

# IAIA MOROCCO

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ABSTRACTS VOLUME

THE ENVIRONMENTAL PROFESSIONAL'S FORUM  
BRINGING TOGETHER ENVIRONMENTAL DECISION-MAKERS,  
INDUSTRY AND COMMUNITY LEADERS, AND PROFESSIONAL PRACTITIONERS

# IMPACT ASSESSMENT & CAPACITY BUILDING

**Building Capacity for Impact Assessment**

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## **NOTES**

This volume contains the abstracts of papers and posters presented at IAIA '03, the 23<sup>rd</sup> Annual Conference of the International Association for Impact Assessment.

Abstracts received by the International Headquarters and with the presenting author registered in full on or before 15 April 2003 are included.

Abstracts are arranged in the approximate order in which presenters confirmed their participation via registration and/or revised abstracts were received. Key words and author indices are included at the end of this volume.

Abstracts have been minimally edited for grammar, spelling, and mechanics, and formatted for style consistency. Length in excess of 300 words was subject to deletion. Abstracts, contact information, and key words are otherwise reprinted as provided by the author(s).

POSTERS

**GISABILITY OF SEA** (poster)

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To what extent could GIS be a suitable tool for SEA? Strategic Environmental Assessments usually address a large geographical area and capture considerations from various disciplines, integrating ecological, economic and socio-cultural criteria. The data scale and level of detail are reduced. Sustainability indicators and broad concepts are used, such as energy consumption, spatial impacts, atmospheric and noise pollution, cultivable soils loss, etc. Could GIS be used to integrate all of them, providing a direct reference to the spatial context in which they occur?

Geographic Information Systems allow modelling, dynamic visualization, up-to-dates, etc., and offer a great capacity of data treatment. Could they be used to integrate the large amount of data of various natures (qualitative and quantitative, graphic and alpha-numeric) that have to be taken into consideration throughout the planning and decision-making process? Could GIS be used as a spatial analysis tool to represent and analyse for example the evolution of complex systems such as cities (spatial development or urban decline) and the effects of human action on the natural environment?

This poster tries to give an answer to all these questions and presents some conclusions on the GISability of SEA.

Key words: decision-making, geographic information systems, GIS, strategic environmental assessment, SEA

**LEARNING ABOUT SOCIAL CHANGE: USING SOCIAL IMPACT ASSESSMENT IN THE PLANNING/DECISION PROCESS** (poster)

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This poster illustrates the use of social impact assessment to help planners, change agents, elected officials and concerned citizens understand future opportunities and consequences in their community as a result of project implementation or policy change.

After a definition of social impact assessment and a history of its use in the planning process, the basic Social Impact Assessment Model is laid out. I provide visual examples of how an SIA matrix can be used in a variety of project and policy settings. Next the SIA scoping process is outlined as a way to identify likely social impacts (issues) based on past research and social assessments of similar developments and policy changes.

The content of the social impact assessment is made up of 28 social impact assessment variables, which have been found to explain change in a variety of project and policy settings. My measures of social impacts have been extracted from completed environmental and social impact assessments (including my own) and ex-post facto social science research on the response of rural and urban communities to external change. Next is a definition and ways of measuring and analyzing selected SIA variables, followed by demonstrations of significance and procedures for reducing the number of SIA variables. The use of different data sources for social assessments is also illustrated.

I illustrate a ranking procedure for the selection of significant SIA variables. Once identified, these SIA variables become the basis for mitigation, enhancement and management of the change process. Examples of mitigation and enhancement alternatives are displayed for a representative project. The poster concludes with the SIA key citation index.

**EIA AND GEOTHERMAL ENERGY IN ICELAND** (paper and poster)

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Geothermal resources in Iceland are closely associated with the country's volcanism and location on the Mid-Atlantic Ridge. Geothermal energy plays an important role in the energy supply providing about 50% of the total primary energy supply while hydropower provides 18%, oil 30% and coal 2%.

The principal use of geothermal energy in Iceland is for space heating but expansion in the energy intensive industry has been partly met by increased geothermally produced electricity.

A state institution, the Planning Agency, oversees the EIA process in Iceland. The chief environmental factors under consideration in the process regarding developments in geothermal areas are water resources and disposal, geologic factors, landscape and visual effects, tourism and recreation, vegetation, hot spring microflora and fauna, noise pollution, and air quality. These factors are scale and location dependent but the geothermal regions in many cases enjoy some form of a protected status and are sensitive and pristine areas. A clear governmental policy on protection and utilisation of high enthalpy geothermal regions in Iceland is not available but clearly essential in light of the increasing interest in their exploration and possible utilisation.

There are advantages in geothermal energy in comparison to fossil fuels, nuclear energy and hydro-electric power. However, question marks regarding the renewability of geothermal reservoirs linger as well as a tendency to underestimate other environmental effects pertaining to geothermal energy utilisation.

The paper will address the following points in view of the EIA experience on geothermal energy plans in Iceland:

- Geothermal energy utilisation, statutory environment in Iceland

## IAIA '03 Abstracts Volume

- Location dependent environmental factors: Small scale projects-irreversible effects
- EIA as a basis for sound decisions: The importance of comprehensive assessment at an early stage
- Case studies

Key words: geothermal energy utilisation, geothermal resource management, EIA, location dependent assessment

### **CUMULATIVE SOCIAL EFFECTS IN THE ATH-ABASCA OIL SANDS: SOCIAL IMPACT ASSESSMENT IN A MODERN-DAY BOOM TOWN** (poster)

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This research explores the relationship between social impact assessment (SIA) and social services planning and delivery in the oil sands mining city of Fort McMurray, Alberta, Canada. These oil sands have been described as one of the world's most valuable resource bodies. Indeed, over 177 billion barrels of oil make it one of the largest known proven oil reserves. The infrastructure required to harvest this resource, however, is both capital and labour intensive, and has tremendous impacts on both the environment and the human communities that are in the area. While development has occurred in a boom and bust cycle since 1964, the most recent wave of development has been the most intense. More than \$60 billion in capital investment will occur over the next ten years. As a result, there have been significant cumulative social and economic impacts on Fort McMurray, and it is expected they will continue into the future. Studied here will be the continuous stream of SIA reports that have been produced since oil sands development started in the area, the data that has been collected, the mitigation measures recommended, and how these aspects of SIA have contributed to the social planning and delivery process in Fort McMurray. The input of representatives from the oil sands industry, local and provincial governments and NGOs, and SIA practitioners will be used to describe the current situation and to offer insight into the future roles of SIA in planning in both Fort McMurray, and other single-industry communities.

