institution building and networking. It is a joint initiative of IUCN Asia, in collaboration with WII and MWBP. The involved partner countries are Bangladesh, India, Nepal, Pakistan and Sri Lanka. The major activities of the project are highlighted below.

A Needs Assessment Survey (NAS) was conducted to identify the understanding and role of biodiversity and EIA and training needs of the identified institutions in the five countries. It helped identify EIA as the sector to focus on and recognized SEA as a more effective tool to protect biodiversity in the region.

An inception workshop helped in the project prioritization process and in developing synergy between the project partners, to ease future collaborative work. Additionally, a contacts consultative workshop to be held in Islamabad, Pakistan, from 16th-19th February 2006, will involve participants from the three sectors- mining, roads and oil and gas- in the process and gain from their contribution. Other project outputs include development of contacts database and EIA Practitioners and Reviewers Guides.

The project will incorporate economic concerns in impact assessment, with relation to biodiversity goods, services and values.

Strengthening Environmental Assessment Professional Capacity in Africa

Babu, Maureen; IUCN, P.O.Box 68200, Nairobi, Nairobi 00200 Kenya. + 254 20 890605-12. Fax + 254 20 890615. maureen.babu@iucn.org

CLEAA implemented its 2nd successful round of the Professional Development Fellowship Programme in 2005. Eight Fellows from Eastern Africa regions were selected through a competitive process to participate on professional EIA teams working in various EA projects in Eastern and Southern Africa. The Fellowship covered cost of travel, lodging, meals, tuition (where applicable) and other associated expenses for a period of 1 to 3

months. During their placement, the fellows gained practical EIA experience in specialized fields of their choice, e.g., water supply and development, housing projects, etc.

The rationale of the programme is that there is inadequate African EIA capacity. While it's true that Africans are being trained in EIA, relatively few of these professionals, even those considered trainers, have actually done EIA, and even fewer have managed a multi-disciplinary EIA team.

The programme's objectives are to:

- Provide practical EIA training and experience for promising professionals
- Link these individuals to national, regional, and international EIA professional networks
- Strengthen regional EIA networks in Africa

This paper will give highlights on the success of this programme, which has been implemented both by Southern Africa Institute for Environmental Assessment (SAIEA), and Eastern Africa Association for Impact Assessment (EAAIA).

CS 21.2 CAPACITY BUILDING AND NETWORKING IN DEVELOPING COUNTRIES (II)

Capacity Building for Impact Assessment in Mongolia

Venn, Orlando; Treweek Environmental Consultants, 32 Ashton Crescent, Braunton, Barnstaple, Devon EX33 1RD England. 0044 (0)1271814028. orlandovenn@btinternet.com

Treweek, Jo; Treweek Environmental Consultants, Chancery Cottage, Kentisbeare, Cullompton, Devon EX15 2DS England. +441884266798. jo@treweek.fsnet.co.uk

King, Sarah; Steppe Forward Programme, National University Mongolia, PO Box 46/377, Ulaanbaatar 210646, Mongolia. +976 99287690. king_srb@yahoo.com

Steppe Forward Programme, a co-operation between the National University of Mongolia and Zoological Society of London, has been operating within Mongolia with the aim of training conservationists for Mongolia's future.

The Programme has identified a number of shortcomings in the application of impact assessment in Mongolia. Problems arise from a lack of quality control exacerbated by the scarcity of public consultation and the fact that Environmental Statements are never made public.

The Programme has recently won the backing of the Mongolian Ministry of Nature and Environment (MNE) and a World Bank Netherlands Trust grant to develop a training course for environmental consultants in Mongolia. The aims are to:

- Increase professionalism and ethics amongst Mongolian consultants.
- Provide a forum in which consultants can discuss common problems and ways forward.
- Use the initiative to develop a self-regulating body (Mongolian Association of Environmental Consultants).
- Encourage the MNE to run the course on an annual basis.

The first course is due to run in the last two weeks of March (2006) and the Session will provide a timely setting in which to present the progress of this initiative.

EIA as a Tool for Capacity Building in Tanzania

Thomassen, Jørn; Norwegian Institute for Nature Research, Tungasletta 2, Trondheim, NO- 7485 Norway. +47 73801573. jorn.thomassen@nina.no

Kaltenborn, Bjørn Petter; Norwegian Institute for Nature Research, Fakkeltgården, Lillehammer, NO-2624 Norway. +47 73801615. bjorn.kaltenborn@nina.no

Keyyu, Julius; Tanzania Wildlife Research Institute, P.O.Box 661, Arusha, Tanzania. +255-(0)27-250 9871. keyyu@yahoo.com

Lowassa, Asanterabi; Tanzania Wildlife Research Institute, P.O.Box 661, Arusha, NO- 7485 Tanzania. alowassa@yahoo.co.uk

Lyamuya, Richard; Tanzania Wildlife Research Institute, P.O.Box 661, Arusha, Tanzania. lyamuyarichard2004@yahoo.com

Stokke, Sigbjørn; Norwegian Institute for Nature Research, Tungasletta 2, Trondheim, NO-7485 Norway. +47 73801550. sigbjorn.stokke@nina.no

Haaland, Hanne; Norwegian Institute for Nature Research, Tungasletta 2, NO-7485 Trondheim, Norway. +47 73801614. hanne.haland@nina.no

A five-year collaborative programme in capacity building between Tanzania Wildlife Research Institute (TAWIRI) and Norwegian Institute for Nature Research (NINA) was established in 2001 (TAWIRI 2002). Capacity building has been one major objective in the collaboration, including training of TAWIRI staff in Environmental Impact Assessment (EIA). A training course in EIA was conducted in 2002.

The Ngorongoro Conservation Area Authority (NCAA) needs an assessment on the increasing vehicle congestion in the Ngorongoro crater. To meet their demand and to further develop the capacity of TAWIRI in EIA, an EIA has been selected as a training tool for capacity building.

A participative EIA scoping workshop, based on the Adaptive Environmental Assessment and Management approach, was conducted in autumn 2004. Stakeholders from management, research and the Maasai community attended the workshop. Based on the workshop, an EIA focusing on two tasks has been activated: 1. Tourism and the Maasai community; 2. Impacts of tourism on endangered animal species and sensitive habitats in the Ngorongoro Crater.

The EIA is executed by TAWIRI in cooperation with NCAA and with NINA as supervisor, and will be finalised in June 2006.

This paper presents the EIA scoping process as a training tool.

Developing Air Quality Impact Assessment Capacity in Africa through Institutional Building

Sivertsen, Bjarne; NILU, PO box 100, Kjeller, Kjeller, NO-2027 Norway. +4797022313. bs@nilu.no www.nilu.no

Bartonova, Alena; Center for Ecological Economics, Norwegian Institute for Air Research (NILU), POB 100, Instituttvn. 18, Kjeller, N-2027 Norway. +47-63898152. Fax +47-63898050. alena.bartonova@nilu.no www.nilu.no

Poor air quality in African cities is emerging as a key threat to health, environment and quality of life of millions of Africans as the levels of urbanisation, motorisation and economic activity increase. The ability to perform impact assessment as a part of the planning process is important in order to make the right decisions.

Applying such methodologies requires considerable skills and it has become apparent that training, capacity building and strengthening in EIA and SEA methodologies are required.

Several training courses have been conducted by NILU in order to promote air quality monitoring and management in several African countries aimed at building capacity for impact assessment and planning for improving the air quality in large urban areas. Seminars given in Nigeria also aimed at fostering national cooperation and collaboration through a forum of discussions and exchange of experiences as well as strengthening of national air quality assessment capabilities.

The experience from institutional building in Africa will be presented and practical examples including experience and some outcome of training and institutional building will be presented.

CS 21.3 CHALLENGES OF IA IN DEVELOPING COUNTRIES (ROUNDTABLE)

Ayazika, Waiswa; National Environment Management Authority, Plot 17, 19 & 21, Jinja Road, P.O. Box 22255, Kampala, Uganda. 256-41-251064/5/8. Fax 256-41-257521. wayazika@nemaug.org/aawaiswa@yahoo.com

The purpose is to share experiences from a developing country with the hope other participants will provide their own experiences that would provide lessons for improvement.

The implementation of EIA requirements started in Uganda in 1995. However, one of the major areas of weaknesses of the use and application of EIA still remains the fact that most developers have not yet internalized the real value of EIA as a planning tool and only do it to fulfill legal requirements. Furthermore, there is need for more training and EIA capacity building programs for staff of Central Government Ministries and Departments and also for the staff of the decentralized District local Governments and local councillors who are key decision makers at various levels.

It has also been recognized that EIA Practitioners involved in carrying out Environmental Impact Assessments have not received significant training in environmental assessments. This is evident in the quality of EIA produced by some of the Practitioners clearly pointing to a need for training.

Participants are mainly practitioners and individuals working with environmental protection agencies.

CS 22.1 INTEGRATED ASSESSMENT OF TRADE-RELATED POLICIES

How Useful are Computable General Equilibrium Models for the Sustainability Impact Assessment of Trade-Related Policies?

Scrieciuc, Serban; Institute for Development Policy and Management, University of Manchester, Harold Hankins Building, Precinct Centre, Booth Street West, Manchester, M13 9QH United Kingdom. 00 44 161 2752827. serban.scrieciuc@manchester.ac.uk

Computable general equilibrium (CGE) modelling represents a powerful tool for hypothesising possible sustainability outcomes that might be triggered with the implementation of trade-related policy proposals. Nevertheless, CGE modelling is based on several tight general equilibrium and neoclassical theoretical assumptions that make their application to the assessment of all three pillars of sustainability questionable. Although some over-simplistic assumptions have been relaxed

in recent and more advanced CGE models, further research needs to be undertaken in order to bring model specifications closer to realistic behavioural relationships. CGE models also tend to focus on alternative equilibrium outcomes and rarely deal with the adjustment process or regulatory measures needed to realise the estimated potential benefits. Moreover, by design they face substantial limitations when dealing with environmental and social effects of trade-related policies. Nevertheless, some authors have argued that CGE modelling may provide a suitable backbone for all three dimensions of Sustainability Impact Assessment (SIA). The paper takes a critical stand and supports the view that though CGE models may provide some useful information on individual, particularly economic, impact aspects of trade-related policy reforms, it may be inappropriate, and in some cases misleading, to rely extensively on their use in SIAs.

NAFTA Ex Post Assessment of Trade Liberalization and Policy Integration: Reviewing the Evidence

Kennedy, William; The Commission for Environmental Cooperation, 393 St-Jacques Ouest, Suite 200, Montreal, Quebec H2Y 1N9 Canada. 514-350-4303. Fax 514-350-4306. wkennedy@cec.org www.cec.org

The relationship between international trade and environmental protection exploded into public debate in the early 1990s. As a result, the governments of the United States, Canada and Mexico acted in response to this debate by including a side agreement on environment (the North American Agreement on Environmental Cooperation (NAAEC)) to NAFTA. The Commission for Environmental Cooperation (CEC), created by the NAAEC, thus received the mandate to monitor NAFTA's environmental effects on an ongoing basis—a trade-related environmental assessment that remains unique among all trade agreements in effect today. Keeping with the public participation and transparency focus of the NAAEC, this mandate is fulfilled by regularly issuing calls for papers to the North American public (academics, NGOs, governments, industry) who must refer to the CEC analytical framework (developed in the CEC's first years) to conduct ex-post assessment of the environmental impacts of NAFTA. Resulting papers are discussed in public symposia, published and widely distributed. This paper reviews the possible policy impacts these ex post assessments may have had and whether we can document cases where they have led to better coordinated environment, economy, and trade policies.

Assessing the Impact of Trade Impact Assessments

Kirkpatrick, Colin; IDPM Impact Assessment Research Centre, Harold Hankins Bldg., Oxford Road, Manchester, M13 9QH U.K.. +44(0)161-2752807/2750819. Fax +44(0)161-2750423. colin.kirkpatrick@manchester.ac.uk. www.sia-trade.org.

George, Clive; IDPM Impact Assessment Research Centre, Harold Hankins Bldg., Oxford Road, Manchester, M13 9QH U.K.. +44(0)161-275 0812. clive.george@manchester.ac.uk http://www.sed.manchester

There are many challenges in integrating the results of impact assessments into trade policy making. The paper examines the difficulties of trying to match a consultative and technical exercise conducted over time

with sometimes fast moving trade negotiations, and the challenge of mainstreaming a sustainability mindset into trade ministries and policy makers. On the basis of the experience accumulated from the European Union's sustainability impact assessment programme for WTO and regional trade agreements, the paper reviews the extent to which these difficulties have been overcome, and draws lessons for the further development of trade impact assessment methodologies.

EA of Trade: Recent Activities and the Challenge of Follow-up

Shuttleworth, Jaye; Foreign Affairs Canada, 125 Sussex Drive, Ottawa, Ontario K1A 2G2 Canada. 613-944-0428. Fax 613-944-0432. Jaye.Shuttleworth@international.gc.ca

McCormick, Rachel; Foreign Affairs Canada, 125 Sussex Drive, Ottawa, Ontario K1A 2G2 Canada. 613-944-0302. Fax 613-944-0432. Rachel.McCormick@international.gc.ca

The Government of Canada's 2001 Framework for Conducting Environmental Assessments of Trade Negotiations is being applied to multilateral, regional and bilateral trade negotiations and Foreign Investment Promotion and Protection Agreements. This presentation will provide an overview of recent work undertaken pursuant to the Framework, and the progress and challenges therein. Attention will be drawn to what happens after the assessment. It is hoped that this will encourage a fulsome discussion on options for follow-up and monitoring after an ex ante assessment of a liberalization agreement is concluded.

Biodiversity and Trade in the Agriculture Sector: Challenges of Integrated Assessment

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

Bubb, Phillip; UNEP-WCMC, 219 Huntingdon Road, Cambridge, CB3 0DL UK. 01223 277314. Philip.Bubb@unep-wcmc.org

Brown, Claire; UNEP-WCMC, 219 Huntingdon Road, Cambridge, CB3 0DL UK. 01223 277314. Claire.Brown@unep-wcmc.org

Venn, Orlando; TEC, 32 Ashton Crescent, Braunton, Barnstaple, EX15 2DS England. + 441271814028. orlandovenn@btinternet.com

Impacts on biodiversity associated with global trade are significant but complex. Advice on assessment of biodiversity impacts is required to support trade negotiations and reduce risks to areas of high biodiversity importance and for those who depend on it for their livelihoods.

Agricultural trade policies warrant special attention in the context of biodiversity conservation: loss of habitat and ecosystems to agricultural expansion is a major driver for biodiversity loss worldwide, so changes in land use or its intensity associated with trade policy change can have major consequences. There is growing demand for biodiversity indicators which could be used to appraise impacts of trade and trade-agreements in the agriculture sector and for

This paper reports on progress in the development of integrated assessment frameworks to enhance inclusion of biodiversity considerations in assessment of trade-related policies. It draws on results of work being carried out by the UNEP Economics and Trade Branch (UNEP-ETB) on a four-year EC-funded project which aims to support the Convention on Biological Diversity (CBD) by building capacities in developing countries for assessing, designing and implementing policies that maximise development gains from

trade-related policies in the agriculture sector, while minimizing impacts on biodiversity.

CS 23.1 SUSTAINABLE DEVELOPMENT AND METHODOLOGY

EIA—From Description of Destruction to an Instrument for Sustainable Development

Tennøy, Aud; Norwegian Institute for Urban and Regional Research, NIBR, Sinsenei 47 B, P. O. Box 44 Blindern, Oslo, Oslo 0313 Norway. + 4722958984. aud.tennoy@nibr.no

In a paper written for the Norwegian EIA Yearbook 2005, the evolution of EIA from 1960 to 2005 is described under the following headings:

- The worldwide spread of EIA
- Important developments of EIA
- A broad international EIA discussion
- EIA and sustainable development: from EIA to SEA
- The IAIA conferences—the big issues and the long-term perspectives

Central sources for the paper are the Journals *Impact Assessments and Project Appraisal* and *Environmental Impact Assessment Review*, Conference Programs for the IAIA conferences since 1994 and central books on EIA and SEA.

Experiences on Sustainability Assessment in The Netherlands

Verheem, Rob; The Netherlands Commission for Environmental Assessment, PO Box 2345, Utrecht, 3500 GH The Netherlands. + 31 30 2347 636. Fax + 31 30 2304 382. rverheem@eia.nl www.eia.nl

Draaijers, Geert; The Netherlands Commission for Environmental Assessment, PO Box 2345, Utrecht, 3500 GH The Netherlands. + 31 30 2347 666. Fax + 31 30 2304 382. gdraaijers@eia.nl www.eia.nl

This paper discusses some recent developments in The Netherlands in sustainability assessment, whether as part of EIA and SEA or as separate tool. The focus of the paper is on highlighting some elements for effective sustainability assessment integrated in planning or project development. This kind of *ex-ante* assessment has great potential to increase the quality of discussions on possible directions of development and to contribute to the democratic quality of decision making. However, it is complex. In The Netherlands the main challenge as to SA now is to make it a more widely used tool, that is comprehensive, yet pragmatic. This paper tries to give some first clues.

The Inclusion of Sustainability in Environmental Impact Assessment: An Essential Aspect or a Promotional Tool?