Key words: social impact assessment, cumulative social effects, Athabasca oil sands, social planning, social services delivery

### **ENVIRONMENTAL ASSESSMENT CAPACITY BUILDING THROUGH REGIONAL NETWORKING AND EXCHANGE IN EASTERN AFRICA** (poster)

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Since the high level meeting of the African Ministers Conference on Environment that deliberated on EIA capacity enhancement in Africa, further consultations and several initiatives on Environmental Assessment (EA) capacity building for

Africa have been undertaken. They include Yamoussoukro meeting (1996), Nairobi stakeholders meeting (1998), programme development for capacity enhancement for EIA in Africa (1999), the Hague meeting of African representatives and donor community (2000), CLEIAA initiative (2001), Gobabeb consultations (2002) and several sub regional consultations.

In all the initiatives, strengthening of networks of EIA professionals is identified as important means for addressing African EIA capacity building needs. Professional networks are important means for capacity building through supporting exchange of information, knowledge, expertise, lessons, establishment and use of roster of vetted EIA experts, thus facilitating capacity building and enhancing effectiveness of EIA.

Eastern Africa Association for Impact Assessment was established in 2001 to support EIA capacity building and strengthening EIA practice in the sub-region. The poster will explain the purpose, activities and challenges in establishment of the network and strengthening its activities.

Key words: EIA capacity building, networking, exchange

### **ADAPTING STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR INTEGRATION IN DIFFERENT PLANNING SYSTEMS** (poster)

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The poster aims to describe and represent a PhD research project currently being developed at the Department of Civic Design of the University of Liverpool, in the UK.

The research project aims at identifying the most appropriate form of integrating SEA in different planning systems. In this context the focus is on two main objectives of SEA: how to support decision-making for sustainable development and how to strengthen and streamline project EIA.

The project is based on the following two main assumptions:

1. the way in which environmental assessments should be conducted within a planning system depends on the specific ingredients and rules of this system
2. problems connected with introducing strategic environmental systems (SEA) are mainly due to a lack of effective integration of the "environmental component" within development processes

The core hypothesis is that the implementation of strategic environmental assessment (e.g., EU Directive 42/2001/EC) needs to be done in a flexible manner, adapting to the needs of existing planning and decision-making contexts.

Key words: SEA, EIA, sustainability, SEA directive, different planning systems

### **CUMULATIVE IMPACT ASSESSMENT THROUGH WATER QUALITY PARAMETERS IN PATZCUARO WATERSHED** (poster)

## IAIA '03 Abstracts Volume

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The Patzcuaro Watershed is located between 19°15'-20°00'N and 101°30'-102°00'W, 350 km away from Mexico City. The lake is considered a mature lake and humans have inhabited this area since pre-Columbian times. Nowadays the lake is in a rapid process of desiccation caused by unplanned human activities. This study determines the changes in environmental quality through environmental Impact Assessment Methodologies. We developed an integrated environmental assessment using Simple Checklist, Pondered Criteria Matrix, Networks and Environmental Changes Simulation Model (KSIM). Loss of old forest coverage was calculated to be around 50% in 20 years, and erosion causes an average loss of soil of about 10 ton/acre per year. Hydrophilic vegetation has substantially increased (30% in 5 years) and the lake surface has decreased from 23,000 acres to 15,000 acres in 20 years and the volume of the lake has decreased dramatically from 500 Million m<sup>3</sup> to 240 Million m<sup>3</sup>. Water quality indicators (nutrients, total solids, etc.) have increased up to one order of magnitude. Organic matter in sediments averages over 15%. Fisheries of endemic and introduced species have fallen dramatically since 1996. The causes of this loss: unplanned urban sprawl (has caused loss of soil and produces waste waters that are not treated and also solid wastes that are not disposed of properly), clandestine forest cutting (represents 50% of the total wood commercialized), and changes in cultural habits of peasants. It is obvious that to stop damage, mitigation measures have to be implemented: erosion has to be stopped, waste waters have to be treated, urban growth has to be planned, a regional landfill has to be constructed and a forest management program has to be developed, all of which has to be done simultaneously. However, this plan has to begin with an environmental education program.

Key words: water quality, water quality indicators, pondered criteria matrix, environmental changes simulation model

### **LENDING FOR THE ENVIRONMENT? STRUCTURAL ADJUSTMENT LOANS FOR ENVIRONMENT IN LATIN AMERICA (poster)**

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The Latin America region of the World Bank has taken the lead in developing structural adjustment lending instruments targeted toward the environment. These loans focus on establishing the policy for mainstreaming environmental variables into economic sectors such as energy or tourism, and to ensure sustainability of resources such as water or forestry. The goals of the loans are to mainstream environment into the relevant ensuring that environmental issues are considered in their planning and implementation processes. The poster will present two case studies.

Key words: World Bank, lending, environment, structural adjustment loan, mainstreaming

### **EIA ON WATER SUPPLY PROJECT IN SW-ICELAND?** (poster)

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The project is based on construction of water supply for Kopavogur, a town of 25.000 inhabitants in SW-Iceland. The construction consists of four approximately 100-meter-deep boreholes, building of a 800 m<sup>3</sup> water reservoir and installation of up to a 10-km-long pipeline from the Heidmork nature reserve area. Honnun was the consultant for the EIA project and the designer for all the water supply facilities.

The water supply is located 6 km outside Kopavogur, in a nature reserve where postglacial lava landscape with scanty vegetation is dominating. The area is preserved due to special flora, fauna, archaeological remains, forestry and landscape diversity. The area also plays a crucial role in water management as a water protection area for up to 150.000 people, including Reykjavik, the capital of Iceland. Exploitation of potable water in the area has been ongoing from 1919.

The main catchment area is approximately 200 km<sup>2</sup>. There are strong orographic effects in the hills and mountains, resulting in ample precipitation or up to 3000 mm/year. The exploitation area is in a postglacial lava field where the last volcanic eruption occurred in the 14th century. Very porous lava fields along with fissure swarms makes the area very favourable for harnessing natural drinking water from the groundwater.

Because the proposed water supply is located in the preservation area, the constructor has to be extremely cautious to minimize risk of contamination. The main environmental impacts:

- Impact on other water supply areas
- Changes of water protection areas
- Visual impact
- Changes in vegetation cover
- Risk of contamination

Several agencies were consulted during the EIA process along with the Planning Agency that makes the final decisions. The project is currently ongoing.

Key words: EIA, water supply, protection area

### **PUBLIC PARTICIPATION WITHIN THE EIA PROCESS (poster)**

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Environmental Impact Assessment (EIA) is a process which identifies the environmental impacts of a project and proposes mitigation measures to reduce these impacts. At the initial design stage, EIA should be used to identify locations for siting a proposed development. These alternative locations must be led by reference to environmental criteria such as landscape and visual impact, ecological considerations, cultural heritage etc., and guided by practical considerations such as land availability and suitability, construction and operation of the proposed development.