Pettit, Claire; Institute of Environmental Management and Assessment, St Nicholas House, 70 Newport, Lincoln, LN1 3DP England. 01522 540069. c.pettit@iema.net www.iema.net

The introduction at the local, regional and national level of policies aimed at delivering sustainable development ensures that sustainability issues are given some

consideration by developers. The introduction of these policies alongside media coverage of sustainability issues has increased the level of public awareness. Public awareness of sustainability issues and increasing use of public participation techniques during the specification stage of project design places pressure on developers to consider sustainable concepts in project design. Given the growing importance of sustainability issues in the UK, assessing the sustainability of individual development proposals is deemed to be beneficial by developers and decision makers alike. This has led to sustainability being included within the scope of an increasing proportion of environmental impact assessments.

Evidence so far shows that in the UK, EIA Sustainability assessments tend to review sustainable development policy requirements and identify and evaluate suitable sustainable design concepts, such as grey water reuse, green roofs and sustainable travel plans. The commitment to the implementation of such measures is generally lacking, this gives the impression that the sustainability assessment is being used as a promotional tool by developers. Therefore, the added value associated with inclusion of a sustainability assessment appears minimal.

Sustainability Assessment—A Case Study Involving the Process and Response to Resource Needs

Canter, Larry; Environmental Impact Training, PO Box 9143, 810 Western Bit, Horseshoe Bay, TX 78657-9143 USA. 512-963-1962. Fax 830-596-8804. envimptr@aol.com

Swor, Tom; U.S. Army Corps of Engineers, PO Box 1070, Nashville, TN 37202-1070 USA. 615-594-4144. Fax 615-736-2052. tomswor@ardmore.net

Hollins, Eric; Woolpert, Inc., 4141 Rosslyn Dr., Cincinnati, OH 45209*1183 USA. 513-272-8300. Fax 513-272-8301. eric.hollins@woolpert.com

Harrell, Lorna; Woolpert, Inc., 4141 Rosslyn Dr., Cincinnati, OH 78657-9143 USA. 513-272-8300. Fax 513-272-8301. lornalharrell@email.com

Assessment of resource sustainability is a logical integrator for the findings of a cumulative effects assessment study at a programmatic level. This case study relates to the mainstem of the Ohio River, and illustrates a process for qualitatively connecting the effects of multiple past, present, and future actions to selected indicators of sustainability for six valued environmental components (VECs). The strategic-level study involved the development of an infrastructure investment plan for maintaining and upgrading the existing waterway navigation system. The six VECs include water quality, fish, freshwater mussels, riparian habitat, health and safety, and water-based recreation. Three sustainability categories (not sustainable, marginally sustainable, and sustainable) were defined for each VEC and used to classify the assessment findings for past, present, and future conditions. Sustainability needs were then identified for both aquatic (water quality, fish, and mussels) and riparian resources. Delineation of scientific and institutional measures for addressing these needs was accomplished via regional subject matter experts engaging in "brainstorming" sessions. The resultant measures were then categorized regarding their potential effectiveness for sustainability promotion, relative costs, and implementability. As a consequence, sustainability enhancement plans were recommended in the resultant integrated feasibility report and programmatic environmental impact statement.

CS 23.2 INTEGRATED ASSESSMENTS IN LOCAL PLANS AND PROGRAMS

Agenda 21 as an Integral Component of the Strategic Environmental Assessment of Municipal Programs

Pelaez Figueroa, Arturo; Municipality of Morelia, Mintzita 470. Fracc. Manantiales, Morelia, Michoacan 58170 Mexico. 52-443-3220705. pfarturo@morelia.gob.mx

Vargas Uribe, Guillermo; CIDEM, Calz. Juarez No. 1446. Villa Universidad, Morelia, Michoacan 58060 México. 52-443-3167075. cidem@cidem.edu.mx

From its conception within the Rio Declaration in 1992, Agenda 21 has been constituted as a guide to diagnose environmental problems of the cities and to define objectives. The four sections (social and economic dimensions; conservation and management of resources; fortification of the function of the main social groups, and ways for the putting them in practice), cover in some way the basic necessities of the population as far as services that provide better conditions of life. The city of Morelia, Mexico, launched Agenda 21 in coordination with the Research Center of Michoacan (CIDEM) in the year 2004, as result of four meetings where more than 400 people from the different sectors of the society who have municipal authority. Since 2005, a total of 20 different programs related to public services, environmental and public participation, were selected to interact with 72 physical-biological and social aspects in order to form a matrix of qualitative type with more than 1440 qualifications. The obtained results were able to strengthen the cost/benefit evaluation of the project, to consider alternatives, improve internal procedures and to design measures of prevention and mitigate environmental effects.

Integration of the Environmental and Planning Aspects in the National Lakes Area, Garden Route, South Africa

Smit, Danie; Department of Environmental Affairs & Tourism, c/o Pretorius & Van der Walt Street, Pretoria, Gauteng 0002 South Africa. +27 (12) 310-3659. Fax +27 (12) 310-3669. dsmit@deat.gov.za

The Garden Route is one of South Africa's most popular tourist destinations. This area is environmentally sensitive due to the unique combination of environmental attributes.

A number of developments (golf estates, polo fields) are proposed. In terms of South African environmental legislation, an EIA is required prior to commencing large developments that have the potential to create substantial environmental damage.

These same applications are assessed in the planning process in accordance with the requirements of planning legislation.

Currently the two authorisation processes are conducted in isolation from one another. This has resulted in a series of haphazard developments.

The National Department of Environmental Affairs and Tourism (DEAT), in collaboration with the Norwegian Ministry of the Environment, initiated a project to integrate the planning and environmental decision-making process. The base information emanating from this project can be used to inform development planning

through a planning process, which must ultimately be incorporated into the municipal spatial development frameworks (SDFs).

The aim of the project is to assist in the integration of environmental and planning aspects.

Some preliminary results will be discussed as case studies to indicate the benefits of an integrated environmental and planning assessment and approval process.

Sustainability Strategies at Municipal Level—Creating Contexts for Integration

Partidário, Maria Rosário do; IST, Av. Rovisco Pais, Lisbon, 1049-001 Portugal. + 351-21-8418341. mrp@civil.ist.utl.pt www.civil.ist.utl.pt/~mrp

Augusto, Bernardo; IST, Av. Rovisco Pais, Lisbon, 1049-001 Portugal. + 351-21-8418224. bra@civil.ist.utl.pt www.ist.utl.pt

Local, regional, national or sectoral Agenda 21 should be backed by an established strategy for sustainability and a multistakeholders engagement process, as fundamental conditions to ensure the forward-looking and multiple perspectives programme that will provide the grounds for effective sustainability programmatic agenda processes. In order to test this hypothesis, an experiment has been conducted in a municipality in Portugal, whereby ahead of the preparation of a local Agenda 21 a sustainability strategy was developed.

Loulé is one of the largest municipalities in southern Portugal, with roughly 60.000 inhabitants, and one of the major tourism destinations in Portugal. Various physical, social, economic and ecological problems result from the tourism development of the last 3 decades. However, significant public and private investments have also been made, which have increased the attractiveness of the municipality and have generated new demands on the quality issues.

Encouraged by the opportunity to change the development process and engage the integration of multiple sustainability concerns, a process towards the establishment of a sustainability strategy for the municipality was conducted. The paper reflects this experience, including the multiple dimensions of sustainability considered and the methodology followed, including the multi-stakeholder engagement process.

Integrated Assessment and Planning: Experience in Russian Federation

Khotuleva, Marina; Ecoline EA Center, Valovaya, 32/75, Moscow, Russian Federation. + 7 (495)236-10-27. Fax + 7 (495)236-10-27. mkhotuleva@eac-ecoline.ru

Pivtsakina, Elena; Ecoline EA Center.

Dmitriev, Alexander; Center for Audit and Management, Tomsk, Russian Federation.

Jurkeviciute, Ausra; REC CEE, Hungary.

Volostnov, Dmitry; OGU, Tomsk, Russian Federation.

Akerman, Elena; Tomsk Oblast Administration, RF.

Matirova, Irina; Tomsk Rajon Administration.

Titarenko, Irina; Tomsk Oblast Administration.

Zhurba, Alexander; Shaneco group.

Kozlovskaya, Oksana ; Tomsk Oblast Administration.

Mozgolin, Boris; Tomsk Oblast Administration.

Adam, Aleksander; Tomsk Oblast Admini.

The Integrated Assessment & Planning (IAP) approach has been tested on four strategic initiatives (Regional and Local Programmes of socio-economic development).

Key lessons learned:

Strategic planning of socio-economic development on the Rajon (District), Settlement and Oblast (Region) levels is actively developing in Russia. SD principles are familiar in Russian regions but not always followed.

IAP methodology promoted by UNEP tested in Tomsk and Vologda Oblasts has demonstrated effectiveness in improving strategic planning process both on the local and regional levels.

The very simple methods are effective in IAP of municipal programmes (Rajon and Settlement levels). The logic and consistency of the municipal programmes could be improved within IAP process. This is especially important for Settlements (newly established level of municipal governance). The capacity building of the municipalities is the crucial effect of IAP process on the municipal level.

IAP approach can contribute to integration of economic, social and environmental aspects of advanced strategies of Oblast level. Wider set of assessment tools can be used on this level.

Integration of assessment and planning processes is aggravated with lack of experience in interactive cooperation between planning and assessment teams.

CS 23.3 INTERACTION AND METHODOLOGY

Very Early Contracting in EIA: Dutch Experiences with Parallel Procedures for Procurement and EIA

Arts, Jos; Ministry of Transport, Public Works & Water Management, PO Box 5044, Delft, 2600 GA The Netherlands. + + 31 15 2518461. Fax + + 31 15 2518555. e.j.m.m.arts@dww.rws.minvenw.nl

Nijsten, Roel; Ministry of Transport, Public Works & Water Management, PO Box 5044, Delft, 2600 GA The Netherlands. + + 31 2518343. Fax + + 31 2518555. r.j.m.f.nijsten@dww.rws.minvenw.nl

The role of market parties in Dutch road development is usually limited to consultancy in plan preparation (EIA studies, engineering) and subsequently to construction and maintenance. Usually different market parties (consultants, contractors) are involved in these various stages.

Recently, the Dutch Government strives for earlier involvement of market parties (contractors) in infrastructure planning. Reasons are innovation; integrated planning including construction and maintenance; better price/quality ratio by competition, etc.

This paper discusses a new framework in which the procedures for EIA and procurement/contracting are combined very early. The essential difference with the “traditional” approach is that market parties that will construct the road are involved before the consent decision. The idea is that they prepare alternatives in competition, which are integrated in the EIA report! (“Seems a small step, but means a giant leap.”) The new EU procurement procedure of “competitive dialogue” is combined with the EIA procedure, maintaining their specific nature (confidentiality vs. openness to the public). In a stepwise process, the project’s scope and alternatives are elaborated. Finally, the winning party’s bid and the consent decision are combined in a contract (e.g., DBFM). The paper discusses legal challenges;

conditions; roles of government, market, other stakeholders; and pros and cons.

Guidelines for Classification and Assessment of Significance in EIA and SEA in Iceland

Gunnarsson, Jakob; National Planning Agency, Laugavegur 166, Reykjavik, 150 Iceland. + 354-5954100. Fax + 354 5954165. jakob@skipulag.is

A revised EIA Act took effect in Iceland on Oct. 1st 2005. Among the changes made to the Act was the inclusion of new provisions regarding the publication of guidelines by the National Planning Agency: "The classification of and criteria for environmental impacts."

The main objective of these guidelines is to promote co-ordination as well as transparency in EIS coverage of the environmental impacts of projects, plans and programmes with regard to the environmental factors addressed in the statement, the criteria used for assessment and the usage of various impact concepts as well as to provide guideline concepts for assessing significance.

The guidelines provide recommendations for the classification of environmental factors, usage of concepts regarding the attributes of the relevant environmental impacts, e.g., temporary, negative, reversible etc., as well as a methodology to assess the significance of the impacts on the specific relevant environmental factors, using concepts that convey significance, e.g., substantial negative impacts, considerable positive impacts, negligible impacts, etc.

The paper addresses the preparatory work by members of the NPA staff as well as the end result, the guidelines themselves.

Towards More Effective EIA Systems

Kolhoff, Arend J.; Development Co-operation NCEIA, Commissie M.E.R. Netherlands Commission for EIA, Arthur Van Schendelstraat PO BOX 2345, Utrecht, 3500 GH THE NETHERLANDS. + 31 030 234 7604. akolhoff@eia.nl

Post, Reinoud; Development Cooperation NCEIA, Commissie M.E.R. Commission for EIA in The Netherlands, Arthur van Schendelstraat/PO BOX 2345, Utrecht, 3500 GH THE NETHERLANDS. + 31 30 234 76 49. Fax + 31 30 234 77 49. Rpost@eia.nl www.eia.nl/nceia

Since the nineties, the Netherlands Commission for EIA has assisted governments in strengthening their EIA systems. Over the years, the Commission has developed an approach that it now would like to communicate.

In most countries with which the Commission collaborates, there is room to improve on the effectiveness of EIA. Lack of understanding of the opportunities that EIA offers, lack of understanding of the requirements effective EIA sets and, sometimes, lack of political drive to establish effective EIA have led to weak, unclear, ill-considered, incomplete or incoherent legal and regulatory frameworks, inadequate institutional capacity and inadequate funding. We assist governments wishing to establish an effective EIA system tailored to their ambitions and capacities (i) by offering guidance for SWOT-analysis of the existing EIA-system, (ii) by offering assistance for designing such an adapted system and (iii) by helping to elaborate and implement a program to establish the adapted system. We will present our approach in establishing an effective EIA system.

The Alta River Case, A Turning Point of IEAs of EIAs in Norway

Tevde, Arne

Abstract not available.

CS 23.4 EIA METHODOLOGY, PRACTICE AND RESPONSE, PART I

Environmental Assessment and Performance Measurement

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

Lei, Cecilia; Natural Resources Canada, 580 Booth Street, Ottawa, Ontario K1A 0E4 Canada. 613-947-6816. Fax 613-996-0478. clei@nrcc.gc.ca www.nrcc.gc.ca

The paper describes the development of a logic model, which is used to establish performance measurement indicators for environmental assessment.

The paper focuses on the "screening" track for environmental assessment under the Canadian Environmental Assessment Act. Some 6,500 assessments are conducted each year in Canada under this track. The projects assessed may be small or large, although the authors are primarily interested in the larger projects.

By mapping the various steps in an environmental assessment, the authors are able to develop leading and lagging indicators. Of these, the leading indicators are the most important, as they provide an early indication of challenges in an environmental assessment. That is not to say that lagging indicators are not useful.

The authors will highlight the indicators developed, will explain the areas of the environmental assessment they target and how they may be used to identify areas for improvement.

Perceptions of Stakeholders of the Objectives and Purpose of the EIA and Their Roles in the Process

Peterson, Kaja; Stockholm Environment Institute Tallinn Centre/Estonian Institute for Sustainable Development, Box 160, Tallinn, 10502 Estonia. + 3726276104. kaja.peterson@seit.ee www.seit.ee

Common perception of objectives, purpose of a process and the roles of each of the participating body would normally facilitate smooth management of the process and eventually ensure the expected outcome. The objective of this study was to test the validity of this understanding in the EIA process and among the corresponding stakeholders. 70 individuals participating in 27 cases of EIA initiated in the period of the first EIA law in Estonia (2001-2005) were questioned to explore their perceptions of the main objective and purpose of EIA and sharing of roles among each other in the process.

The results of the study showed that the five groups of stakeholders of the EIA process had different understanding of the primary objective and purpose of the EIA and their roles in it. Although the respondents regarded the balancing of economic, social and environmental aspects as the main objective of EIA, the evaluation of the EISs showed that the assessments had primarily addressed environmental and moderately social aspects, whereas economic aspects were usually handled outside EIA process and not documented in EISs. The author argues that the new EIA law should be elaborated to avoid misunderstandings and possible conflicts of interest.

The Role of Local Cooperators in EIS Practice: The US Experience

Paterson, Robert; Center for Sustainable Development, 1 University Station B7500, School of Architecture and Planning, Austin, Texas 78712 United States. 5124711922. Fax 5124710716. rgfprgfp@gmail.com NA

Rawlins, Rachael; School of Architecture and Planning, 1 University Station B7500, Austin, Texas 78712 United States. 5124711922. Fax 5124710716. rawlinslaw@sbcglobal.net NA

On January 30, 2002, the US CEQ issued a Memorandum for the Heads of Federal Agencies that encouraged lead agencies to designate state, regional, tribal and local cooperators where appropriate because of anticipated benefits. Those anticipated benefits included disclosure of relevant information early in the analytical process; enhanced technical expertise and staff support; avoiding duplication with other Federal, State, Tribal and local EIA procedures; enhanced intergovernmental coordination; enhanced intra-and intergovernmental trust; and better understanding and appreciation for various governmental roles in the NEPA process, as well as enhancing agencies' ability to adopt environmental documents. Yet, to date, there has been no systematic effort to evaluate whether those benefits have accrued in practice. This paper reports the results of a survey that evaluates the lead agency experience of designating state, regional and local cooperators, based on a telephone survey of all 61 EISs that were completed between 2000 and 2005 (with non-federal cooperating agency partners). The results of the survey are mixed. Although most federal agencies think that cooperating agency status is a good idea in appropriate situations, there is considerable room for enhancing the cooperating agency experience. The paper reports policy recommendations suggested to enhance the cooperating agency experience.

Keeping a Promise: EIA and Follow-up for a Major Urban Development in England

Boyden, Adam; Nicholas Pearson Associates, 30 Brock Street, Bath, BA1 2LN England, UK. +44 (0) 1225 445548. Fax +44 (0) 1225 312387. adam.boyden@npaconsult.co.uk

The EU Directives on Environmental Impact Assessment (EIA) require that Environmental Statements (ESs) describe the measures envisaged to mitigate the significant adverse effects of a development proposal on the environment. These measures are often influential in the decision to approve the project, but UK EIA legislation includes no requirement to monitor their implementation. However, ensuring that mitigation promises are implemented, and environmental outcomes are acceptable is vital as part of "follow-up" if EIA is to have credibility, particularly amongst those affected by EIA developments. EIAs for outline planning applications in England pose particular challenges, as they are necessarily based on less detailed proposals than are eventually implemented through more detailed applications.

The paper examines the EIA of a major urban extension with 1900 homes on the edge of the city of Gloucester and the Cotswold hills, a sensitive environment in south-west England, and how the key environmental mitigation measures are being implemented and followed-up. Lessons are identified for good practice in ensuring satisfactory environmental outcomes, particularly the continued role of the EIA practitioner in ensuring good EIA follow-up practice in the project as it evolves from outline permission, through detailed design, to construction.

CS 23.5 EIA METHODOLOGY, PRACTICE AND RESPONSE, PART 2

Scoping in EIA—Still Guiding Assessment?

Jones, Carys; EIA Centre, SED, University of Manchester, Oxford Road, Manchester, M13 9PL UK. 44 161 275 6255. Fax 44 161 275 6893.

carys.jones@manchester.ac.uk

EIA is now assumed to operate according to agreed and accepted procedures and deliver input on environmental consequences to the decision-making process. However, questions can still be raised. Does practice comply with legislation? Are current requirements for mandatory or informal procedures still justified? Does EIA deliver its presumed outputs? Has EIA changed over time to deliver different outcomes? A study of scoping in England was undertaken for the Office of the Deputy Prime Minister to evaluate practice and comment on the contribution of scoping to EIA effectiveness. The study involved gathering data on scoping practice and obtaining the views of a wide range of stakeholders. Whilst scoping is firmly embedded in English EIA practice, with most stakeholders engaging in the process, all the theoretical benefits of scoping are yet to be delivered in full. It is clear that the original purpose of scoping as a means to focus subsequent assessments by eliminating minor issues from the EIA is often lost and perhaps not clearly understood by all stakeholders. There needs to be a more universal recognition and understanding of the purpose of scoping and what it seeks to deliver within EIA and consensus on this by all stakeholders.

Entirety or Puzzle: Topics and Mixed Disciplines in EIA

Erikstad, Lars; Norwegian Institute for Nature Research, Tungasletta 2, Trondheim, N-7485 Trondhei Norway. +47 73 80 17 08. lars.erikstad@nina.no

Lindblom, Inge; Norwegian Institute for Cultural Heritage Research, Storgt. 2, pb. 736 Sentrum, Oslo, N - 0105 Oslo Norway. + 47 23 35 50 51. Fax + 47 23 35 50 01. inge.lindblom@niku.no

Most EIA literature is based on the idea that the EIA process represents a whole, and only concentrates on the totality of the process. In our opinion this general view is a simplification. In fact, we are dealing with several separate elements, more or less tied together in complex relationships.

We claim that the lack of international literature related to research on specific subjects (e.g., nature, culture heritage and landscape), affects the academic progress also on the holistic level. Development of methods and specific research is however not missing, but an academic contribution seems too weak to operate within a commercial competitive system.

This paper discusses the need of more applicable methods to combine different relevant disciplines related to nature, culture and landscape qualities. Main emphasis is put on evaluation criteria and its relation to vulnerability and impact specification. In Norway, the specific topics in an EIA reflect old-established academic traditions. We suggest this rigid system with its lack of flexibility and multidisciplinary effort, result in lack of transparency. Possible solution to the problem is improved links between disciplines, landscape analysis synthesis, reorganization of different investigations,

better scoping procedures and introduction of new multidisciplinary concepts.

Analysis of Alternatives–Strategic Environmental Assessment or Just Good EIA Practice?

Jesus, Julio; ECOSSISTEMA, Lda., R Jorge B Macedo, 9A, Linda-a-Velha, P-2795-202 Portugal. + 351214146010. Fax + 351214146019. julio.jesus@ecossistema-lda.pt

Partidário, Maria Rosário do; IST - Dep. Eng. Civil e Arquitectura, Av. Rovisco Pais, Lisboa, P-1049-001 Portugal. + 351218418341. Fax + 351218497650. mrp@civil.ist.utl.pt

In Portugal it is normal EIA practice to consider project's alternatives as part of the project's EIA. The analysis and comparison of project's location alternatives, and other alternatives, has become a legal requirement, whereby the EIA process is initiated, and conducted, at Preliminary studies project design level.

The decision on alternatives is taken by the environmental authorities, taking into account the EIA findings and the results of public participation. The paper illustrates the type of alternatives evaluated in the different categories of projects.

In face of the Portuguese practice with the consideration of alternatives at project's levels, the question can be raised whether it is logic, legitimate or even reasonable to also consider the same type of alternative analysis and comparison at SEA level, as seems to be the emerging practice in some countries. For Portugal the concern and priority in strategic level of assessment will be to address other kind of issues: the policy objectives, the understanding of problems and the related key strategic issues, the relation with sustainability objectives, and the kind of actions that will be needed to fulfill policy objectives in a way that integrates environmental issues and concerns.

EIA Follow-Up in Georgia: A Case Study of Khadori Hydro Power Station

Gachechiladze, Maia; Central European University, Nador u. 9, Budapest, 1051 Hungary. + 3613273000 (extn 2320). Fax + 3613273031. ephgam01@ceu.phd.hu

The shift of EIA implementation from the theoretically written to the practically carried out highlighted the importance of ex-post evaluation in Georgia. This implied evaluation of quality of EIA follow-up (EIAF) at the system (macro) and individual (micro) levels through a) determining the benchmarks for the state of the art EIAF, b) elaborating criteria for evaluation of its effectiveness, c) identifying main restricting and favorable factors of the current EIAF practice.

The case study of Khadori Hydro Power Station (KHPS) was conducted to lay a basis for the micro-level evaluation of EIAF in Georgia accounting for country-specific socio-geological conditions (high seismicity, etc.).

As a result of the research, some first- and second-priority recommendations for the improvement of the EIAF system in Georgia were proposed, including rationalization of the relevant legislation, better allocation of resources and capacities, improving the motivation of stakeholders and the communication between them.

The lessons learnt from this research will hopefully contribute to increasing efficiency of environmental impacts' prediction, to improving actual implementation of monitoring programs, to enhancing managerial and planning functions of EIA and to raising its efficacy as a whole.

CS 23.6 EIA IN THE EU: 20 YEARS ON – THE ACHIEVEMENTS OF EIA

Café Europa

CS 23.7 EIA IN THE EU: 20 YEARS ON – THE FUTURE OF EIA IN EUROPE

Café Europa

CS 23.8 LAUNCH OF OECD/DAC GUIDANCE

CS 24.1 THE RESOURCE BASE AND IMPACT ASSESSMENT

A Soil Inventory Concept: Bridging Human Society and Ecosystem

Ohkura, Toshiaki; Natural Resources Inventory Center, National Institute for Agro-Environmental Sciences, 3-1-3, Kannondai, Tsukuba, Ibaraki 305-8604 Japan. + 81-(0)298-38-8330. Fax + 81-(0)298-38-8330. tohkura@niaes.affrc.go.jp www.niaes.affrc.go.jp

Hamada, Ryunosuke; Lab. of Soil Science, Tokyo University of Agriculture & Technology, 3-5-8, Saiwaicho, Fuchu, Tokyo 183-8590 Japan. + 81-(0)50-3411-0409, home. Fax + 81-(0)50-3411-0409, home. rhamada@rf7.so-net.ne.jp

The period from *Silent Spring* to *Limit to Growth* we consider to be the era of "Alarm Bell." Before the eighties, human attitude was rather passive in solving the problems of environmental destruction. From the Rio Summit on, now we are in the era of "what to do." An outcome is the Kyoto Protocol. As one of the key issues beyond the Kyoto Protocol, we recognize the importance of Soil Inventory concept. Soil is a catalyzer of unlimited solar energy incorporation into the earth. It is a responsibility for everyone to fix solar energy as a biomass or other. By recognizing our responsibility, we can establish a solid basis for sustainable management of our limited Earth. To share the concept of Soil Inventory as public goods is a must for sustainable future of sound human ecosystem on Earth. For strategic environmental assessment (SEA) and for land use planning, Soil Inventory concept is an important knowledgebase. The government of Japan has recently started pioneer work on this kind by establishing the Inventory Center, which is a touchstone for drawing a blueprint of steady state society.

Environmental Index to Evaluate Saemangeum Reclamation Project (II)

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

Koo, Jakon; Yonsei Institute of Environmental Science & Technology, 234 Maeji-Ri, Heungup-Myeon,, Wonju, Kangwon-Do, 220-710 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 in 2011, it will make a man-made lake of 11,800 ha and 28,300 ha agricultural area for rice production. At the center of the controversy are what is the definition of "pro-environment" and how to measure it.

The nature of pro-environment consists of five elements: natural resources, energy, pollution load, biological diversity, and social amenity. The researchers have identified 69 environmental indicators through a Delphi survey carried out three times. The environmental indicators were applied to two existing reclamation sites, in order to test the validity and applicability of the indicators.

For these 69 environmental indicators, a detailed manual was developed which includes the definition, measurement method, necessity and usage, desired level in the planning stage, evaluation criteria, management methods, and references. Out of 69 environmental indicators, 26 core indicators were identified to give priority in the situation of time and budget constraints.

The weighting factors among the five elements of pro-environment were computed by adopting AHP (Analytical Hierarchy Process) method. The Comprehensive Environmental Index could be obtained by applying the weighting factors to the five elements of pro-environment.

EMP Implementation Issues, Mainly in Water Supply and Sanitation (Yemen as Case Study)

Al-Ariki, Abdulkadirariqiemenl-Ajyaal for Engineering and Consultancy Service, P.O.Box:-8971, Sana'a, Yemen + 967-1-YEMEN. + 967-1-711276879. Fax + 967-1-231454. abdulkadirariqi@yahoo.com

Purpose: enforcing practical implementation of the EMPs by both Governments & Donors in a systematic sustainable manner.

Outcomes: relevant implementable EMP implementation, mainly in Developing Countries such as Yemen.

The Government of Yemen, represented, by the Ministry of Water and Environment, adopted since 1997 a water sub-sector Program(APL), and in in 2003 a "Water Strategy and Investment Program" (2005-2009) were adopted.

The essence of the EIA/EMP implementation (Follow-up Approach) of the water sub-sector in obtaining sustainable water resources:

The relevant preferable option (information) is set out in a public document (the environmental management plan (EMP)) in the form of statement (EIS).

Why in the ministry we need to enhance the SEA /EIA-UNIT.

Existing problems of environmental issues and damages and relevant socio-economic and economic costs resulted.

Focusing on poverty-enhance linkages between environment and poverty for reaching to more realistic and implementable sustainable development partnership

Environmental Impact Assessment of Nuclear Waste: An Unsustainable Route

Bettini, Virginio; University IUAV of Venice, Ca' Tron, Santa Croce 1957, Venice, 30135 Italy. + 39 0412572224. bettini@iuav.it

Rosnati, Chiara; University IUAV of Venice, Via Manzoni 29, Sassari, 07041 Italy. + 39 079975085. chiara.rosnati@tiscali.it

Stevanin, Marco; TERRA srl, Via Vittorio Veneto 78, San Donà di Piave, 30027 Italy. + 39 0421332784. m.stevanin@terrasrl.com

For more than fifteen years, three options for the disposal of nuclear waste have been studied: partitioning/transmutation, deep geological repository, and entreposage.

None of these solutions, whether assessed separately or in possible combinations, can guarantee a safe disposal, particularly of highly radioactive waste.

An EIA of the transmutation process has not yet been carried out, because testing is still in the laboratory phase.

An EIA of entreposage should take into account that the site must be near to an existing nuclear plant. Thus, a cumulative effects assessment is necessary.

An EIA of deep geological disposal must note that those geological formations, considered up to now, are not entirely reliable. This has been seen in Yucca Mountain (USA), in Bure (France), and in Scanzano (Italy). In the assessment of these sites, the authors identify a lack of acceptable mitigation and compensation measures, and sustain the impossibility of defining admissible levels of probabilistic risk for future generations.

IAIA should focus their attention further on this subject. Action is fundamental, due to the continuous requests for the revitalization of a civilian nuclear program. Furthermore, as demonstrated by the case of Iran, this cannot be evaluated independently from nuclear production for military purposes.

Application of Total Mass Daily Load Strategy in EIA

Lu, Ya-Wen; EPA, 7F 41 Sec 1 Jhonghua Rd., TAIPEI, 100 TAIWAN. 886-2-23117722. Fax 886-2-23312958. ywlu@epa.gov.tw

Traditionally, project EIA lacks of ability to assess cumulative impact and therefore may exceed environmental carrying capacity. To achieve sustainable goal, the Total Mass Daily Load (TMDL) strategy can be applied to meet acceptable total maximum loads allocated to different sources of pollution. A TMDL is a tool for implementing surface water quality standards and is based on the relationship between pollution sources and water quality conditions. This paper uses water quality simulation models to develop unit area pollutant load for different land uses with considering environmental carrying capacity and cumulative impacts. Moreover, we integrate GIS technologies into EIA practice and demonstrate how developers can use GIS to search for allowable pollutant loading for their proposed developing area. The objective of this paper is to discuss the procedure and methods for TMDL in water quality, which can be provided as the basis for government to develop the evaluation criteria for EIA review.

CS 24.2 CUMULATIVE IMPACTS ASSESSMENT

The Cumulative Effects Studies at Hydro-Québec: What Have We Learned?

Bérubé, Michel; Hydro-Québec, 855 Ste-Catherine Est, 9th floor, Environment, Montreal, Québec H2L 4P5 Canada. 514 840 3000 ext 4355. Fax ext 3355. berube.michel@hydro.qc.ca

Cumulative effects studies have brought a regional and historical perspective that was lacking to traditional EIAs. In this respect, it gives the practitioner, the proponent, the authorities and the public another tool to appreciate the influence of a project on its environment. We believe that this exercise though needs a different and detailed approach from the EIA, in order to be useful. The purpose of this paper is to share with practitioners the practical problems encountered and solutions found in conducting cumulative effects assessments (CEAs) at Hydro-Québec between 1999 and 2005. A seven steps approach is proposed as a result of our recent experience.

Cumulative Effects Assessment: Are We on the Right Track?

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

Umesi, Napoleon; Department of Chemical Engineering, University of Port Harcourt, Choba, Port Harcourt, Rivers State Nigeria. 234-084-4-24039. umesi2000@yahoo.com

Environmental Impact Assessment in Nigeria is concerned with the management of effects of individual projects on the environment.

In Shell Nigeria (SPDC), 158 projects have received EIA approvals from the Federal Ministry of Environment. None of these projects, however, assessed cumulative effects, and references obtained are linked to Strategic Environmental Assessment (SEA), an aspect that has not been studied in Nigeria.

The Afam Integrated project of SPDC comprises the construction of a 600-700 MW gas-fired power plant; field development and operation of a gas plant; construction of accommodation facilities for plant workers; and construction of an LPG evacuation line. These projects are covered by separate EIAs and commence between 2006-2008 within an area of 3km², with a need to assess cumulative effects.

In assessing cumulative effects of the four projects, the impacts were identified, assessed and rated in the individual EIAs, then the significant impacts that would occur in all four projects within the same period were assessed to be cumulative and mitigation measures proposed for the negative impacts.

This paper presents the cumulative effects assessment method used and seeks improvements from experienced practitioners.

Cumulative Effects: Is That an Issue in Swedish EIA/SEA?

Oscarsson, Antoinette; Swedish EIA Centre, P.O. Box 7012, SE-750 07, Uppsala, Sweden. +46 18 67 26 42. antoinette.oscarsson@sol.slu.se <http://www-mkb.slu.se/eng>

Wallentinus, Hans-Georg; Swedish EIA Centre, P.O. Box 7012, SE-750 07, Uppsala, Sweden. +46 18 67 26 42. hans-georg.wallentinus@sol.sle.se

This contribution will present results from an interview study made with different EIA/SEA actors regarding their understanding and view on cumulative impacts. The main aim of the study was to investigate hindrances and opportunities to investigate cumulative effects in EIA/SEA in Sweden.

The outcome deals with actors' definition and opinion of cumulative effects in relation to their wish to work with cumulative effects, their actual possibilities to work with, and how they concretely work with these effects. These aspects are in some cases unanimous but the analysis showed several statements that were in opposition towards each other.

The method used is half structured explorative interviews. The actors' approach, definition and understanding of cumulative effects were mapped out in the interview analysis by categorising statements in purpose to find hindrances and opportunities to work with this issue.

The background of the study is that Sweden are demanded to investigate cumulative impacts due to the European "EIA directive" and "SEA directive". Previous studies have however showed that cumulative impacts are more or less always missing in environmental impact assessments in Sweden.