When a preferred site has been selected using the criteria mentioned above it may still not be the site that is developed due to public opinion or landowner's consent. Thus, after undertaking a rigorous process, the chosen site which is the preferred site for environmental reasons may not be selected. This can lead to the viability of the EIA process being questioned.

When should the public be involved in the decision-making? The more informed the public are via exhibitions and liaison groups, theoretically the more positive the outcome will be. However, depending on the project type it is hard to overcome the Not In My Back Yard attitude (NIMBY). When people are in doubt or unsure of the proposal they will object and this is an inadequacy of the EIA process.

Public concerns need to be addressed at an early stage in the design process; however, a workable scheme with a number of alternatives needs to be produced before presenting it to the public. Whilst all issues can be addressed, if the proposed development evolves as a result of consultation and the proposed development presented to the public is acceptable, then surely this must be one of the main benefits of the EIA process.

This poster demonstrates this process by reference to a number of case studies in the UK.

Key words: public, consultation, alternatives

### **SEA AND SUSTAINABILITY APPRAISAL (poster)**

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This poster will present a practical tool (the Sustainability Matrix) for appraising the sustainability of policies, plans and programmes within strategic environmental assessments. The author developed the technique for use in the United Kingdom (MOD Appraisal Handbook for Sustainability and the Environment). It was subsequently incorporated in the SEA of Water Use in Catchments (South Africa). It is now being used in the SEA of the Poverty Reduction Strategy (Ghana).

The technique can be used in all tiers of SEA. It examines policies against selected biophysical, social and economic criteria, and uses group discussion to determine appropriate performance scores. It is an interactive tool designed to improve policies through mitigation and enhancement. Indicators are included to assist with subsequent monitoring and evaluation.

Key words: SEA, sustainability appraisal, matrix, performance scores, indicators

### **QUANTITATIVE ASSESSMENT BASED ON DECISION-MAKING PROGRAM IN DETERMINATION OF ENVIRONMENTALLY FRIENDLY ROUTES (poster)**

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The planners tend to prefer the most economic route in road constructions because the alternatives are usually compared by their quantitative values in terms of economy. However, the evaluation of environmental values cannot be easily quantified or indexed. In addition, it is highly difficult to evaluate the absolute values of diverse and proper ecosystems. To determine the optimal and environmentally friendly route, this study introduces a new approach to quantify environmental values. As significant influencing assessment categories in determining the optimal route, 6 assessment categories among 23 were defined as essential independent variables such as topography / geology, fauna / flora / vegetation, land use, noise, air quality, and water quality. Analytical hierarchy process (AHP) method is applied to quantify selected categories whose values were immanently qualitative as well as incomparable. The result indicated that weight-values of the categories were different from each other. The highest weight-value was 0.38 for fauna / flora followed by topography / geology (0.22), water quality (0.16), noise (0.09), air quality (0.09), and land use (0.05). In addition, the result showed a tendency of change in factor-dependent weight-value, in which the weight-values were higher for natural environmental factors than those for artificial factors. The logical structure for AHP consisted of alternative route plans, assessment categories and determination of optimal route. For the practical use of this result, a GUI-based computer program was developed, and the validation of the program was also conducted. The result of its application showed that the determination of the optimal route was highly acceptable and reasonable. The application of the program can be used as an efficient decision-making tool because of its fast and comprehensive evaluation process.

Key words: road construction, AHP, quantitative, environmentally friendly route



**COMPARISON OF TWO IMPACT MATRIX APPROACHES IN ASSESSING A WATER SUPPLY DAM IN MEXICO (poster)**

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RIAM (Rapid Impact Assessment Matrix DHI, 2000) and Conesa Matrix (2000) were used to assess a 360 ha water supply reservoir project, with a 138 km distribution pipeline, under planning stage in central Mexico in order to identify and describe its main environmental impacts. Using RIAM, impacts were scored in terms of its importance, magnitude, permanence, reversibility and cumulative effects. Final scores classified impacts from major positive to major negative in a scale from 72 to 108. Environmental components were classified as 15 physic - chemical, 21 biological - ecological, 27 social and cultural factors and 7 economic operational. When these components were reviewed against the 38 main project activities, 50 impacts resulted negative with just two in the higher score (landscape modification and biological corridor interruption). Twenty impacts were positive, with aquifer stabilization the main positive impact due to groundwater substitution by reservoir operation in terms of physic and economic parameters. On the other hand, Conesa classified impacts as non-significant <25, to critic >75, either negative or positive, according to criteria such as impact nature, intensity, persistence, importance, reversibility, mitigation, and cumulative condition. The final balance using this matrix resulted in 390 negative impacts, 281 of them in the moderated range (25 to 50 points) 103 non-significant and 6 severe. Positive impacts were related again to aquifer recovery, as well as local economy and employment. Both methods proved very useful in terms of screening impacts and updating scores, when more project or site information become available, since each score record can be reviewed, justified and changed. Nevertheless, it is still difficult to avoid uncertainty and subjective judges in scoring impacts, mostly in terms of environmental and cultural values, as well as impacts duplication, even when both matrixes were applied and reviewed under the same criteria.

**EVOLUTION OF EIA SYSTEM DURING ECONOMIC TRANSITION FROM DEVELOPING TO DEVELOPED COUNTRY: KOREA FROM the 1970S TO 2000 (poster)**

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Korea is one of the countries whose rapid economic growth has been accomplished within a relatively short period during the late 20<sup>th</sup> century. The faster economic growth and urbanization progressed, the more negative environmental impacts resulted. As economic development was begun in earnest by strong leadership of a central government in the 1970s, environmental impact assessment (EIA) was also initiated. The Korean EIA system has been developed along with the growth of economic scale, and the process of its development can be divided into 4 stages such as Introduction, Intermediary, Settlement and Expansion stages. Related laws were enacted or amended as the assessment categories were also enlarged at each stage.

During Introduction stage (1977 to 1982), the Environment Preservation Act was enacted to initiate EIA and its statement review. A total number of assessment categories were changed from 3 to 10 subjects. However, EIA had been executed improperly because of insufficient enforcement decree at this stage. Basic Environmental Policy Act had been enacted and amended in the Intermediary stage (1983 to 1992). Subjects of EIA were subdivided in detail into 47 projects in 15 categories. This period was also the phase characterized by the introduction of public participation. The period of 1993 to 1998 is defined as the Settlement stage in the Korean EIA system. Environment Impact Assessment Act legislated in 1993 introduced the scope concept, the obligation of public hearing procedure and the inclusion of military works for the subjects of EIA. The subjects were expanded to a total of 63 projects within 17 categories. The Korean EIA system is now in the Expansion stage, distinguished from others by enactment of an integrated act, "EIA Act on Environment, Transportation and Natural Disaster," in 1999. In this study, the evolution of the Korean EIA system as well as future developmental direction is discussed.