Planning and Cumulative Effects: Assessing an Automobile Shredder Residues (ASR) Landfill Site in a Fragile Area

Bettini, Virginio; University IUAV of Venice, Ca' Tron, Santa Croce 1957, Venice, 30135 Italy. +39 0412572224. bettini@iuav.it

Rosnati, Chiara; University IUAV of Venice, Ca' Tron, Santa Croce 1957, Venice, 30135 Italy. +39 079975085. chiara.rosnati@tiscali.it

Stevanin, Marco; TERRA srl, Via Vittorio Veneto 78, San Donà di Piave, Venice 30027 Italy. +39 0421332784. m.stevanin@terrasrl.com

Porcu, Chiara; TERRA srl, Via Salvatore Rubeddu 14, Nuoro, 30135 Italy. +39 0784 34780. chiaraporcu@tiscali.it

Cumulative Effects Assessment (CEA) is an essential tool for a proper environmental assessment. This is particularly true in transition zones between human settlements and the surrounding rural areas, where human activities are often inconsistent with environmental conditions.

In this study, the project of ASR landfill extension, located in the fragile area near Lake Garda, has been analysed. ASR disposal issues should not be evaluated merely within a specific EIA procedure, but rather should be included in the analysis of the entire automobile energetic cycle, and verified by Strategic Environmental Assessment (SEA).

The assigned value of CEA in the decision-making process, its integration with risk scenarios and local community involvement, have been assessed.

The study emphasizes the different conclusions, as concerns the identification and quantification of the most significant impacts, reached by the proponent, and by the independent analysis carried out by the group of university IUAV of Venice and supported by local community and public administration. The proponent project suggests extending the current landfill, whilst the independent analysis, on the contrary, sustains the 'do nothing' alternative, the need for the decommissioning of the site, and for environmental restoration

CS 23.3 ETHICS AND QUALITY

Reframing EIA Practice in Support of Sustainable Development: When Science Doesn't Have All the Answers

Ramasar, Vasna; Private, Flat 10 Frere Hill, 464 Frere Road, Glenwood, Durban, KwaZulu-Natal 4001 South Africa. 011 8837 801. Fax 011 8837 801. v.ramasar@gmail.com

Fourteen years ago, Agenda 21 recognised the contribution of IA to sustainable development. Whilst IA and EIA specifically have enjoyed international popularity with ever-increasing growth in policy and practice globally, we still lag far behind in achieving the goals of the MDGs.

The effectiveness of EIA in promoting sustainable development, especially in developing countries, is questionable. There are a host of legitimate factors that have limited the successful implementation of good EIA practice in developing countries. These include lack of policy and local capacity. This paper will however explore a more fundamental aspect of EIA which is limiting the tool's effectiveness in supporting sustainable development—the scientific approach to EIA practice.

The paper considers theories that have informed EIA practice and the broader technocratic and scientific paradigms that have influenced practice. Applied from a technocratic perspective, EIA can become a tool of power that excludes the poor from development processes. An alternative paradigm to the technocratic approach is suggested—social justice. The paper argues for the explicit use of social justice principles in impact assessment. Only by applying a social justice approach can EIA begin to tackle the enormous challenge of sustainable development in developing countries.

Quality in EIA: The Swedish Case

Johansson, Veronica; Swedish EIA Centre, Swedish University of Agricultural Sciences (SLU), P.O. Box 7012, Uppsala, SE-75007 Sweden. +46(0)18671291.
veronica.johansson@sol.slu.se www-mkb.slu.se

Hedlund, Anders; Swedish EIA Centre, Swedish University of Agricultural Sciences (SLU), P.O. Box 7012, Uppsala, SE-75007 Sweden. +46(0)18672531. anders.hedlund@sol.slu.se www-mkb.slu.se

One of the Swedish EIA characteristics is the extensive use of EIA. Another feature is the proponents' responsibility for the EIA process. The influence of authorities in the process is limited. No evaluations have been made of neither the quality of EIAs nor the EIA-process in Sweden since the Council Directive on environmental assessment was implemented in Swedish legislation in the 1990's. However, several studies (the Swedish National Audit Office 1996, the Board of Housing and Planning 2003, Emmelin & Lerman 2004) have indicated that there might be some problems with the EIA quality and the EIA-process in Sweden.

In order to investigate these possible problems a web-questionnaire was distributed by the Swedish EIA Centre in December 2005. The focus of the questionnaire was to investigate how proponents, consultants, decision-makers, reviewers and researchers consider the aim, function, quality and effective use of EIA. The questionnaire covered five areas i.e. aim, function, quality and actor relations. It was sent to approximately 1500 persons and 342 answers were received. The result of the questionnaire shows deficiencies in several areas, both concerning legislation and the application of the legislation as well as regarding competence and organisation matters.

Practitioners, Professions, and Perceptions of Impact Assessment Adequacy

Morgan, Richard; Centre for Impact Assessment Research and Training, University of Otago, P.O. Box 56, Dunedin, New Zealand. +64-3-479-8782. Fax +64-3-479-9037.
rkm@geography.otago.ac.nz

Hart, Andrew; Centre for Impact Assessment Research and Training, University of Otago, P.O. Box 56, Dunedin, New Zealand.

Freeman, Claire; Department of Geography, University of Otago, P.O. Box 56, Dunedin, New Zealand.

Coutts, Brian; School of Surveying, University of Otago, P.O. Box 56, Dunedin, New Zealand.

In 2003, a number of amendments were made to the Resource Management Act, which governs project level impact assessment in New Zealand. One subtle but important change was the inclusion of the word "adequacy" with reference to assessment of environmental effects (AEE) (i.e., impact assessments) submitted to councils in support of resource consent applications. However, no criteria were provided to assist councils to judge adequacy of AEEs. This raises the question as to what constitutes an adequate AEE in the opinion of council staff and IA practitioners

In this paper we report the main findings of an online survey of impact assessment practitioners (both preparers and reviewers) in New Zealand. In particular we were interested to see whether a practitioner's professional or disciplinary background (e.g., planner, surveyor, environmental scientist, etc.) was reflected in their understanding of the impact assessment process and what constitutes an adequate AEE. The results of the survey (completed by 127 preparers and 58 reviewers) showed some interesting links between professional allegiance and expectation of the impact assessment process. The research also suggests that impact assessment education and training is better developed in some professional areas than others.

Informal Practices and Corruption in Public Procurement

Grødeland, Åse Berit; Norwegian Institute for Urban and Regional Research (NIBR), Postboks 44 Blindern, 0313 Oslo, Norway. +47 22 95 88 00. Fax +47 22 22 37 02.
ase_grodeland@nibr.no www.nibr.no

A 2002 Open Society Institute assessment of the impact of EU's anti-corruption conditionality requirements in EU applicant states concluded that these requirements had been only partially successful. There are of course a number of reasons for this—such as the lack of political commitment to anti-corruption reform, the EU's excessive focus on legal and formal requirements, as well as the failure of the requirements themselves to take into account features specific to the applicant states. By far the most important reason, however, is the practice of solving problems informally, rather than formally, which is still widespread in Europe's post-communist states. The paper investigates how such informal practices manifest themselves in public procurement in the Czech Republic, Slovenia, Bulgaria and Romania more generally, and how they facilitate corruption in particular. This is done by contrasting the views and personal experiences of public procurement officials with those of local and foreign businesses. The overall conclusion of the paper is that unless informal practices are addressed as part of the struggle against corruption, this struggle is unlikely to yield any significant results.

CS 24.4 IA – TRAINING AND RESEARCH

Lessons Learning in Environmental Assessment training—A Case of Environmental Audit Training

Kiragu, Serah; IUCN/EAAIA, P.O.Box 68200, Nairobi, 00200 Kenya. + 254 20 890605-12. Fax + 254 20 890615. serah.kiragu@iucn.org

Teaching environmental assessment methods can be simplified by incorporating real life practical exercises. This was the valuable experience realized during an economic valuation and environmental assessment training administered by the Center for Development Research (Bonn University) and Eastern Africa Association for Impact Assessment through IUCN. This paper explores the lessons drawn from an environmental audit conducted by a team of four training participants. Theoretical preparation, interactive discussions, in-between-sessions feedback evaluations, class exercises, practical guidance during field work and in report writing are highlighted as significant factors in ensuring high learning retention among course participants. The paper concludes by suggesting need for a lesson-learning collation and sharing mechanisms in order to benefit other environmental assessment training initiatives.

Norwegian EIA Research

Hanssen, Martin; Norwegian Institute for Urban and Regional Research, P.O. Box 44, Blindern, Oslo, 0313 Norway. + 47 22 95 88 86. Fax + 47 22 22 37 02. martin.hanssen@nibr.no

The paper presents an abridgement of the EIA research in Norway over the last 25 years, including the 9 years preceding the introduction of regulations in 1990.

In the early years of the research, there was a focus on the implications for Norway of introducing the principles of EIA. During the first years of the regulations, the EU-directive and Espoo-konvention were still not implemented, and some research was directed towards what an implementation would imply. The first comprehensive study covered the first 6 years of the regulations, and has since been followed by a number of smaller issue specific studies. Just recently ended, we have seen a common project between the "Environmental Institutes" in Norway which has included theoretical involvement in analysing scoping, vulnerability, valuing, predictions and uncertainty, and common data needs in EIA and SEA.

The paper presents the results of most of these studies and one ongoing of the reform of the EIA-regulations from 1 April 2005.

An Integrated Approach to Impact Assessment Teaching and Training: Practice or Critique?

Hanna, Kevin; Wilfrid Laurier University, 75 University Ave, Dept of Geography and Environmental Studies, Waterloo, Ontario N2L 3C5 Canada. 519.884.0710 x2211. khanna@wlu.ca

Teaching impact assessment (IA) in scholarly settings often seems to require a choice between providing training about how specific IA systems work and how one can become a functionary, or critiquing IA as part of the larger public environment and resource policy processes. This paper draws from recent writing and teaching experience to discuss integrated approaches to IA teaching and training that can help bridge the divide between the genuine need to provide instruction about IA as an administrative process, and the role of university education in fostering critical thinking and broad understanding of the social political dynamics that affect IA. The role of scholarly institutions in IA teaching, the impact of IA research on training, and teaching links to administrative institutions are discussed. There is an emphasis on the Canadian university experience.

Experiences from Capacity Building on EIA and Hydropower Development in Nepal

Himdrum, Reidar

Abstract not available.

CS 24.5 CULTURAL RESOURCES AND SOCIAL ISSUES

The Case for Making Environmental Impact Assessment Social Impact Assessment

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

Environmental impact assessment (EIA) as traditionally conceived tends to be cumbersome, expensive, and ineffective. This is largely because impact assessors and the mandates under which they operate traditionally treat social impact assessment as a subset of EIA. Results include inadequate coverage of social effects, a segmented assessment process in which disciplinary specialists work in isolation from one another to write unintelligible, disconnected documents, and hostile stakeholders who perceive that officials are ignoring their interests. The author makes the case that all significant environmental impacts are ultimately social impacts and failure to recognize fully this fact continues to have a crippling effect not only on the effectiveness of the assessment process but also on environmental advocacy in general. Adherence to the value that the environment has standing in its own right (an ethical stance held by this writer and most members of the environmental community) and broader worldviews of humans' relationship to their environment are at the core of the problem. Historical examples to illustrate this position include the conservation vs. preservation debate and contemporary issues surrounding biodiversity arguments. The paper concludes with delineation of an integrated assessment model that translates biophysical outcomes of environmental alteration into human effects.

The Nordic Connection

Wolf, Charlie; Social Impact Assessment Center, 423 Broome Street, New York, NY 10013 USA. + 1.212.966.2708. Fax + 1.212.219.1963. cpwolf@mac.com

"The Nordic Connection" is yet another in the "Connections" series begun at Cartagena in 2001. As before, it consists of three parts: the impact history of the peoples and places and their wider implications; the application of impact assessment theory and methods to the understanding of these trends and events, and their contribution to field development in impact assessment; and a Nordic Impact Tour that undertakes to recreate this experience in personal terms. In the Nordic case, which generally merges with the Scandinavian, the Viking influence on sea and land has left a deep impression from Eastern Europe to the North Atlantic. No less important is the influence of migrant populations, mostly concentrated in North America. Perhaps the most consequential modern development has been that of North Sea Oil and Gas. It is distinctive of that situation that such development has taken place without the large-scale displacements and distortions elsewhere so evident. In recent years Nordic culture has fostered a peace culture, which has taken expression in their prominent role in international development.

Nature in Cultural Practices

Kramvig, Britt; Norut, Forskningsparken, Tromsø, 9294 Norway. 004794471101. bk@samf.norut.no

The paper explores nature based practices in a Saami coastal community, which formerly have been described as “losing all the characteristics of a Saami heritage.” However, if we look into practices in relations to nature, this hypothesis can be challenged. It will be argued that nature is not looked upon as different to culture, whereby flow of substance recreates peoples’ feeling of control and connectedness from which meaning and harmony in everyday life can be drawn.

CS 24.6 THE INDUSTRIAL SECTOR AND IA

Air Quality Assessment on Industrial Complex Development in Korea

Lee, Young Soo; Korea Environment Institute, 613-2 Bulkwang Dong, Eun Pyeng Gu, Seoul, 122-706 Korea. 82-2-380-7657. Fax 82-2-380-7622. leey@samf.norut.no

Kim, Young Ha; Korea Environment Institute, 613-2 Bulkwang Dong, Eun Pyeng Gu, Seoul, 122-706 Korea. 82-2-380-7753. Fax 82-2-380-7622. kimyh@kei.re.kr www.kei.re.kr

Ahn, Jin Howe; Korea Land Corporation, 217 Jeong Ja Dong, Bun Dang Gu, Seong Nam, Kyung Ki 463-755 Korea. 82-31-738-7544. Fax 82-31-738-8868. ahnjh52@yahoo.kr www.iklc.co.kr

Park, Kyoung Jong; Korea Land Corporation, 217 Jeong Ja Dong, Bun Dang Gu, Seong Nam, Kyung Ki 122-706 Korea. 82-31-738-7974. Fax 82-31-738-8868. pkjong@iklc.co.kr www.iklc.co.kr

Korea has two-step environmental assessment for industrial complex development. One is PERS (Preliminary Environmental Review System), and the other is EIA (Environmental Impact Assessment). The purpose of each system is different. Whereas the purpose of PERS is to decide whether the site for project or development plan is appropriate with respect to environment, the main goal of EIA is reducing adverse effect. In order to confirm the suitability of industrial complex, a PERS statement prepared by the proponent is required before designation of industrial complex. One key factor at the PERS stage is air quality impact caused by industrial complex operation on residential area in the vicinity of industrial complex. In assessing air quality impact, the status quo of the residential area (ex. distance, topographical blocking, etc.), the amount of individual air pollutant emitted, on-site meteorological conditions, air pollution modeling, and reduction measures is examined. In general, four reduction measures, that is, rearrangement of factory layout, exclusions of factories providing bad effect, application of end-of-pipe technology, and installation of green buffer zone, are examined. When predicted individual air pollutant concentration exceeds national (or local) ambient air quality standards, site alternatives should be considered.

Proactive SH&E Management in the Front End Loading Phases of a Project—A Chemical Industry Perspective

Wenhold, Annerine; Sasol Technology (Pty) Ltd, 1 Klasie Havenga Road, Sasolburg, Free State 1947 South Africa. +27 16 9604107. Fax +27 11 5224986. annerine.wenhold@sasol.com

To ensure incorporation of cleaner technologies and inherent safety principles in the design of a chemical / petrochemical

complex, proactive SH&E management is required. The importance of identifying and evaluating the SH&E risks—associated with the different project alternatives—during the front end loading phases of a project in order to ensure adequate management thereof, were realised. Processes, templates and guidelines were subsequently developed to improve the manner in which SH&E aspects are identified, assessed and managed during projects.

EIA Development in the Lao PDR

Ross, Bill; EVDS, University of Calgary, 2500 University Drive, Calgary, Alberta T3A 4V8 Canada. 1 403 220 6961. Fax 1 403 284 4399. ross@ucalgary.ca

This paper consists of a report on the development of EIA regulations for the Ministry of Industry and Handicrafts in the Lao PDR. The work was carried out in 2002 and dealt mainly with developing effective regulations for that Ministry to deal with what was then a new EIA statute. Key features were the classification of projects for effective screening, the creation of a good screening procedure and recommendations to enable the Lao PDR to carry out effective EIA with few resources.

Assessing Social and Economic Impacts Associated with Changes in the Coal Mining Industry in the Bowen Basin, Queensland, Australia

Ivanova, Galina; Central Queensland University, Centre for Social Science Research, North Rockhampton, Rockhampton, 4702 Australia. 61 (7) 4930 9386. Fax 61 (7) 4930 6402. g.ivanova@cqu.edu.au

Rolfe, John; Central Queensland University, Faculty of Business and Law, North Rockhampton, Rockhampton, 4702 Australia. 61 (7) 4923 2132. Fax 61 (7) 4930 9700. j.rolfe@cqu.edu.au

Lockie, Stewart; Central Queensland University, Faculty of Arts, Health and Sciences, North Rockhampton, Rockhampton, 4702 Australia. 61 (7) 4930 6539. Fax 61 (7) 4930 9209. s.lockie@cqu.edu.au

The coal mining industry makes key contribution to the Queensland economy, and is the underlying driver of employment and economic conditions in many regional communities. In this paper, a number of reasons why the economic and social impacts of mining should be assessed carefully and not be limited only to a regulatory approval mechanism are discussed.