Key words: evolution history, developmental stage, Korean EIA

**CAPACITY BUILDING PROGRAMS FOR INDIGENOUS PEOPLES IN LATIN AMERICA (poster)**

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*Objective*

To enhance lowland Bolivia and Ecuador indigenous leaders' knowledge and to improve their management in their interactions with the oil and gas industry working in fragile environments.

### Outputs

1. Benefited 62 representatives of indigenous peoples; 14 were trained as instructors to disseminate lessons learned within their communities.
2. Development of training materials.
3. Specific recommendations to improve future training.

### Conclusions

- A critical outcome of the two phase training in Bolivia has been the creation of the UThERs (Technical Hydrocarbon and Rural Electrification Units) within the regional organizations of CIDOB, to deal with matters concerning consultation, participation and impact-mitigation issues.
- The training program has raised the need within the CONFENIAE in Ecuador to create a Technical Unit that will be in charge of preserving the knowledge acquired during this and future training programs.
- The three stakeholders (government, industry and indigenous peoples) have requested that this training program be extended to all Amazonian countries where there is hydrocarbon development.

### Indigenous Peoples Participatory Capacity Building in Development

#### Objectives

To help indigenous peoples improve their capacity for identifying needs, selecting development priorities, and formulating strategies and proposals that could be implemented using their own resources and those from donor agencies.

#### Outputs

- 15 large scale training projects on broad development issues in 12 countries; over \$2 million in IDF grants (average \$150,000) invested; and approximately 1,500 people trained.
- 10 small scale training programs in 8 countries on micro-enterprises, with emphasis on youth and gender; about \$250,000 (average \$20,000) invested; and over 200 people trained.

#### Conclusions

The Capacity Building Program is achieving its main objective of strengthening indigenous peoples organizations, particularly their ability to formulate their own development strategies and to prepare project proposals, based on their own cultural values, organizational structures, production systems and technology level. On the short term, this new skills will help them access investment resources both at the local, national and international level. On the long run, this program will contribute to national development, empowering indigenous peoples and promoting cultural diversity.

Key words: indigenous peoples, Latin America, capacity building, development, hydrocarbon industry, environmental and social impacts

### HEALTH IMPACT ASSESSMENT AND CAPACITY BUILDING IN A NEWLY INDEPENDENT STATE: THE CASE OF AZERBAIJAN (poster)

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The city of Sumgayit, Azerbaijan, was a major centre of industrial production for the former Soviet Union. Ineffective occupational and environmental pollution controls, however, resulted in high-level exposures being experienced by factory workers and residents of the city, leading to a public perception that human health has been negatively affected by these exposures. Following the conduct of jointly-funded United Nations Development Programme (UNDP)-World Health Organization (WHO) environmental epidemiology training courses held in the country, an international collaborative research project was conducted, addressing two objectives: 1) to quantitatively assess the suspected negative health impacts of exposures from Sumgayit industry through an epidemiological study, and 2) to actively involve local professionals in the conduct of the study, thus strengthening local capacity for health research. The epidemiological study calculated cancer incidence and mortality rates for selected sites (larynx, lung, bladder, female breast, all cancers combined) in Sumgayit over the period 1980-2000, and compared them to several populations, both within Azerbaijan and internationally. Results supported a link between negative health effects and Sumgayit industry, identified important issues for health data quality, and confirmed the need for more capacity building in epidemiological research and risk/impact assessment. In response to this need, the WHO, University of Alberta (Canada), and UNDP are developing a manual providing guidelines and a toolkit for the conduct of health research. The manual incorporates feedback from Azeri medical students, teachers, and researchers and utilizes the Sumgayit project, in case-study format, to facilitate research under the challenging conditions present in a Newly Independent State. Its content is not country-specific, however, and could be appropriate not only to Azerbaijan, but to other Newly Independent States, and perhaps other regions of world as well. The model of building local capacity through an international collaborative approach is, from our collective experience, worthy of generalization.

Key words: capacity building, health impact assessment, newly independent state, cancer

**DISCUSSING THE EXPERIENCE OF THE STRATEGIC ENVIRONMENTAL ASSESSMENT ON THE WINTER OLYMPIC GAMES PROGRAMME “TURIN 2006 (ITALY)” (poster)**

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The poster will exhibit a synthesis of the Strategic Environmental Assessment (SEA) process implemented on the Winter Olympic Games Programme “Turin 2006.” In 2001 a multidisciplinary group of researchers of the Turin Polytechnic worked out the ex-ante “Environmental Assessment Study of the Olympic Games Programme” that represents the first practice of the SEA procedure after the recently adopted EU SEA Directive. In Italy this experience is the first experimentation of the SEA process application and, moreover, a well considered test of the new procedure feasibility due to the extraordinary complexity of the Olympic Game programme. The aim of the poster is to represent the procedure, the approach and the tools of the strategic assessment in the regional planning decision making process, with special attention to the problem of assuring the touristic activity sustainability. The presentation of this case study can be used to promote the discussion about the capacity to improve the developing of the SEA procedure in regional planning practices. In the poster, according to the total dimension of the panels available, will be shown some graphics, maps, tables summarising the main methodological aspects of this “Environmental Assessment Study” with particular focus on the following topics:

1. Territorial context of the Olympic Games - Turin and the mountain valleys
2. Roles of the public actors in the SEA process
3. Goals of the Environmental Assessment Study on the Olympic Games Programme
4. Environmental assessment criteria
5. Sustainability indicators
6. Analysis of Local Plan content and relationship between Olympic Game Programme and local policies implementation
7. Mitigation, compensations and integrated policies improvement towards sustainability of the development process
8. Projecting, decision taking, implementing and monitoring scheduling at 2001 and 2003
9. Monitoring actions: prescriptions and performing criteria
10. The follow-up on the decision making process in implementation: the “sustainable mobility plan”

Key words: strategic environmental assessment, regional planning, local territorial development, sustainable development, sustainability indicators, sustainable tourism

**HIGH ON GRASS** (poster)

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The poster will present the results of a program to build capacity in unskilled women in the Eastern Cape whilst simultaneously rehabilitating the civil engineering construction sites in a sustainable manner. The methodology and results will be displayed and explained.