In this paper, the results of a project focused on how the social and economic impacts of mining should be assessed and negotiated with local and regional communities are reported. The following assessment tools were trialled to ascertain the impacts on communities of changes in the mining industry (as opposed to the start-up of a specific mine):

- Extended stakeholder analysis of key community representatives
- Desktop modelling to predict economic impacts of changes in the level of mining activity
- A random survey of householders involving choice experiments to assess tradeoffs
- The use of experiments in workshop settings to assess how residents were prepared to prioritise different community development options

The results also show that impact assessment can play an important role in ongoing community and regional

development programs, and should not only be used as a regulatory approval process.

CS 24.7 FINANCIAL INSTITUTIONS AND IA. NORDIC INVESTMENT BANK: A GLOBAL AND NORDIC-BALTIC MULTILATERAL FINANCIAL INSTITUTION

Nordic Investment Bank: 30 Years of Financing Energy Projects. From Oil Crises to Oil Crises: Our Competitive Advantage Then and Now

Åkerholm, Johnny

Abstract not available.

The Baltic Sea Area: Investing in the Environment – A Burden or a Boost?

Pitkänen, Harro

Abstract not available.

Assessing Impacts and Promoting Environmental Investments: Our Policies and Procedures

Ljungberg, Johan

Abstract not available.

CS 24.8 INDUSTRIAL BENEFITS PLANNING (ROUNDTABLE)

Building a Sustainable Economy from Upstream Petroleum Activity: Lessons from Atlantic Canada

Shrimpton, Mark; Jacques Whitford, 607 Torbay Road, St. John's, NL A1A 4Y6 Canada. 1-709-576-1458. Fax 1-709-576-2126. mark.shrimpton@jacqueswhitford.com

There is increasing interest in creating sustainable economic and social development. This has led governments, NGOs and some corporations to placing a growing emphasis on the use of renewable resources, the development and use of local capacities, and small-scale and “bottom-up” economic development.

Upstream petroleum activity presents significant challenges in this regard. Indeed, it is commonly seen as incompatible with sustainable economic development because it involves large industrial projects, these are capital intensive and use specialized equipment and personnel that are unlikely to be available locally, construction activity may have “boom and bust” effects, and the resource depletion or market factors eventually leads to the cessation of activity. Upstream petroleum industry activity is also commonly expected to have negative effects on more sustainable industries, such as agriculture, fishing and tourism.

However, notwithstanding these apparent incompatibilities, upstream petroleum activity has created significant and sustainable economic development in Atlantic Canada. It has resulted in a new sector of the economy; the export of petroleum expertise, goods and services; the sale of these, or developments thereof, to other industries; and an increasingly entrepreneurial and ambitious business sector. This paper describes this experience and some of the approaches and initiatives that underlie it.

CS 24.9 GMO AND IMPACTS

Can Genetically Modified Organisms (GMOs) Be Safely Used to Alleviate Poverty?

Linacre, Nicholas; International Food Policy Research Institute, 2033 K street Nw, Washington, DC United States. 202-862-838. N.Linacre@cgiar.org

The purpose of the panel is to stimulate discussion on the safe environmental and human health use of GMOs developed to alleviate poverty.

Key questions include:

- The global regulation on GMOs
- EIAs and SEAs for GMOs
- Bioconfinement strategies
- Poverty reduction potential
- The role of development organizations

Panel members will be invited to represent different perspectives on the issue of the potential safe use of GMOs for poverty reduction.

Genetically Modified Organisms: When the Politics of Perception Overshadow Environmental Impacts

Tremblay, Jean; Environment Canada, 105 McGill Street, 4th floor, Montreal, Quebec H2Y 2E7 Canada. 514-496-4433. jean.tremblay@ec.gc.ca

Little is known about the impact of introducing genetically modified organisms into the environment. When faced with such cases, specialists try to evaluate parameters (e.g. geographic scale, the nature of the potentially affected ecosystems and the degree to which the anticipated effects are reversible, the cumulative nature of effects and their likelihood) through which they can in turn assess the real and/or potential impacts related to the presence of the organism in question in the environment.

In 2004, a Canadian biotechnology company that specializes in manufacturing proteins used to produce drugs for treating animal and human diseases used transgenic animals as part of its research and development activities. Despite a strict management protocol, three of the euthanized animals ended up in feed for other animals and in fats used to make soaps and other cosmetics.

This unfortunate event, caused by human error, was reported by the media, and like the rest of the world, Canadians showed little tolerance for such a mistake. But what was the real environmental impact of the error? Did perceptions correspond to reality?

CS 24.10 ENVIRONMENTAL CAREERS SEMINAR

Environmental Careers Seminar

Esson, John; Environmental Career Center, 2 Eaton Street, Suite 711, Hampton, Virginia 23669 USA. 757-727-7895. Fax 757-727-7904. johnesson@environmentalcareer.com environmentalcareer.com

The Environmental Career Center (ECC) will conduct its second annual IAIA Environmental Careers Seminar in 2006. Come to this session ready with your questions on

what it takes to prepare for, enter, and advance in a rewarding career of protecting the environment.

Last year's Career Seminar speakers represented the UN Environmental Programme, CH2M Hill, ENSR International, School for Field Studies, and AIS Fisheries Observers. The Environmental Career Center also presented findings on their environmental employment survey.

About the Environmental Career Center: ECC has been helping people work for a better environment since 1980. They operate EnvironmentalCareer.com, publish the Green Careers Journal (new in 2006- formerly the National Environmental Employment Report), conduct careers research and job seminars.

What Makes a Good SEA Consultant?

Curran, Jo; Environ, Swallow Court, Devonshire Gate, Tiverton, Devon EX16 7EJ England. 01884 842010. Fax 01884 842011. jcurran@uk.environmentcorp.com www.environmentcorp.com

James, Emma; Environ, Swallow Court, Devonshire, Tiverton, Devon EX16 7EJ England. 01884 842010. Fax 01884 842011. ejames@uk.environmentcorp.com www.environmentcorp.com

The SEA and sustainability appraisal market in England has significantly expanded since the SEA Regulations and Planning and Compulsory Purchase Act became statute. With the expansion in the market has come an increase in the number of companies offering SEA services. These range from large multidisciplinary consultancies, specialised environmental / sustainability consultancies to small independent consultants. With this expansion comes a good opportunity to examine what makes a good SEA consultant.

The paper begins with a discussion of the expanding SEA market in the UK and uses this as a focus to discuss the attributes needed in a SEA consultant. The discussion will draw upon the authors' experience of SEA projects to examine such questions as:

- Does an SEA consultant require detailed knowledge and experience of the sector, the local area and the plan making process within which the SEA is taking place or can outsiders present more innovative solutions/recommendations?
- What technical and personal qualities are valuable for a SEA consultant?
- Should SEA necessarily involve a number of technical specialists or is good general sustainability knowledge enough?

The paper is presented as a facilitated discussion with participants encouraged to discuss their own views.

CS 24.1 | IA FOR SMALL-SCALE DEVELOPMENT (ROUNDTABLE)

Poster Abstracts

Promotion of EA Education Focusing on Non-EU Countries

Aschemann, Ralf; Austrian Institute for the Development of Environmental Assessment (ANIDEA), Elisabethstr. 3/3, Graz, A-8010 Austria. +43 316 318198. ralf@anidea.at, office@anidea.at

Belcakova, Ingrid; University of Technology Bratislava, Nam. slobody 19, Bratislava, Slovak Republic. belcakova@fa.stuba.sk

Partidário, Maria Rosário do; Lisbon, Portugal. mp@fct.unl.pt

Fischer, Thomas B; University of Liverpool Liverpool, United Kingdom. fischer@liverpool.ac.uk

Under its "Erasmus Mundus" programme, the European Commission is funding a project on "Promotion of European education on environmental assessment for Third country Audience" (PENTA). A consortium of four institutions, led by University of Technology Bratislava and joined by University of Technology Lisbon, University of Liverpool and the Austrian Institute for the Development of Environmental Assessment, aims at enhancing attractiveness of environmental assessment (EA) courses in Europe and attracting third country students to deal with EA issues.

PENTA's target groups are higher education institutions from non-EU countries and their academics, students and management staff as well as international academic and students' organisations. The intended main outputs of PENTA Australia:

- Development of an EA curriculum, serving as teaching format for universities
- Elaboration of a handbook on EA for university lecturers
- Elaboration of a textbook on strategic environmental assessment (SEA) for academics and students
- Elaboration of a library brochure in order to promote European EA education
- Launching a web site on EA for disseminating the PENTA products, database creation regarding EA education
- Organisation of two EA seminars for higher education institutions from third countries.
- PENTA started in October 2005, its duration is two years.

A Tool to Identify the Contribution of Pollution Sources and Personal Behaviour to Inhaled Dose

Bartonova, Alena; Norwegian Institute for Air Research, Instituttveien 18, Kjeller, 2027 Norway. +47 63898152. alena.bartonova@nilu.no www.nilu.no

Brodav, David; Israel Institute of Technology, Technion City, Haifa, IL-32000 Israel. +972 4 829 3468. dbrodav@techunix.technion.ac.il

Fløisand, Inga; Norwegian Institute for Air Research, Instituttveien 18, Kjeller, 2027 Norway. +47 63898000. ifl@nilu.no

Holländer, Werner; Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., Leonrodstrasse 54, München, D-80636 Germany. +49 511 5350 118. hollaender@ita.fhg.de

McInnes, Harold; Norwegian Institute for Air Research, Instituttveien 18, Kjeller, 2027 Norway. +47 63898000. alena.bartonova@nilu.no

Lützenkirchen, Susanne; Oslo Department of Public Health, Maridalsveien 3, Oslo, NO-0178 Norway. +47 23 48 30 00. susanne.lutzenkirchen@hev.oslo.kommune.no

Authorities have two responsibilities: for the environmental quality, and for public health. For public health, it may not be enough to think of environmental quality. It may be also necessary to deal with individual's behaviour and habits. This is because the total amount of inhaled pollutants depends not only on the characteristics of pollution, but also on individual's being in polluted environments for a certain time with certain activity levels.

In a EU co-funded research project we created a tool to assess simultaneously the effect of individual behaviour and the effect of measures to reduce particulate pollution. We have demonstrated the effect different behaviours have on inhaled particulate matter amounts in the same pollution situation. We simulated a family of four, mother working outside the home, father working at home, child aged 10 going to school and child aged 5 attending a kindergarten. The simulation shows that the children, whose school and kindergarten are near a medium-trafficked road, inhale most particles due to their active playing outdoors.

While traffic is the main source of particles in our case study in Oslo, the tool can equally easily be used for areas with other dominant energy production sources.

Domestic Energy Use in Kanpur, Uttar Pradesh: Impacts of Particulate Matter on Women and Children

Bartonova, Alena; Norwegian Institute for Air Research, Instituttveien 18, Kjeller, 2027 Norway. +47 63898152. Fax +47 63898050. alena.bartonova@nilu.no www.nilu.no

Sharma, Mukesh; Indian Institute of Technology Kanpur, IIT Campus, Kanpur, Uttar Pradesh 208016 India. +91 512 597759. mukesh@iitk.ac.in

Katiyar, S.K.; GSVM Medical College, G T Road, Kanpur 208001, Uttar Pradesh. +91 512 214 145

Kanpur, the capital of Uttar Pradesh, has nearly 3 million inhabitants and considerable social and environmental challenges. A recent Indo-Norwegian collaborative study targeted population in lower social strata and focused on particulate exposures (domestic energy use, traffic) and respiratory health in urban residential area, urban slum area, nearby village, and the population of IITK campus. Sampling for PM_{2.5} and spirometry measurements were done in three seasons in each location, during up to 14 days each. 24-hour PM_{2.5} averages ranged between 42 microg/m³ at the campus and in the village in summer to over 340 microg/m³ in the urban residential and urban slum areas in winter. The study population (in all, over 210 persons, including 30 men and 50 children) showed marked differences in spirometry performance, with the urban slum population winter values for PEF_R being markedly lower than expected, and the urban residential area performing second worse. Similar findings were seen for other spirometry parameters. There is also a strong indication that women perform worse than men. Thus, both social disparities and pollution load were shown to

play a role in respiratory effects, strongly suggesting priorities for remedial actions.

Draft Capacity-Development Manual to Support Implementation of the UNECE Protocol on SEA

Bonvoisin, Nick; United Nations Economic Commission for Europe (UNECE), Palais des Nations, Geneva, Geneva 1211 Switzerland. +41 22 917 1193. Fax +41 22 917 0107. nicholas.bonvoisin@unece.org www.unece.org/env/eia

Protocol on Strategic Environmental Assessment has been negotiated under the auspices of the United Nations Economic Commission for Europe, supplementing the Espoo Convention on Environmental Impact Assessment in a Transboundary Context. Thirty-six States and the European Community signed the Protocol in 2003 and several have now ratified their signature.

At their first meeting, in June 2004, the signatory States decided to prepare a capacity-development manual to support implementation of the Protocol. This work has been undertaken by the Regional Environment Centre for Central and Eastern Europe, with the support of the UNECE secretariat. Drafts of the manual have been reviewed at events across the UNECE region. A small editorial group--comprising representatives of Austria, the Netherlands, the United Kingdom, the European Commission and the United Nations Development Programme--has provided advice on the manual.

With that small editorial group's permission, the draft manual is to be made available on the Espoo Convention's website (<http://www.unece.org/env/eia/seamannual.html>) and presented at IAIA'06. The manual will remain in draft pending a decision by the Meeting of Signatories to the Protocol.

The poster presentation will introduce the draft manual to IAIA'06 participants.

The Benefits of Social Impact Assessment for Environmental Assessment Process

Burdge, Rabel; Consulting Sociologist, PO Box 4056, Bellingham, WA 98227-4056 USA. 1-360-676-9892. Fax 1-360-715-0985. burdge@comcast.net www.socialimpactassessmen

This poster illustrates the use of social impact assessment at the community and project level to help impact assessment practitioners, community and regional planners, change agents, elected officials and concerned citizens understand likely future change in their community as a result of project implementation or policy change.

After a brief definition of social impact assessment and its use in the planning process, the basic Social Assessment Model is laid out. Next the SIA scoping process is outlined as the way to identify likely social impacts (issues) and major stakeholders.

The content of the social assessment (analysis) is made up of 28 social impact assessment variables which I use to explain change in a variety of project/policy settings.

The poster concludes with an outline of how mitigation and monitoring have been used to enhance the benefits of project development and change that will come to the recipient community.

How Do We Seize the Opportunities for Health Improvement and Protection in Strategic Environmental Assessment?

Cave, Ben; Ben Cave Associates Ltd, PO Box 220, Brighton, BN2 3WJ UK. 00 44 1273 723 400.

ben.cave@caveconsult.co.uk www.caveconsult.co.uk

Bond, Alan; InteREAM (Interdisciplinary Research in Environmental Assessment and Management, University of East Anglia, Norwich, NR4 7TJ UK. 00 44 1603 593402. Fax 00 44 1603 591327. alan.bond@uea.ac.uk

Who are the new heroes of public health and sustainability?

This poster looks at key health issues raised in strategic environmental assessment (SEA). To add visual interest, the poster is in the format of a Marvel comic.

Techniques for health impact assessment (HIA) are constantly developing. HIA needs to operate within the plan-making system and some policy-makers are looking to situate HIA within formal assessment processes.

The European SEA Directive came into force on July 21st 2004. It applies to a wide range of plans and specifically requires the consideration of the likely 'significant effects on human health.'

This presents a major opportunity, at a strategic level, for identifying and addressing health issues, within the formal plan-making system.

Internationally there are few examples of health input to SEA. The World Health Organisation has identified the need to develop capacity for health in SEA.

This poster considers methodological issues: how should the significant impacts be identified, what is the role of SEA; and organisational issues: what is the status of health within a larger environmental report, how does the health sector contribute to spatial planning?

Characteristics, Issues and Reforming Plans of the Korean Environmental Impact Assessment System

Choi, Joon Gyu; Korea Environment Institute, 613-2 Bulkwang-dong, Eunpyong-gu, Seoul, 122-706 Korea. 82-2-380-7698. Fax 82-2-380-7744. jgchoi@kei.re.kr

Ro, Tae Ho; Korea Environment Institute, 613-2 Bul Kwang-dong, Eun Pyong-gu, Seoul, 122-706 Korea. 82-2-380-7671. Fax 82-2-380-7722. 82-2-380-7671

After rapid economic growth in the 1970s and 80s, Korea has become a member of the OECD since 1996. In the developing years, the Korean EIA was introduced and enforced in the late 70s and the 90s, respectively. Over the years, through numerous trials and errors, the Korean EIA system has developed into a concept fitting into the Korean society. Both Basic Environmental Policy Act (2000) reflecting concepts of the SEA and EIA Act (2000) have been established and effectively operated as strong and broad regulation methods for preserving the environment led by the Ministry of Environment. Recently, the public's understanding of preserving the environment has been extremely increased. As a result, the present EIA policy, which has evolved through the country's developing years, needs fundamental alterations in operation system. To improve present EIA system, there are two major goals to be accomplished. The first one is to require more developers' responsibility in order to prepare environmentally-friendly proposals. The second is to derive social agreement on development projects. In this study, the current problems in Korean EIA system, and the necessity of the improvement of its administrative structure for a new paradigm are discussed.

Developing Standard Mitigation Through Small-Project Monitoring and Follow-Up in the Canadian Coast Guard

Elliott, Dave; Canadian Coast Guard, 25 Huron St, Victoria, BC V8V 4V9 Canada. 250-480-2670. Fax 250-480-2702. elliottda@pac.dfo-mpo.gc.ca

This study explores the Canadian Coast Guard's application of EIA monitoring and follow-up concepts to multiple small projects to support standard mitigation for aids to navigation structures. Attention is paid to the lessons learned throughout the EIA process as well as the corporate, legislative, and biophysical environments in which the Coast Guard operates.

Responsible for 27,000 km of coastline on Canada's west coast, the Pacific Region of the Canadian Coast Guard completes over 25 projects per year that involve the construction of aids to navigation. In recent years the design and construction of aids have become standardized to reduce costs and promote ease of installation, thereby increasing pressure to have EIA studies completed in shorter time frames. To keep the process from becoming a pro-forma exercise, the Coast Guard undertook a two-year monitoring and follow-up program to evaluate actual environmental impacts of projects. At the end of the program, a defensible set of mitigation measures had been identified that address real effects rather than effects predicted by environmental regulators.

EIA in Egypt: Progress, Problems, and the Role of International Development Agencies

El-Zayat, Hisham; Institute of Graduate Studies and Research, Alexandria University, 163 Horreya Avenue, El-Shatby, PO Box 832, Alexandria, Alexandria 21526 Egypt. + 20 3 4295007. Fax + 20 3 5279162. elzayath@yahoo.com www.igsr.edu.eg

This paper is an insider's viewpoint on the progress made in EIA in Egypt, the problems it faces, and the role of international development agencies in this respect. The progress lies in the institutionalization of EIA, the publication of general and sectoral guidelines, and the organization of some training workshops. The effectiveness of the EIA process is still, however, doubtful; there is a tendency for large, politically important developments to bypass the EIA process, and EIA is widely seen as a piece of paper that needs to be paid for to get a development permit. The author argues that this situation is mainly due to the socio-political context in which EIA was introduced and is operating in Egypt. The environment is not yet a major concern of the public, the government, or businesses. Most EIA development activities were funded by foreign grants – they were 'free of charge', so to speak. Many of the EIA reports reviewers are also consultants to the project developers. That leads to weak EIA studies and reviews. The author concludes his paper by suggesting ways for enhancing the role of international development agencies in enhancing EIA effectiveness in Egypt.

Visual Problem Appraisal Kerala's Coast

Enserink, Bert; Delft University of Technology, P.O. Box 5015, Delft, 2600GA The Netherlands. *31 15 2788071. b.enserink@tudelft.nl

Witteveen, Loes; Larenstein University of Professional Education, P.O. Box 7, Deventer, 7400AA The Netherlands. *31 570684643. l.m.witteveen@larenstein.nl

The Visual Problem Appraisal (VPA) Kerala's Coast is a film-based simulated consultancy mission to India.

Students participating in the VPA 'meet' real stakeholders: fishermen telling the story of their life, environmentalists promoting mangrove reforestation and the policy maker who explains the coastal zone regulation act. Participants are confronted with the social complexity and conflicting agendas of these stakeholders.

VPA Kerala's Coast consists of 2 documentaries, 23 filmed interviews, a student's workbook and a facilitator's guide.

Capacity Building in Biodiversity and Impact Assessment in Latin America

Garcia de Brigard **Error! Bookmark not defined.**, Juan Carlos; CBBIA - IAIA, Calle 140 No. 14 -13, Bogota, Colombia. + 571 274 7045. gardebri@cable.net.co

Quintero, Juan David; The World Bank, 1818 H Street, Washington, DC 20433 USA. + 1 202 473 5294. jquintero@worldbank.org

The Capacity Building in Biodiversity and Impact Assessment (CBBIA) project within Latin America has been endorsed by the World Bank's initiative in SEA training. Jointly, the CBBIA - IAIA and the World Bank, organized an SEA training week which was held in Bogota and Cartagena, Colombia with different groups of stakeholders, and where a new training methodology was implemented. This meeting brought together biodiversity and impact assessment experts from around Colombia and the whole Andean Region in order to further train them in carrying out SEAs of biodiversity related initiatives and in biodiversity rich areas. This poster presents the results of this training week and includes some recommendations for similar initiatives in developing countries and/or regions.

Developments on SEA in Turkey. A Case Study: Oymapinar Tourism Development Plan

Gunes, Sule; Middle East Technical University, Department of International Relations, 06531 Inonu Bulvarı #305, Ankara, Turkey. + 90 312 210 20 37. Fax + 90 312 210 12 45. gunes@metu.edu.tr

The sustainable development principle was started to be incorporated in Turkish environmental policies through impact assessment practices in the 1990s. EIA was the first tool Turkey implemented, in 1993. Turkey is now in the process of preparing SEA legislation. A Draft SEA Regulation was prepared to catch up with the 27. 06. 2001 (2001/42/EC) SEA Directive of the European Union and two pilot projects were completed for Canakkale and Oymapinar/Antalya regions. The SEA process for Oymapinar was conducted under the supervision of the Ministry of Environment and Forestry with the close collaboration of the Ministry of Tourism. It was a sensible idea to make an SEA for Oymapinar region, which is renowned as a unique natural habitat and is a vital water resource for the region. The ultimate goal was to find an optimum balance between environmental priorities and development pressures. The performance recorded during the whole SEA process was qualified as successful but the final decision was not immune from criticisms. The purpose of this presentation is to provide an insight into Turkish SEA legislation and an overall assessment of SEA practice for Oymapinar/Antalya.

EIA in Iceland 1994-2005 - The Impact of the Introduction of the Scoping Process

Halldorsson, Oli; Husavik Academic Center, Gardarsbraut 19, Husavik, 640 Iceland. + 354 4640444. Fax + 354 4640445. oli@hac.is www.hac.is

Sigurdardottir, Holmfridur; The National Planning Agency, Laugavegur 166, Reykjavik, 150 Iceland. +354 5954100. Fax +354 5954165. frida@skipulag.is www.skipulag.is

Formal EIA practice in Iceland started in 1994 with the enactment of an EIA act, based on EU-directive 85/337. The EIA act in Iceland has been revised twice since, first in the year 2000 and later in 2005. The main innovation in 2000 was the introduction of a formal procedure at the scoping level. This study focuses on the impacts of the introduction of the scoping document and the following procedure, which was meant to improve the EIA process in terms of quality, focus, efficiency and cost reduction. One of the aims of this study was to answer the question how successful the revision in year 2000 was in fulfilling this goal. To answer this question administrative cost of reviewing scoping documents and EIS's (by the National Planning Agency in Iceland) was used as an indicator of the overall outcome of the legislative change in 2000 in terms of efficiency and time/cost reduction.

Different methods were used in the study. The main effort was put into a comprehensive review of all published scoping documents in Iceland and all EIS's published between 2000-2005 and calculations of working hours spent in the review of scoping documents.

Facilitating Practitioner Networks: Do Weblogs Have a Role in HIA Collaborative Learning?

Harris-Roxas, Ben; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. b.harris-roxas@unsw.edu.au chetre.med.unsw.edu.au

Harris, Patrick; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. patrick.harris@unsw.edu.au chetre.med.unsw.edu.au

Kemp, Lynn; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. lynn.kemp@sswaha.nsw.gov.au chetre.med.unsw.edu.au

Elizabeth, Harris; CHETRE, University of New South Wales, LMB 7103, Liverpool BC, NSW 1871 Australia. +61 2 9828 6230. Fax +61 2 9828 6232. e.harris@unsw.edu.au chetre.med.unsw.edu.au

The New South Wales HIA Project seeks to build capacity across government to undertake HIA. Though a HIA website and e-newsletter were developed early in the project, a need was identified for an additional mechanism to enable communication and discussion between the growing body HIA practitioners.

A weblog was established to facilitate dialog between HIA practitioners:

<http://healthimpactassessment.blogspot.com>

Blogs are distinct from traditional websites in that they facilitate regular updating, allowing any reader to comment on posts and can accommodate a large number of contributing authors.

In addition to providing details of the HIA blog and sample posts, this poster will detail some of the challenges, opportunities and insights that arise from using blogs in this way.

There are a range of potential HIA-related applications for blogs:

- Individuals using blogs to document and share their personal experience of undertaking HIA;

- Organisations using blogs to share information within organisations whilst showcasing their HIA experience to a wider audience, and
- Practitioner networks using blogs to share tips and tacit knowledge.

The use of blogs may provide a mechanism for exchanging knowledge and experience between members of the disparate (and far-flung) community of HIA practitioners around the world.

Geothermal Environmental Impact Assessment Studies in Hebei Province, China

Hongying, Li; Bureau of Land & Resources in Baoding City, Hebei Province, 758 North Chaoyang Street, Baoding, Hebei Province 071051 P.R.China. 0086-312-5956825. Fax 0086-312-5956825. hyl68@hotmail.com

EIA work becomes more extensive in the world because of its importance and practicability and becomes a powerful safeguard in the project planning process. Every country has its own EIA system. It is an aid to decision-making and to minimization or elimination of environmental impacts at early planning stage. The EIA process has basis potential for negotiation between the developer, public interest groups and the planning regulator. Many methods for EIA are such as matrices, checklists, overlay maps, networks. Geothermal resources are abundant in Hebei Province, China and utilized widely, created high economic and environmental benefits. EIA hasn't been developed in this field there. The author suggests that EIA should be held on as early as possible in geothermal field in Hebei for enhancing more benefits. The purpose of this report is to use a suitable method to carry out EIA for geothermal field in Hebei through comparison with methods of EIA used throughout the world. Some recommendations as: matrices and checklists used for impact identification and potential impacts, pollution factors index method used for quantitative analysis of pollutant components and degree of pollution. Prediction and mitigating measures should be improved beyond the present local technical level.

Towards Integrated Impact Assessment: Human Impact Assessment in Finland

Kauppinen, Tapani; STAKES - The National Research and Development Centre for Welfare and Health, P.O. Box 220, Helsinki, 00531 Finland. +358-9-3967 2053. Fax +358-9-3967 2007. tapani.kauppinen@stakes.fi

Nelimarkka, Kirsi; STAKES - The National Research and Development Centre for Welfare and Health, P.O. Box 220, Helsinki, 00531 Finland. +358-9-3967 2109. kirsi.nelimarkka@stakes.fi

Perttilä, Kerttu; STAKES - The National Research and Development Centre for Welfare and Health, P.O. Box 220, Helsinki, 00531 Finland. +358-9-3967 2318. kerttu.perttila@stakes.fi

The development of the relationship between Social Impact Assessment (SIA) and Health Impact Assessment (HIA) in Finland can be described as being divided into three different phases.

In the first phase, SIA and HIA are separate from each other. SIA contains HIA, or HIA contains SIA. The two ways of impact assessment are thus competing as to which is the umbrella concept and which contains the other. This competition takes place between different professions and different resources.

In the second phase, SIA and HIA have approached each other. The different sectors of impact assessment overlap to some extent. A grey area, a no-man's-land, remains

between them. In addition to their own special areas, the different sectors of impact assessment also have areas of common interest.

In the third alternative, the social and health aspects have merged together at the opposite ends of the continuum. Seen in this way, all impacts on human beings have their social and health dimensions. Accordingly, the debate on which one of the two concepts is the umbrella term or has a broader scope of application will gradually lose its meaning.

Impact Assessment of Community Based Wildlife Management on Welfare of Rural Communities and Conservation of Wildlife: Experiences from Botswana

Kerapeletswe, Charity Kagiso; Botswana Institute for Development Policy Analysis, 134 Millenium Office Park, Tshwane Drive, Private Bag BR-29, Gaborone, BOTSWANA. 00267-3971750. Fax00267-3971748. charike@bidpa.bw www.bidpa.bw

Pienaar, Elisabeth; University of California at Davis, One Shields Avenue, Davis, California 95616 USA. 001-530- 752 7721. Fax 001-530- 752 5614. pienaar@primal.ucdavis.edu http://www.ucdavis.edu/in

This paper discusses the impact of community wildlife management in Botswana on welfare of rural communities and conservation of wildlife. In common with other developing countries, Botswana sought to conserve wildlife and alleviate poverty among rural communities through community based natural resources management (CBNRM). In theory, this conservation measure should impact positively on wildlife stocks and welfare of rural communities. In reality poaching and poverty persists due to limited CBNRM benefits and generation of tourism revenues remains elusive mainly due to financial mismanagement and lack of skills to establish high-value tourism ventures. This study found that CBNRM failed to generate adequate benefits to off-set the costs of living with wildlife and devise mechanisms of transmitting benefits at household level. Communities bear costs of living with wildlife. Crop damage by wildlife reduces household' crop harvest and predators reduce livestock. Harvests are further reduced by household decisions to cultivate smaller areas of land that are easier to protect. Failure of CBNRM to meet expectations of welfare improvement is reversing positive conservation impact on the reduction in wildlife poaching. Source of data for the study is extensive interviews with two community conservation trust in northwestern of Botswana and 85 key informants.

EIA in Korea: Obstacles and Its Future

Kim, Jandi; Oxford Brookes University, Department of Planning. School of Built Environment, Gypsy Lane, Oxford, OX3 0BP United Kingdom. +44 8707 55 4181. caillebo@hotmail.co.uk

Choi, Joon Gyu; Korea Environment Institute, 613-2 Bulgwang-Dong, Eunpyeong-Gu, Seoul, 122-706 South Korea. +82 2 380 7698. Fax +82 2 380 7744. jgchoi@kei.re.kr www.kei.re.kr

Joo, Yong-Joon; Korea Environment Institute, 613-2 Bulgwang-Dong, Eunpyeong-Gu, Seoul, 122-706 South Korea. +82 2 380 7666. Fax +82 2 380 7744. yjjoo@kei.re.kr www.kei.re.kr

The degree of effectiveness of an EIA system significantly depends on the competency of the environmental, economic and social policy instruments into which such system is introduced. When applied to constructive

cultural, political and institutional ambience, the EIA will proffer immensely. On the other hand, where such features do not subsist, the EIA tends to aggrandize the presence of conflicts, delays and unsatisfactory assessments.

Although Korea has instituted the EIA in 1977 with numerous provisions balancing between development and conservation, obstacles in the system and management have still not been overcome. Hitherto, such problems were not fundamentally confronted, but were approached by merely piecemeal reforms, enforcing regulations, only yielding deeper problems.

This paper investigates how the EIA system works through a distinct causality of present EIA obstacles and analyzes the overall status of the EIA. In conclusion, actual complications surfacing are brought about and remedies are tentatively proposed.

Sida EIA Helpdesk at the Swedish EIA Centre

Kjellander, Cecilia; SLU, P.O. Box 7012, Uppsala, SE-75007 Sweden. +46(0) 18-672641. cecilia.kjellander@sol.slu.se

Stephansson, Eva; SLU, P.O. Box 7012, Uppsala, SE-75007 Sweden. +46(0) 18-672660. eva.stephansson@sol.slu.se

Axelsson, Anna; SLU, P.O. Box 7012, Uppsala, SE-75007 Sweden. +46(0) 18-672639. anna.axelsson@sol.slu.se

Sustainable development shall permeate all activities supported by the Swedish International Development Cooperation Agency (Sida/Asdi). Making EIAs is believed to be an important method for reviewing environmental aspects of development projects and thereby determining whether proposed projects contribute to or counteract sustainable development. According to Sida's regulations, an EIA shall be made for all contributions financed by Sida. However, the scope of the assessment can vary between different types of contributions, i.e. the EIA shall be adapted to the contribution. Sida does not make the EIA – this is the responsibility of the partner in cooperation. Sida's role is to review the EIA and to provide support.

The Swedish EIA Centre provides an EIA Helpdesk for Sida. The helpdesk provides for example:

- Environmental guidance to Sida employees at all levels including field offices as well as Sida partners,
- Reviews and advice regarding Sida-supported projects and programmes, EIA and SEA documents and policy documents,
- Advice on terms of reference for EIA and SEA,
- Support in the area of capacity building to regional EIA centres in Sida partner
- countries,
- EIA and SEA training for Sida staff and cooperating partners.

Quality of Strategic Environmental Assessment Reports in the London Boroughs

Leben, Jure; TRL, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire RG40 3GA United Kingdom. +44 1344 770192. jleben@trl.co.uk

Treleven, Colin; TRL, Crowthorne House, Nine Mile Ride, Wokingham, Berkshire RG40 3GA United Kingdom. +44 1344 770152. ctreleven@trl.co.uk

Strategic Environmental Assessment (SEA) is required by European Union (EU) Directive 2001/42/EC, which requires the assessment of the effects of certain plans and programs on the environment. SEA as a whole process has several important objectives: to improve the strategic

actions, try to involve other stakeholders in to decision making, its role is to focus on the important environmental limitations and to help identify the best alternatives.

Since mid 2004, 33 SEAs have been started for the transport plans of London Boroughs. Each Borough is a local government region covering 200.000- 300.000 inhabitants.