Key words: grass rehabilitation, civil engineering construction sites, capacity building unskilled women, encouraging sustainable development, Eastern Cape South Africa



## PAPERS

### **POLICY ASSESSMENT FOLLOW-UP: SOME LESSONS FROM EUROPE**

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This paper presents the findings of a research project conducted in 2002 on three transport policy assessments from the UK, the Netherlands and Germany. These were previously identified as good practice strategic environmental assessment (SEA) cases in a comprehensive research project in 1996/1997 (see Fischer, 2002). They include the Urban Transport 'Plan' Berlin, the regional transport 'plans' Noord-Holland - now Provincial Transport 'Plan' Noord-Holland - and the Merseyside Integrated Transport Strategy - now Merseyside Local Transport 'Plan.'

The main aim of the research project was to show what has happened over five years to the three chosen cases in terms of the overall implementation process and in terms of keeping overall policy goals consistent. In this context, the main research methods applied were interviews with different stakeholders and a desk study of documentation provided by policy makers.

It was found that political changes led to some substantial alterations, not only in terms of policy context, but also in terms of policy aims, objectives and proposed actions. Based on the findings, it is suggested that there is a need for formulating long term policy goals differently from what has been practiced to date, if policy making is to become more sustainable. To some extent, policies should be detached from the often rather short-term political decision cycle.

Key words: policy assessment, follow-up, transport, strategic environmental assessment

### **BEYOND CONVENTIONAL IMPACT ASSESSMENT OF LANDFILLS IN HONG KONG: PROBLEMS OF MASS, TIME, AND SPACE**

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Landfills are integral parts of sustainable waste management systems and usually subject to environmental impact assessment. They act as ultimate sinks of society's material flows, but their long-term behaviour is not well known. This paper discusses the long-term impact and viability of landfills in the context of Hong Kong. Hong Kong is a highly developed metropolitan region where technical and economic advances have made it possible to support 6.9 million people on 110 km<sup>2</sup> of built up land, resulting in one of most compact and most densely populated cities in the world. But due to Hong Kong's limited land area, the annual waste generation per unit area is exceedingly high: 12,500 t/km<sup>2</sup> for the total land area, and almost 115,000 t/km<sup>2</sup> for built-up areas, much higher than in any other city in the world. Hong Kong faces therefore serious

challenges in the future with regard to finding adequate waste sinks. Instead of applying conventional environmental impact assessment of landfills on a project basis, this study uses the concept of urban metabolism to evaluate long-term implications in waste management. The following key factors will be analysed:

- Special features of Hong Kong: historic development, area, population, economy, land price
- Mass: Total amount of waste generated and how it relates to the total amount of material resources consumed (urban metabolism)
- Time: Change of total amount of waste over time as a function of economic development and for how long does waste remain waste (urban indigestion)
- Space: Total space required to safely store waste for as long as needed and how can technology reduce the space required (quarantine of waste)
- Special issues: Limits of material circulation and recycling, trans-boundary effects, reversal of source and sink, costs, criteria for sustainable waste management, applicability of strategic environmental assessment (SIA)

Key words: Hong Kong, impact assessment, landfill, long-term impact, urban metabolism, waste management

### **SCOPED IN FOR THE WRONG REASONS? ADDRESSING HEALTH FEARS IN THE EIA OF ELECTRICITY TRANSMISSION PROJECTS**

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Scoping is understood to be the process of identifying those issues that are considered sufficiently significant to need addressing in detail by the EIA process. It is generally assumed that scoping is carried out in line with the 'techno-rational' basis that EIA as a whole is taken to have, and is therefore driven by scientifically based criteria.

It is debatable, however, to what extent the scoping phase, which defines the content of ensuing steps of EIA, relies upon such a rational basis. The case of environmental statements for electricity transmission projects provides an interesting perspective on this question.

In the United Kingdom, environmental statements prepared for electricity transmission projects consistently include amongst the effects for which a full impact prediction is carried out the electro-magnetic field strength that is likely to be emitted from proposed overhead power lines. Reference is explicitly made to the alleged health risk associated with prolonged exposure to electro-magnetic fields. But scientific evidence in support of this risk has been lacking; indeed, the findings of extended international research are often quoted to this effect. A topic area that should, according to the tenets of EIA, be scoped out, is consistently given extensive treatment. This is justified on the basis of the acute public concern which persists around the possibility of risks to human health.

The inclusion of electro-magnetic fields as a substantial issue in environmental statements is therefore an example of EIA addressing a wider public concern that is not supported by expert opinion. It suggests that a context is required for understanding EIA that relies less on techno-rational assumptions and is more accommodating of wider social understandings of the environment.

Key words: EIA, electricity transmission, public concerns, electro-magnetic fields

## **PERCEPTION FROM TOURIST VERSUS ENVIRONMENTAL VALUE: AN ENVIRONMENTAL VALUE METHODOLOGY**

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In this work we have shown the existence of a logic correlation between ecosystem quality and human perception of it and consequently the estimated non-use value has been calculated. The value obtained applying a minimum (2%) discount rate to the non-use value (71,19 €/ha) is an indicator of the minimum benefit the Park Agency has to obtain to change the soil use. This value can be correlated with a quality qualitative index: Landscape Quality Index.

The tourists traveling and daily costs to reach and stay in Conero Park have been estimated through the interview method: a meaningful sample of tourists (1% of the average total daily tourist flux) during 2000 and 2001 has been analysed. The traveling and daily costs have been then evaluated with respect to the control: an equivalent tourists sample interviewed in a neighbouring area, outside the Conero Park, characterized by a strong anthropization (urban land cover > 50%, Urbanization Index > 0,5).

Thanks to this estimation method, it has been possible to obtain the non-use value per person. The interviews permit the correlation between the tourists' Perceived Environmental Quality and the real environment state measured by two indicators

Urbanisation Index and Landscape Quality Index. Results show a value of 19,55 € more a day per person with respect to the control. From this value we can estimate the non-use value (obtained once the average number of tourists per year enjoying the park is known) as 1762,16-2467,02 €/ha per year. This value can be used as impact cost in a CBA.

This value can be used as support to EIA and SEA and as an important indicator of environmental quality tourist demand.

Key words: environmental quality and perception, environmental value, public involvement, evaluation

## **THE SOCIAL IMPACT OF A CONSTRUCTED WETLAND: A CASE STUDY OF THE TOLLGATE WETLAND**

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Constructed wetlands are engineered systems designed to simulate natural wetlands so as to exploit the water purification functional value for human use and benefits. A case study analysis was conducted to evaluate the social impact of a constructed wetland designed for storm water control on its surrounding neighborhood. Situated in Lansing, Michigan, the Tollgate constructed wetland began operation in 1997 on a 12-acre site located in a residential neighborhood established in the 1950s. Of particular interest was the perceived and real impact of the constructed wetland on neighborhood residential property values. Other studies have reported a positive "proximate effect" on property values due to the presence of water bodies such as lakes and natural wetlands or open spaces such as public parks. Would a constructed wetland result in a similar positive proximate effect on property values? The study employed a mixed method approach including hedonic price analysis, in-depth interviews with local real estate experts, and a survey of residents living within 1500 feet of the wetland.