The poster will cover:

- The 3 written outputs of each SEA: the 'Scoping Report,' 'Environmental Report' and 'SEA Statement'
- What was done well in the ERs
- What will be done better next time
- Can an ER be corrected?
- How has SEA changed the transport plans?

England and Wales implemented the SEA Directive ahead of several other European Countries. The lessons from London Boroughs' SEAs will therefore help other authorities across the EU to learn the best aspects of the approaches developed in London, and to avoid time consuming mistakes.

Spatial Planning and Cultural Heritage

Lindblom, Inge; Norwegian Institute for Cultural Heritage Research, Storgt. 2, Box 736, Sentrum, Oslo, N-0105 Norway. +47 23 35 50 00/51. Fax +47 23 35 50 01. inge.lindblom@niku.no www.niku.no

Anker, Matilde; Norwegian Institute for Cultural Heritage Research, Storgt. 2, Box 736, Sentrum, Oslo, N-0105 Norway. +47 23 35 50 00. Fax +47 23 35 50 01. matilde.anker@niku.no www.niku.no

A Presentation of Spatial planning group at Norwegian inst. for Cultural Heritage Research.

The group's main objects are consultancy, developing methods and participation in different research projects both inland and abroad. Among their topics are Environmental Impact Assessment (EIA) on cultural monuments and cultural environments, territorial development planning, landscape analytical tools, working with GIS applications and digital registers and maps.

The group is also taking part in a research project together with ENVIRA (The Environmental Research Alliance of Norway) on Environmental Impact Assessment to develop a value system that matches several disciplines. The project is also developing methods of how to work strategic with environmental value.

One of the developing projects is the Bamble project where the main issue is to design methods for municipal strategic spatial planning (SEA) and develop tools for decision making. Other important elements in the project are working by network (local and regional), identifying local identity and landscape structure, defining strategic cultural environments. The project is seen as relevant for the aims of the EU convention of landscape which Norway has ratified. One of the products from the project is an interactive web solution based on GIS.

EIA and SEA Capacity Building in Developing Countries

Lindemark, Helena; Ramboll Natura AB, Kapellgränd 7, P.O. Box 4205, Stockholm, SE-102 65 Sweden. +46 8 615 65 96. Fax +46 8 702 19 14. helena.lindemark@ramboll.se www.rambollnatura.se

The poster presents Ramboll Natura's experiences from development cooperation within the natural resource sector and institutional capacity building, with focus on EIA and

SEA capacity building in developing countries. Ramboll Natura carries out EIA and SEA capacity building both at the global, regional and local level. Services include: Development of EIA/SEA Guidelines; Legislation; Human Resource Development and Training; and support to the implementation of EIA/SEA, monitoring and auditing and review of EIAs. The poster will highlight the following examples of programmes and projects:

Advanced International Training Programmes on EIA and SEA, since 1998, sponsored by the Swedish International Development Cooperation Agency (Sida) GLOBAL (for EIA/SEA professionals from Asia, Africa, Latin America and South Eastern Europe), REGIONAL for South Eastern Europe and BILATERAL for China;

Vietnam: Strengthening Environmental Management and Land Administration (SEMLA) – Improved capacity at national, provincial and local levels to address pollution and other environmental issues and to provide efficient land administration services;

Laos: Strengthening Environmental Management –Building of central and local institutional capacity, improvement of environmental data collection and management, and integration of environmental management in planning for sustainable development;

Tanzania: District Development Programme (DDP) – Build the capacity of the local administrative structures.

EIA and SEA in Latin America

Lindemark, Helena; Ramboll Natura AB, Kapellgränd 7, P.O. Box 4205, Stockholm, SE-102 65 Sweden. +46 8 615 65 96. Fax +46 8 702 19 14. helena.lindemark@ramboll.se www.rambollnatura.se

The poster presents a comparison of the systems for EIA and SEA in Latin America (5 countries), with special focus on e.g.:

- Stakeholder involvement and public participation;
- Recent trends;
- Success stories and important lessons learnt.

The authors of the poster are participants from Latin America in the Advanced International Training Programme on EIA, arranged by Ramboll Natura AB (April 24 - May 26, 2006) and financed by the Swedish International Development Cooperation Agency (Sida).

EIA and SEA in South Eastern Europe

Lindemark, Helena; Ramboll Natura AB, P.O. Box 4205, Kapellgränd 7, Stockholm, SE-102 65 Sweden. +46 8 615 65 96. Fax +46 8 702 19 14. helena.lindemark@ramboll.se www.rambollnatura.se

The poster presents a comparison of the systems for EIA and SEA in South Eastern Europe (4-6 countries), with special focus on e.g.:

- Stakeholder involvement and public participation;
- Recent trends;
- Success stories and important lessons learnt.

Authors of the poster are participants from South Eastern Europe in the Advanced International Training Programme on EIA, arranged by Ramboll Natura AB (April 24 - May 26, 2006) and financed by the Swedish International Development Cooperation Agency (Sida).

EIA and SEA in Southern Africa

Lindemark, Helena; Ramboll Natura AB, P.O. Box 4205, Kapellgränd 7, Stockholm, SE-102 65 Sweden. +46 8 615

65 96. Fax + 46 8 702 19 14. helena.lindemark@ramboll.se
www.rambollnatura.se

The poster presents a comparison of the systems for EIA and SEA in Southern Africa (3-5 countries), with special focus on e.g.:

- Stakeholder involvement and public participation;
- Recent trends;
- Success stories and important lessons learnt.

Authors of the poster are participants from Southern Africa in the Advanced International Training Programme on EIA, arranged by Ramboll Natura AB (April 24 - May 26, 2006) and financed by the Swedish International Development Cooperation Agency (Sida).

Corporate Social Responsibility: A Simplified Study of the Social Management in Brazilian Companies

Lucena de Araujo, Germana; Polytechnic University of Valencia, Camino de Vera s/nº, Valencia, Spain. 00 55 81 9116 2901. germanalucena@hotmail.com

de Oliveira Junior, Dermeval Nestor; Polytechnic University of Valencia, Camino de Vera s/nº, Valencia, Spain. 00 55 81 9191 7107. derdeol@doctor.upv.es

Peris Mora, Eduardo; Polytechnic University of Valencia, Camino de Vera s/nº, Valencia, . 00 55 81 9116 2901. germanalucena@hotmail.com

The incorporation of social aspects into the decisions and strategic actions of companies has been a great challenge for the corporations of all sizes all over the world. By implementing a system of social responsibility management, the companies must follow a series of requirements (ethics in the negotiations with employees, clients and suppliers; responsible production; good working conditions; respect to the environment and integration with local communities, among others), getting as a result the construction of a sustainable economic and social development for the company and its surroundings.

The equivalent to 59% of all the companies in the country develop actions in benefit of the community. When it comes to the micro and small enterprises, the contribution is surprising: 54% of the companies that have between one and ten employees and 69% of those that have between eleven and one hundred employees have programs that benefit poor communities.

The social actions developed by the Brazilian enterprises can be analyzed under different aspect: about their nature, objective, acting focus, sector origin and the characteristics of the principal promoting agent.

The present work analyzes the social profile of the Brazilian companies and the several actions realized in the social context.

Development of Forest Resource Management and National Forest Protection Program (NFPP) and Its Influences

Ma, Chuo; CAF, 12-1-301 An Yuan, An Hui Bei Li, Beijing, 100101 CHN. 010-64960537. chuoma@yahoo.com.cn

China's forest sector began with the devolution of forest tenures in rural areas, but led to reform of state-owned forest enterprises. From the early 1990s to 1998, while China increasingly embraced the market economy, the nation's natural forests continued to be depleted despite repeated emphasis on sustainable development. Then, in the wake of the 1998 floods in the Yangtze River basin, there was a shift in focus from timber production to

environmental protection, with policy redirected toward the rehabilitation of damaged forest ecosystems, afforestation in desertified and degraded areas, and a ban on logging in natural forests. We provide an overview of the central themes of reform in China's forestry sector, identify the major factors that influenced policy formulation, and show that the outcomes of China's forest policy changes in the aggregate represent a paradigm shift. This paper examines the major changes in China's forest policy and National Forest Protection Program (NFPP). The policies have shaped institutional restructuring in forestry are highlighted, and the waxing and waning of the major forestry programmes are examined. It concludes with some observations about how the changes will affect the future of the Chinese forest sector.

How an Electric Distribution Company in Brazil Is Providing Electricity to 400.000 Poor Customers with the Minimum Environmental Impact

Marchesini Ferreira, Sandra Neusa; Companhia De Eletricidade do Estado da Bahia- Coelba, Av. Edgard Santos Nº 300- Narandiba, Salvador, Bahia 41186-900 Brazil. 55 71 3370 5852. Fax 55 71 3370 5142. Sferreira@Coelba.Com.Br

Bahia State is one of the least electrified in Brazil. The great challenge is to provide electricity to more than 400.000 rural customers not yet served, with a minimum environmental impact.

The poster will show how the company achieved this goal through the implementation of Cleaner Production. After identifying all the environmental impacts due to the project and construction of electric distribution circuits and all the legal requirements of the federal, state and local environmental legislation, the appropriate solutions were implemented:

Environmental training of employees and contractors directly or indirectly related to the program, as well as to some special communities, like indigenous, african descendants, island inhabitants;

Choice of the best path, avoiding native vegetation, rivers, special protected areas;

Reduction of the right-of-way width from 15m to 4m and implementation of selective cut of trees alongside the circuit path;

Use of insulated cables in secondary circuits (220V), among others.

After three years of implementation, the results are really excellent: less than 10% of the new circuits (among more than 1.000) need an EIA. The remaining 90% are constructed without cutting native vegetation, with the minimum impact."

Public Participation in the Management of Hydric Resources in Brazil

Marchesini Ferreira, Sandra Neusa; Companhia de Eletricidade do Estado da Bahia-Coelba, Av. Edgard Santos Nº 300, Narandiba, Salvador, Bahia 41186-900 Brazil. 55 71 3370 5852. Fax 55 71 3370 5142. Sferreira@Coelba.Com.Br

Brazil could be called a water country, with long and numerous rivers. 95% of the electricity comes from Hydro Power Plants. However, the best and biggest rivers are not so easy to explore as they were 20 years ago, due to the necessity to provide a sustainable development.

During the last 5 years, important and democratic laws have been prepared with a strong participation of the society, providing the fundamental tools to an efficient management of the hydric resources.

The main tool is the “basin committee”. The most famous is the “Saint Francisco River Hydrographic Basin Committee”. It’s divided into Technical Work Groups, Technical Chambers to prepare Plans, Programs, Granting and Collecting Criteria for the use of water. This giant river has a 2.700km length, and crosses 504 municipalities.

The committee has 60 members, distributed as follows: Federal Government (5), States (6), Federal District (1), Municipalities (8), Water Users (24), Civil Entities (16), including 01 for an indigene representative and 8 for NGO. The Environment Secretary of Minas Gerais, the president, has the same vote as Mr Antônio, a fisher member who is also a poet. This experience is a concrete and successful way of public participation.

Impact Assessment in Offshore Windfarm Projects

Nehls, Georg; BioConsult SH, Brinckmannstr. 31, Husum, 25813 Germany. +49 4841 6632911. Fax +49 4841 6632919. G.Nehls@bioconsult-sh.de www.bioconsult-sh.de

The German Government has set the goal to produce annually up to 85.000 TWh offshore wind energy by 2030. Due to the ambitious targets set in offshore windfarming, environmental impacts play a major role in public debates and concerns are expressed especially with respect to harmful impacts on birds and marine mammals. As a result extensive EIA studies have to be carried out before projects can be approved in German waters. In this presentation, we present scope and methods of EIA related to German Offshore Windfarm Projects concerning migrating and staging birds as well as marine mammals. The EIA contains a two-year field study in the planning area following a standard procedure presented by the German authorities. We outline two main conflicts, which are collision risk of migrating birds and disturbance of staging birds and marine mammals. We give an overview which data are necessary to evaluate offshore windfarm proposals.

EIA/SEA Training Programmes

Olsson, Anna; Ramboll Natura AB, Kapellgränd 7, P.O. Box 4205, Stockholm, SE-102 65 Sweden. +46 8 615 65 98. Fax +46 8 702 19 14. anna.olsson@ramboll.se www.rambollnatura.se

The poster presents Ramboll Natura's experiences with EIA/SEA Training Programmes as a tool for EIA/SEA capacity building in developing countries. The programmes have been conducted since 1998, and are financed by the Swedish International Development Cooperation Agency (Sida).

Ramboll Natura develops and implements:

- GLOBAL Training Programmes on EIA/SEA
- Bilateral Training Programmes for China (in collaboration with the Chinese State Environmental Protection Administration, SEPA)
- Regional Training Programmes for South Eastern Europe (in collaboration with the Regional Environmental Center for Central and Eastern Europe, REC)

The poster focuses on:

- Training Programmes as a tool for EIA/SEA Capacity Building (approaches, contents, participants, networking)
- Examples of post-training activities and results, internationally and in China.

EIA and SEA in Asia

Olsson, Anna; Ramboll Natura AB, P.O. Box 4205, Kapellgränd 7, Stockholm, SE-102 65 Sweden. +46 8 615 65 98. Fax +46 8 702 19 14. anna.olsson@ramboll.se www.rambollnatura.se

The poster presents a comparison of systems for EIA and SEA in Asia (3-6 countries), with special focus on e.g.:

- Stakeholder involvement and public participation;
- Recent trends;
- Success stories and important lessons learnt.

Authors of the poster are 4-6 of the participants from Asia in the Advanced International Training Programme on EIA, arranged by Ramboll Natura AB (April 24 - May 26, 2006) and financed by the Swedish International Development Cooperation Agency (Sida).

EIA and SEA in Africa

Olsson, Anna; Ramboll Natura AB, P.O. Box 4205, Kapellgränd 7, Stockholm, SE-102 65 Sweden. +46 8 615 65 98. Fax +46 8 702 19 14. anna.olsson@ramboll.se www.rambollnatura.se

The poster presents a comparison of systems for EIA and SEA in Africa (3-5 countries), with special focus on e.g.:

- Stakeholder involvement and public participation;
- Recent trends;
- Success stories and important lessons learnt.

Authors of the poster are 3-6 of the participants from Africa in the Advanced International Training Programme on EIA, arranged by Ramboll Natura AB (April 24 - May 26, 2006) and financed by the Swedish International Development Cooperation Agency (Sida).

Environmental Impact Assessment of Aircraft Noise Around Airports in Korea

Park, Youngmin; Korea Environment Institute, 613-2, Bulkwang-dong, Eunpyung-gu, Seoul, Korea. 82-2-380-7676. ympark@kei.re.kr

Sun, Hyosung; Korea Environment Institute, 613-2, Bulkwang-dong, Eunpyung-gu, Seoul, Korea. 82-2-380-7616. hssun@kei.re.kr

Chang, Seoil; University of Seoul, 90, Jeonnon-gong, Dongdaemun-gu, Seoul, Korea. 82-2-2210-2177. schang@uos.ac.kr

The noise pollution caused by air traffic is one of the popular environmental issues, which consistently gives rise to public discussion today, especially among local residents near airports in Korea. In this study we demonstrate how a consideration of the comprehensive land-use plan designed around an airport, including the estimation of population density, could improve the methods of noise impact assessment. A particular methodological tool includes the development of noise maps for several airports and their surrounding residential areas in order to identify quantitatively the influence of the aircraft noise based on the INM model. The map data indicates that the predicted noise levels would relatively reflect well what we expect from a direct measurement. In general, there is a growing tendency in Korea that large residential areas are constructed, due to a high population density, in flatlands around airports, which would have the negative impact of aircraft noise on local health. Therefore, we suggest that it is necessary to restrict a build-up of large residential area in the vicinity of airports where noise level exceeds 70 WECPNL in accordance with appropriate mitigation measures.

Research on Sustainability of Tehran's Transportation Network Against Earthquake

Parvizi, Mohammadreza; Planning and Budget office, 3rd Fl-No 48-9th Alley-Mahnaz Str, Abasabad Ave., Tehran, Tehran 15536 Iran. 0098-9121954110. Fax + 98-21-88950019. mr.parvizi@gmail.com

Transportation besides housing, working and recreation, is one of the substantial four urban functions. This activity is an affective and being affected on the other activities. Inefficiency and closing of network after earthquake is the biggest problem for assisting, and also it can increase the victims and damages. Tehran is recognized as a mega polis, more over, it is political center of Iran, and it can be a pattern for other mega cities. Therefore, only damages which will be happened in this city by natural disasters, could affect all over the country. Highways and streets of Tehran (it is more than 2000 km) have several problems in the peak hour, then certainly when the earthquake occurs, it will be critical conditions. Recognizing vulnerability and efficiency of Tehran networks, and manifesting improved solutions towards achieving sustainable transportation, is the main theme of this article. At first, set forth the damages which Tehran's network transportation will face against earthquake then will bring forward the solutions.

NWMO's Study of Approaches for the Long-Term Management of Used Nuclear Fuel in Canada

Patton, Pat; Nuclear Waste Management Organization, 49 Jackes Avenue, First Floor, Toronto, Ontario M4T 1E2 Canada. 416-934-9814. Fax 416-934-9526. ppatton@nwmo.ca www.nwmo.ca

Facella, Jo-Ann; Nuclear Waste Management Organization, 49 Jackes Avenue, First Floor, Toronto, M4T 1E2 Canada. 416-934-9814. Fax 416-934-9526. jfacella@nwmo.ca www.nwmo.ca

On November 3rd, 2005 the Nuclear Waste Management Organization (NWMO) delivered its recommendation to the Government of Canada concerning a preferred approach for the long term management of Canada's used nuclear fuel. The preferred approach, referred to as Adaptive Phased Management, emerged from a collaborative and iterative process of dialogue with Canadians. This poster will briefly outline the process the NWMO used to engage Canadians in discussion of this important public policy issue, and the recommendation which emerged from this process.

The NWMO designed its three-year study as a dialogue conducted iteratively over four phases. Each of these phases was centred around a key decision in the evolution of the study and iterative development of the preferred approach. The four phases were supported by a series of public discussion documents designed to: share what the NWMO had heard from Canadians to date; describe how the NWMO was incorporating that direction to the conduct of the study phase; and, solicit input to shape and direct subsequent steps in the study.

In total, more than 50,000 people expressed interest in the study by visiting the NWMO web site. The NWMO conservatively estimates that more than 18,000 citizens contributed.

Recasting the "Environment" in SEA to Explicitly Encompass Natural Hazards

Posas, Paula; University of Liverpool, Department of Civic Design, 74 Bedford Street South, Liverpool, L69 7ZQ UK. +44 (0)794 693 0509. posas@liv.ac.uk

While not always recognized or acted upon, SEA provides for systematically considering the dynamic (including natural events such as floods, hurricanes, and earthquakes) and stationary dimensions of the environment. The central question of this research is: are natural hazards being adequately considered in SEA generally and in Latin America in particular? This research will investigate the way academics and practitioners perceive natural hazards in the context of SEAs, examine how development bank-supported SEAs in Latin America are addressing natural hazards, and propose solutions for shortcomings associated with natural hazards in SEA as well as elucidate additional contextual factors in Latin America that impact SEA's effectiveness. Of particular relevance to this year's conference theme, a large part of the preliminary literature review has been devoted to issues of power and participation within the natural hazards context. As well, poverty and sustainability issues are intimately bound up with addressing natural hazards and environmental measures for their reduction. These areas will be highlighted. Methodologically, this research will develop an analytical framework and evaluation criteria for assessing natural hazards in SEA, honed and contextualized by a survey to be administered to willing participants at the 2006 IAIA Conference in Norway.

Cooperation Between Municipalities for Sustainable Development

Ramalason, Olga; Municipality of Antsirabe, Villa TIKO Mahafaly, Antsirabé I, Madagascar. (+261) 331180506. olgaramalason@wanadoo.mg

A brief introduction to Antsirabe's MIC-programme (Municipality International Cooperation)

Municipalities Antsirabé (Madagascar) and Stavanger (Norway) have entered into cooperation to contribute to sustainable development for the cities.

FK Norway and Stavanger municipality have entered a cooperation agreement regarding an exchange of volunteers. The project includes training in general environmental understanding, sorting waste according to source, ecological horticulture, and reuse and recycling schemes. Schemes to ensure clean drinking water will be considered, and simple sewage and drainage measures.

KS (Norwegian Association of Local and Regional Authorities) is part of the North-South cooperation between municipalities and local communities to develop and test methods for measuring sustainability.

There is also a preliminary project on democracy development between Antsirabé and Stavanger. This is an all-party project.

As part of the project, contact has been established between the research and university community and major business actors in the Stavanger region, and the equivalent communities in Antsirabé. The objective is to start processes for setting up educational and business activities as a follow-up of the measures of which the municipality will regard to water, drainage, waste collection, agriculture and construction. These processes are independent, but coordinated with the inter-municipality programme.

Sustainable (F)actors in Transport Planning

Savanovic, Emilija; Transportation/EIA Centre, Ministry of Transport, Public Works & Water Management, P.O. Box 5044, Delft, 2600 GA The Netherlands. +31 15 2518458. Fax +31 15 2518555. e.savanovic@dww.rws.minvenw.nl

Boonman, Petra; Transportation/EIA Centre, Ministry of Transport, Public Works & Water Management, P.O. Box

5044, Delft, 2600 GA The Netherlands. +31 15 2518563.
Fax +31 15 2518555. p.boonman@dww.rws.minvenw.nl

This poster presentation evaluates requirements and limitations of the SEA-Directive and the transport planning practice, in order to come to development of an approach that can help to achieve the objective provided in Article 1 of SEA-Directive: to promote sustainable development. The poster concludes that SEA could be an effective instrument to achieve sustainability if some, mostly methodological and organizational shortcomings, are overcome.

One of the important shortcomings is the current decision making process. Decision-making can be perceived as a game played by negotiating actors operating in informal and semi-formal forums. Those actors are related to each other because they are mutually dependent in order to reach their goals. This is why research goals of an SEA should respond to the demands of the involved actors and should not pretend to be all-embracing. In this way, actors are defining the research questions together, thus increasing the chances that all involved actors subscribe to the results of the research. To create support for a decision one needs to know which actors to involve in the decision making process. On the poster a method and a practical example is being presented.

Checklists for EIA and SEA Independent Quality Reviews

Sevic, Dusan; self-employed, Sunani Kej 37, Novi Sad, 21000 Serbia. +381 64 28 26 211. dusan_sevic@yahoo.com

This poster presents checklists for EIA and SEA independent quality reviews. These checklists are to be used primarily by environmental NGOs. The proposed checklists are the result of the author's work on independent IA quality reviewing for environmental NGOs, during which some common weaknesses of IA reports and processes have been discovered. They are designed in such a way to require very little previous knowledge on EIA or SEA by the users, and they focus more on the efficiency and transparency of the IA process, justification of decisions and follow-up guarantees, than on technical aspects.

The checklists focus on the synchronisation between the PPP design and assessment processes, timing for consultation and public participation and proper documentation of feedback and its influence on (political) decisions. They also focus on justification of decisions made in the assessment process itself, regarding data and methods used, significance ranking, alternatives and mitigation measures.

The checklists insist on tight mitigation, management and monitoring provisions through incorporation of comprehensive environmental management plans (EMPs) in the draft IA report, with clear and precise cross-references with alternatives, impacts and mitigation measures in the IA report, detailed provisions on methods, timelines, funding, responsibilities and independent monitoring.

Impact of Waste Oils on the Environment in Macedonia

Trajkovska-Trpevska, Magdalena; Tehnolab Doo Skdoje, PO Box 827 NB 113 St. J Savdovski, Skopje, Macedonia. +389 2 2448 058. Fax + 389 2 2448 058. magdalena@tehnolab.com.mk www.tehnolab.com.mk

Waste-oils are harmful wastes that could provoke dangerous and lasting disturbance in the total quality of the environment. Uncontrolled waste-oils release causes the biggest threat to the quality of the waters and soils. Additionally, their burn off affects the quality of air.

In order to consider the extent of environmental pollution from the waste oils release in Macedoni, the following investigations were performed:

identification of fresh oil consumers: import-export data analysis; determination of the waste-oil quantity according to the activity: comparison of the quantities of the oil supplied with those of collected waste-oil according to the activity

analysis of the waste-oils treatment

The investigations performed documented that the production of waste-oils from different activities is 3 580 t/y. A part of these oils (31%) is burned off; 21% of waste-oils is released uncontrolled to the environment, 17% is kept stored, while 31% is given to other subjects.

Obtained data suggests the conclusion that the waste-oils are important land serious pollutant of the environment. Thus, in order to prevent the disturbance in the environmental quality, it is necessary to make the changes towards the organized collection, storing and appropriate waste-oils treatment.

Capacity Building for Biodiversity Inclusive Impact Assessment

Treweek, Jo; CBBIA, Chancery Cottage, Kentisbeare, Cullompton, Devon EX15 2DS UK. +44 1884 266798. Fax0870 7622963. jo@treweek.fsnet.co.uk

This poster sets out progress and highlights from IAIA's Capacity Building for Biodiversity and Impact Assessment Project, which is funded by the Dutch Government.

These include results of situation or needs assessments in the Southern African and South/South East Asian Regions as well as feedback from some smaller projects.

Key requirements for biodiversity inclusive impact assessment which have been confirmed by CBBIA include:

- The need to understand how decision makers understand and use biodiversity information in order to influence their decisions
- The need for an outcome driven process with clear biodiversity goals
- The need for an ecosystem approach in which biodiversity values and the dependencies of people on biodiversity are clearly recognised and accounted for
- The need for further capacity at all levels of planning and assessment, but in particular in environmental economics

Most of all CBBIA has proved that small amounts of funding can achieve a lot if they are invested in well defined projects addressing a clear need.

Biodiversity Management in the Niger Delta Area of Nigeria

Ugochukwu, Collins Norberth Chinedu; Brandenburg Technical University Cottbus, Juri-Gagarin Strasse 1, Cottbus, Brandenburg 03046 Germany. +493558692700. Fax +49355694778. collinscu@yahoo.com

Environmental pollution arising from Oil prospecting and exploration in Nigeria has impacted negatively on the biodiversity of the affected areas. The main stresses arise from leakages of crude oil pipelines, gas flaring and other associated chemicals used in the production processes. The effects have been noticed on the flora and fauna of the freshwater ecosystems in this part of Nigeria. This paper would discuss the various impacts oil production have had so far on the biodiversity of this unique part of Nigeria,

efforts made so far by government, the oil companies and NGOs to remedy the situation and the way forward.

Capacity Building for Impact Assessment in Mongolia

Venn, Orlando; Treweek Environmental Consultants, 32 Ashton Crescent, Braunton, Barnstaple, Devon EX33 1RD England. 0044 (0)1271814028. orlandovenn@btinternet.com

Treweek, Jo; Treweek Environmental Consultants, Chancery Cottage, Kentisbeare, Cullompton, Devon EX15 2DS England. +441884266798. jo@treweek.fsnet.co.uk

King, Sarah; Steppe Forward Programme, National University Mongolia, PO Box 46/377, Ulaanbaatar 210646, Mongolia. +976 99287690. king_srb@yahoo.com

Steppe Forward Programme, a co-operation between the National University of Mongolia and Zoological Society of London has been operating within Mongolia with the aim of training conservationists for Mongolia's future.

The Programme has identified a number of shortcomings in the application of impact assessment in Mongolia. Problems arise from a lack of quality control and this is exacerbated by the scarcity of public consultation and the fact that Environmental Statements are never made public.

The Programme has recently won the backing of the Mongolian Ministry of Nature and Environment (MNE) and a World Bank Netherlands Trust grant to develop a training course for environmental consultants in Mongolia. The aim is to:

- Increase professionalism and ethics amongst Mongolian consultants;
- Provide a forum in which consultants can discuss common problems and ways forward;
- Use the initiative to develop a self regulating body (Mongolian Association of Environmental Consultants); and
- Encourage the MNE to run the course on an annual basis.

The first course is due to run in the last two weeks of March (2006) and the Session will provide a timely setting in which to present the progress of this initiative.

Adequacy of Proposed Ecological Mitigating Measures and EIA Guidelines For Coastal Resort Development in Malaysia

Vun, Leong Wan; Universiti Malaysia Sabah, Sepanggar Bay, Kota Kinabalu, Malaysia. +6088-320000 Ext 5787. bvun@ums.edu.my

Latiff, Abdul; Universiti Kebangsaan Malaysia, UKM, Bangi, Malaysia. +603-8921 4126. latiff@pkrisc.cc.ukm.my

Nordin Hassan, Mohd; Ensearch, Petaling Jaya, Petaling Jaya, Malaysia. 6-012-214-3125. monhrs@pop.jaring.my

In Malaysia, EIA procedure has been developed primarily as an aid to the environmental planning of new developmental projects or to the expansion of existing projects. Section 34A of the Environmental Quality Act 1985 requires that the EIA for prescribed activities to contain an assessment of the significant impacts as well as proposed mitigating measures to prevent, reduce or control the adverse impact on the environment. The proposed mitigating measures contained in 18 preliminary EIA (pEIA) for coastal resort development were reviewed for their ecological content. The current EIA guidelines for the preparation of these reports were also examined for their adequacy. It was found that ecological mitigating measures

recommended in all reports were not specific on the ecological details and requirements for their implementation. Also, not all significant ecological impacts identified were addressed and there was no evaluation of the feasibility of the mitigating measures proposed. These reports also neglected to provide economic evaluation of the design measures adopted in the project plan. The EIA guideline for coastal resort development was found to be ambiguous on mitigating measures as well. It fails to provide details about suitable methods for making evaluations and of the probable effectiveness of each measure.

Application of IA Tools in the Management of Environmental and Social Issues in Olkaria Geothermal Field, Kenya

Were, Joshua; The UNU Geothermal Training Programme, Grensasvegur 9, IS-108, Reykjavik, Reykjavik IS-108 Iceland. +354 569 6080/58. Fax +354 568 8896. jow@os.is

The Olkaria geothermal field is located within Hell's Gate National Park in the eastern branch of the African rift system in Kenya. Two geothermal stations with a total installed capacity of 115 MW of electricity are currently operating in the field. In the vicinity of the stations are commercial livestock ranches, floricultural and horticultural farms, and private sanctuaries. Located to the southern part of the field is Lake Naivasha, which is the second Ramsar site in Kenya and the only source of fresh water in the semi-arid region. The areas surrounding the field are inhabited with populations of diverse ethnic origins and social class including the indigenous Maasai community, who are pastoralists. The sensitive setting of Olkaria make management of environmental and social issues of power development of paramount significance. In this poster, the physical, chemical, biological and social issues and implementation of mitigation measures identified through impact assessment are presented. Incorporation of environmental requirements in the design of the infrastructure, improvement of social amenities, and regular stakeholder consultations that have ensured co-existence of geothermal power development with wildlife conservation and other social and economic activities in the area with a great measure of success are discussed.

The Optimum Role of Environmental Assessments in Long-Term Radioactive Waste Management in the United Kingdom

Wesolowski, Cassandra; University of Manchester, Planning Department, School of Environment and Development, The University of Manchester. Oxford Road, Manchester, Lancashire M13 9PL England. 0161 275 6887. cassandra.wesolowski@postgrad.manchester.ac.uk

The United Kingdom has been producing radioactive waste since the 1940s and there are significant holdings currently stored at 37 locations around the country awaiting a long-term management solution. There is currently a Government review into various management options but once an option(s) is selected there are still various planning issues to overcome. SEA and EIA are mandatory for certain specified developments and will be required for the development of a long-term radioactive waste management facility. Within a previous planning failure to build a rock characterisation facility to determine whether a site was suitable for building an underground waste repository, the Environmental Assessments were criticised for the lack of alternatives addressed, poor stakeholder involvement, and the ambiguity of the decision-making process. Other countries have been more successful in achieving a long-

term radioactive waste management facility, and there have been some controversial developments facing similar issues in the United Kingdom that have demonstrated good practice in the use of Environmental Assessments. This poster will show how research into the field will be undertaken to find the optimum use of Environmental Assessments, underpinned by stakeholder involvement, specifically for the United Kingdom.

Utilisation of a Power Line Corridor for Conservation of Biodiversity within an Urban Area: The Platteklouf Natural Heritage Site

Willemse, Douw; Eskom Transmission, 60 Voortrekker Road, Bellville, Cape Town, Western Cape 7551 South Africa. + 27-21-9159279. Fax + 27-21-9159261. douw.willemse@eskom.co.za

A power line corridor within an urban area within the Cape Town Metropolitan Area was registered as the first natural heritage site of the South African Department of Environmental Affairs in 1986. This site has secured a number of endangered plant species, it is a valuable environmental education site as well as an open public area for local residents. However, the management of this open area within a residential suburb poses unique challenges. Securing funds for the management of this site calls for company commitment to the triple bottom line commitment viz. social, environmental and economical requirements on the budget.

The PERS of Developing Multifunctional Administrative City In Korea

Yoo, Heon-Seok; Korea Environment Institute, 613-2 Bulkwang-Dong Eunpyeong-Gu, Seoul, 122-706 Korea. 82-2-380-7680. Fax 82-2-380-7622. hsyoo@kei.re.kr

Kim, Ji-Young; Korea Environment Institute, 613-2 Bulkwang-Dong Eunpyeong-Gu, Seoul, 122-706 Korea. 82-2-380-7677. Fax 82-2-380-7622. mithe@kei.re.kr

The Korean government decided to construct the multifunctional administrative city at the middle of the Korean Peninsula, to decentralize the population and functions in capital area.

In this process, SEA concept is adapted to make a Eco-City, which is included many environmentally friend factors such as high contact with nature and low impact to men as a concept of circular urban metabolism in the phase of the Land Use Planning.

In the process of decision making the land use planning, planning team and PERS team discussed for 7 monthes, and coordinated the best alternative of land use

For the constuction of Eco-City, we decided the conservation areas in analyzing the Eco-Axis (Green-Axis), Water stream (Blue-Axis) and Wind Corridors (White-Axis).

As the result, almost 50% of the developing area are suppose to be conservated physically, and the many sustainable developing strategies are adopted to the basic plan.

We hope that the Multifunctional Administrative City in Korea will be the good model of eco-city planning with PERS in 21th century.

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**International Association for
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International Headquarters

1330 23rd Street South, Suite C

Fargo, ND 58103-3705 USA

Phone +1.701.297.7908 • Fax +1.701.297.7917

info@iaia.org • www.iaia.org

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*Promoting good governance and corporate stewardship
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