The hedonic price analysis revealed that the constructed wetland was not a driving factor in determining the sale price of residences in the neighborhood. Structural characteristics of residences (e.g., number of bathrooms) were far more influential factors, with the impact of the wetland on home sales price being negligible. While real estate agents did not believe that the constructed wetland impacted on property values, they did identify an indirect benefit stemming from the wetland's role in enhancing the "quality of life" of the neighborhood. The neighborhood residents perceived both a positive impact on the value of their property and other social benefits arising from the wetland. The residents primarily derived value from the wetland because its design encourages recreation. The study illustrates the important distinction between price and value.

Key words: constructed wetland, property value, social impact

## **USE OF POLICY ENVIRONMENTAL ASSESSMENT TO EVALUATE BIODIVERSITY POLICY**

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Since the 1960s, biodiversity conservation has grown in importance, resulting in the development of a host of relevant policies. Biodiversity conservation policy-making has concentrated on the development and implementation of policy, with limited efforts focused on the evaluation phase, the end result being a gap in the policy cycle at a critical stage. In response to this existing gap, an evaluative framework has been developed based on the principles of policy environmental assessment. The framework was designed to address the complexities found in the conservation of biodiversity. Following framework development, the appropriateness and user-friendliness of the framework was tested via application to a number of natural resource management policies in Western Australia. The application process, which included analysis of the selected policies via use of the framework and face-to-face follow-up interviews with key policy-makers, was completed by a group of purposively selected policy workers from government organizations, non-government organizations and academic institutions.

Key words: policy environmental assessment, policy evaluation, biodiversity, evaluation framework

#### **AN INVESTIGATION OF THE CONSIDERATION OF HEALTH WITHIN PLANNING IN WALES**

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Despite increasing experience in Health Impact Assessment (HIA) in Wales, it has no legal status and there are concerns about the degree to which health is considered in both land use plans (unitary development plans) and in development consent decisions by local authorities. Research was carried out to determine whether these concerns were warranted and, assuming they were, to recommend actions which could bring about better consideration of health issues.

A questionnaire survey was carried out of the main actors involved in planning within Wales, including, within local authorities themselves, the directors of development control, the unitary development plan, environmental health, social services, waste and education. External to the local authorities, questionnaires were sent to health professionals and external consultees in the planning process including the Environment Agency. Based on preliminary findings, a key practitioners workshop was held with invitees representing most of the above groups and also the Welsh Assembly Government.

Both the questionnaire survey and the key practitioners meeting indicated that there is expertise in terms of assessing health impacts, and awareness of potential health issues associated with development within the planning profession. However, a number of deficiencies were identified in the way in which health is considered within planning and key among these were: the importance of health as a criterion to be used in making decisions was not universally accepted; a disparity between those organisations with expertise on health impacts and those who were routinely contacted for advice; internal consultees within local authorities had variable knowledge of health issues associated with development and; the competence of all groups within local authorities to properly take health into account was not considered to be high.

Recommendations are presented which aim at improving the consideration of health issues within planning without placing an undue burden on the various stakeholders.

Key words: health, health impact assessment, decision-making, planning

#### **SAKHALIN ENERGY HIA: STRATEGIC HEALTH MANAGEMENT IN MOTION**

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Sakhalin Energy Investment Company Ltd. (SEIC) and the Russian Party entered into a Production Sharing Agreement for the Sakhalin II license in June 1994. SE will develop two large oil and gas fields. Sakhalin Island contains an estimated total of 1 billion barrels oil and 16 Tcf gas reserves. The oil production platform "Molikpaq" began to produce in July 1999. That development utilizes an arctic platform able to produce only 6 months of the year because of the need for ice-free conditions. Further phases involve a massive integrated development of the Pitun Astokhskoye oilfield and the Lunskeye gas field with the associated pipeline, oil export terminal, and LNG facilities.

To evaluate the potential impact of these projects on the health of employees, contractors, their families and the communities on the Island, the company is conducting a Health Impact Assessment (HIA). The HIA is a major exercise involving both the health team of Sakhalin Energy and key health stakeholders in the Far East of the Russian Federation. The HIA is made in conjunction with two other major exercises: the Environmental Impact Assessment (EIA) and the Social Impact Assessment (SIA). Sakhalin Energy's emphasis of developing and progressing the HIA has been the establishment of early and ongoing dialogue with the Sakhalin Island stakeholders on the most senior level, in particular in the field of primary, secondary and public health care.

HIA road map:

- Baseline health situation
- Identification of requisite baseline data
- Sakhalin health care professionals survey
- Sakhalin health system report
- Survey of community members in general
- Community engagement
- Preliminary HIA workshop (24-25 January 2002)
- Stakeholders Identification

- Joint development of mitigation measures
- Sustainable development opportunities
- Completion Health Impact Assessment report (HIA report January 2003)
- Establishment Health Advisory Committee
- Health action plan

## **CAPACITY BUILDING FOR THE PUBLIC - DEVELOPING A CITIZENS' GUIDE TO IMPACT ASSESSMENT**

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Increasing effectiveness of public participation in the EIA process is an essential component to capacity building. The author has developed and recently published a citizens' handbook for EIA in California, and will discuss the challenges and solutions in developing a brief yet useful book. These include intended audience, strategic focus, tone, and content issues. Issues to be discussed include how to simplify complex technical and regulatory issues without "dumbing them down." Tensions between process and substance also need to be addressed. For example, EIAs are often challenged for process failures, yet the true issues of concern are the environmental impacts. The integration of impact assessment with other permitting and regulatory processes also needs to be made understandable without overwhelming the reader with arcane regulation. Key public access points, references, and resources need to be addressed to empower the EIA participant. Copies of the handbook will be made available to workshop participants.

Key words: capacity building, public participation, education

## **THE CHALLENGE OF DEVELOPMENT AND DRINKING WATER SUPPLY IN BANGLADESH: ISSUES OF HEALTH IMPACT AND BUILDING CAPACITY AT THE LOCAL LEVEL**

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In Bangladesh, until the 1970s, bacterial contamination of surface water had been one of the major factors of high population mortality, particularly of infants. In order to reduce the effects of such contamination of surface water, more than two million shallow tube wells were installed in the rural areas of the country; these tube wells were usually 200 meters deep. Claims of success in securing a safe drinking water supply through sinking shallow tube wells soon appeared to be in conflict with the emerging findings of water contamination from naturally occurring aquifer condition. Presently, the scale and magnitude of such water contamination problem are humongous and generally remained unresolved. Ironically, in the "largest poisoning of a population in history," as much as half of the 130 million inhabitants of Bangladesh lack safe drinking water because of their heavy dependence on so-called modern water supply system. The British Geological Survey (1998) found that the proportion of wells with arsenic concentrations above the Bangladesh health standard was 35 percent. Several interna-

tional studies revealed that the majority of the shallow tube wells have arsenic concentrations much higher than the WHO standards. A study of 18 affected districts observed that 58 percent of the sample (1,630 adults and children) were suffering from skin lesion due to arsenic poisoning. If exposure continues, the future burden of arsenic-caused cancer (as well as eye disorder and gangrene) is predicted to cause marked increase in mortality in rural Bangladesh once sufficient latency has been reached. These issues have given rise to several questions relating to (a) the scope of long term environmental impacts and their assessment, (b) socioeconomic development and environment relationships, and (c) technological remedies and their sociocultural feasibility.

The Government of Bangladesh has recognized in its 5th Five Year Plan (1997-2002) the major social development challenge and policy priority of providing basic human needs, particularly the delivery of safe drinking water and adequate health services. Several research and development projects are presently exploring the arsenic contamination issue by applying a technological and sectoral perspective. However, limited attention hitherto has been paid to aspects of sociocultural feasibility, cost-effectiveness, competing alternative options, and necessary linkages with community-based common property resource management, traditional ecological knowledge (TEK).

The paper critically reviews existing literature on the development approaches in Bangladesh, and drinking water supply and arsenic contamination problem in the region. It is followed by an analysis of community-level capacity building strategies, methods, and possible outcomes. In conclusion, the need for adoptions of impact assessments of alternative interventions, along with local capacity building for their effective implementation, in developing countries like Bangladesh is emphasized. Finally, possibilities for future research and program development are explored.

Key words: safe drinking water, community-level capacity building, arsenic and inorganic chemical contamination, Bangladesh.

## **ENVIRONMENTAL ASSESSMENT OF TWO PROJECTS FOR THE CLEANUP AND LOCAL LONG-TERM MANAGEMENT OF HISTORIC LOW-LEVEL RADIOACTIVE WASTE IN THE PORT HOPE AREA, ONTARIO, CANADA**

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Detailed environmental assessments have been initiated very early in project planning for two Government of Canada projects proposing to clean up and locally manage historic low-level radioactive waste over the long-term in the Port Hope area of Ontario. Both the Port Hope Project and the Port Granby Project are locally driven solutions to a long standing environmental issue and are based on conceptual approaches proposed by the local communities. In a legal agreement signed in 2001 with the affected municipalities, the Government of Canada accepted the community approaches as potentially suitable solutions for management of the waste. Environmental assessments of the proposals under the Canadian Envir-

onmental Assessment Act were launched shortly thereafter and are still in the early stages.

The environmental assessments are being used as planning tools to further develop and refine the community approaches with the participation of the local municipalities and the public. The scopes of the environmental assessments have been designed to involve the local public in the examination of the potential environmental effects of the projects and the consideration of alternative means of carrying out the projects, while at the same time respecting the commitments of the legal agreement. Although the projects are undergoing environmental assessment screenings, the assessments have been scoped to the same level of thoroughness required by a comprehensive study.

The community proposals are at a conceptual stage of development and are expected to evolve as the projects become further defined. The legal agreement provides the affected municipal governments with assurances on their continuing roles as the preferred alternative for each project evolves and emerges from the environmental assessment process.

Key words: environmental assessment, community proposals, legal agreement, waste management, historic low-level radioactive waste

#### **IMPLEMENTATION OF THE EU SEA DIRECTIVE INTO AUSTRIAN LEGISLATION**

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Until mid-2004 the regulations of the European Union (EU) Directive on Strategic Environmental Assessment (SEA) have to be implemented into the legal systems of all Member States. According to the subsidiarity principle of the European Union the Member States have to investigate, which plans and programmes (PPs) will be subject of the SEA Directive.

Austria as a federal country has a tiered administrative structure, especially the legislative and executive competencies are divided between the federal and at the provincial level. A research study (commissioned by the Federal Ministry of Agriculture, Forestry, Environment and Water Management, covering the federal level and one of the nine provincial levels) examined 66 different PPs. It concluded that six of those PPs fulfill all requirements of the Directive (i.e., the "Index of Federal Roads" or the "Provincial Spatial Planning Programme"), and 13 fulfill some of them. This paper will discuss the extent of work that has to be done in order to implement the Directive. In that context it will focus on the spatial planning instruments in the Austrian province Styria, considering inter alia the results of the study mentioned and those of a new research study on the screening process.

Key words: strategic environmental assessment, EU SEA Directive, Austria, implementation

#### **EFFECTING PRINCIPLES: A REVIEW OF PRINCIPLES OF CUMULATIVE EFFECTS ASSESSMENT DERIVED FROM CASE LAW IN NEW ZEALAND**

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The Resource Management Act (RMA) in 1991 included, for the first time in a New Zealand statute, reference to cumulative effects. Section 3 of the Act refers to these as a type of environmental effect, along with other effects such as past, present and future; temporary or permanent. The Environment Court, New Zealand's judicial body for determining appeals under the RMA, has since defined some principles for assessing the cumulative effects of development proposals.

This paper reviews various decisions of the Court since the early 1990s, utilising as its framework for analysis a synthesis of key cumulative effects assessment principles. The analytical framework has been drawn from a review of theoretical literature.

In particular, the paper addresses the implications of the permitted baseline test for cumulative effects assessment. This test, which arose out of a recent decision of the New Zealand Court of Appeal, requires that existing environmental effects and those of activities permitted by council plans be considered as forming the baseline for assessment, and only other or further adverse effects emanating from a proposal are taken into account. The paper concludes by critically examining the extent to which case law is both reflecting and enhancing the principles and practice of Cumulative Effects Assessment.

Key words: cumulative effects assessment, permitted baseline, case law, environmental effects

#### **POLICY TOOLS FOR HEALTH IMPACT ASSESSMENT: A REPORT ON A NEW ZEALAND INITIATIVE**

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The health status of communities worldwide is greatly influenced by factors that lie outside the health sector. Policy decisions in public housing, education, social development or transport can play a significant role in determining health outcomes.

In New Zealand, the assessment of health impacts at the policy level is not yet well developed, nor is it strongly integrated with other sectors, such as environment and transport. However, New Zealand's Public Health Advisory Committee is developing a set of policy tools that can be used to assess the health impacts of non-health policies. The intent is that government and non-governmental agencies will be able to use these tools when developing policies that have implications for health outcomes.

This paper will report on the process of developing these tools for use in policy-making. In particular, it will discuss the way in which an indigenous model of health and well being has been incorporated. It will also make reference to the application of a case study in passenger transport funding that is being used to trial the draft HIA tools. Finally, some key opportunities and challenges in formalising health impact assessment will be identified and examined.

Key words: health impact assessment, transport, transportation, policy appraisal

#### **ADJUSTING SOCIAL ASSESSMENT PRACTICES TO THE LOCAL CONTEXT - PRESENTING A HYBRID METHOD WITH THREE EFFECTIVE APPROACHES**

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This paper argues that the procedures of information gathering, representation and analysis in the social part of impact assessments must be adjusted to local contexts if it is to be effective and useful. A PhD project is presented, where three approaches are combined to produce a flexible strategy for achieving social assessment that is suitable for specific local contexts. The analytical concept of local livelihood securities is one such approach, and it is aimed at understanding the everyday situation of the people in rural areas as they struggle to secure their livelihood. It identifies different strategies and mechanisms in this process, and helps in filtering out the key social issues to be focused in the assessment. Another approach is an extensive use of local knowledge and participation in creating inventive, user-friendly questionnaires that the villagers themselves can employ when collecting social information in their village. Lastly, visualisation of social information through mapping - utilizing databases, aerial photographs, local knowledge and GIS-programs - is used to create a visual projection of the collected material. The combination of these three approaches was tested in two rural villages located in isolated coastal areas in South Africa. Examples are given of the differences between two villages and the adjustments that were made in the assessment procedure. Some of the resulting maps are also presented and analysed in this paper, showing the strengths of this hybrid method. The need for well adapted yet time-effective social assessment procedures is discussed. Furthermore, some of the maps have already been returned to the villagers and to local planners, and they have been utilized in further planning as well as in research into existing policies. These concrete examples of utilization are presented as a final point.

Key words: social assessment procedures, local securities, mapping, GIS, participation, local knowledge, South Africa

#### **CHALLENGES IN SUSTAINABILITY ASSESSMENT: ISSUES FOR CAPACITY BUILDING**

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The purpose of sustainability assessment (also known as 'integrated' or 'triple-bottom-line' assessment) is to simultaneously analyse the impacts of a proposal on a combination of environmental, social and economic receptors. This paper presents some challenges for sustainability assessment. It is based on recent experience in Western Australia where the State government is attempting to develop the capacity to implement sustainability assessment. A number of challenges will be addressed as follows.

(i) How will sustainability assessment of projects be undertaken? Capacity for social and economic impact assessment and overall sustainability criteria may need to be developed to complement existing environmental impact assessment processes.

(ii) When should trade-offs between environmental losses and socio-economic gains occur in the assessment process?

(iii) In sustainability assessment of projects, how will mitigation and management actions that transcend the proponent's project site and its responsibilities (e.g., provision of social infrastructure and issues such as equity in employment and wealth distribution) be treated? A role for government agencies is apparent here.

(iv) How will strategic proposals and regional land use planning be treated during sustainability assessment? Developing regional sustainability strategies and management plans may offer a practical solution.

(v) How will existing unsustainable practices (e.g., current land uses and activities that degrade land, water and air resources) be remedied? Establishing agency based sustainability action plans and State of Sustainability Reporting may provide solutions here.

In exploring these challenges for the implementation of sustainability assessment, implications for institutional reform and capacity building will be addressed.

Key words: sustainability assessment, triple-bottom line assessment, integrated assessment, strategic environmental assessment

### **LAND MANAGEMENT STRATEGIES TO REDUCE THE LAND ABANDONMENT AND TO PROMOTE SUSTAINABLE AGRICULTURE DEVELOPMENT IN ESTONIA**

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Land plowed, fertilized, and irrigated obviously is useful land, with purpose and value. No longer farmed and lying fallow, that same land may be barren or grow only sparse, weedy vegetation in dry and infertile soils. Called abandoned or derelict

farmland, this land often is an environmental liability, in need of remedy.

In many countries agriculture as the main form of land use plays the key role in landscape and biodiversity. In countries like Estonia, where the share of forests is large, the fall in agricultural land use often causes losses in biodiversity, open landscape and rural cultural patterns.

This paper will talk about land management and land use changes in Estonia during the Soviet regime period up to the year 1990, and presents most important changes in land use after the re-independency, from the year 1991 up today. Together with EIA analysis methodology and scenario techniques, possible land management scenarios to avoid unwanted changes in land use and to promote sustainable agriculture development in Estonia are presented.

Key words: abandonment, derelict farmland, land management, land use scenarios, sustainable agriculture development

### **ON THE INTEGRATION AND APPRAISAL OF HEALTH IMPACTS**

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This paper has two parts. The first part examines some of the current trends for integrating health with environmental and social impact assessment. It cites examples from the UK, EC, Africa, and the multinational private sector. It concludes that an integrated model should have some sequential elements, as the output of environmental and social assessment is often an input to health impact assessment. The second part describes the requirement for the critical appraisal of health impact assessment reports. It concludes that this component of the assessment procedure has received relatively little debate. It is essential for assuring the quality of the assessment and for capacity building. As the critical appraisal of environmental, social, health and other forms of impact assessment has much in common, an integrated approach is advocated.

Key words: health, impact, assessment, integration, appraisal, evaluation

### **ENVIRONMENTAL LEGISLATION**

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Human beings have been causing deterioration to the environment since the time they engaged in the road of quick development. Land degradation, pollution of air and water, health problems and loss of biological diversity are some examples of these impacts. Though many of the environmental problems initially manifested at local levels, now they are acknowledged

as global problems. These problems therefore need global measures that need to start at the local scale if a global sustainability is to be achieved. Impact assessment is a well-recognized tool for local and global sustainable development. It is a tool for integrating environmental economics and social concerns into decision making process.

The quality of environmental assessment depends on the quality of environmental impact assessment expertise and effective governing environment legislation at local regional and global at large. The challenge is environmental legislation framework for sustainable development and funding mechanisms for the advancement of EIA capacity building.

The paper explores the effect of environmental legislation variation in certain countries in Africa, experienced during my 2001-2002 Capacity Development and Linkages for Environmental Impact Assessment in Africa fellowship programme (CLEIAA Professional Development Fellowship), funded by USAID, and the importance of funding.

The paper gives evidence on legislation applicability based on some projects I participated in during this fellowship in South Africa and Tanzania and networking mechanism, which is a tool for sharing knowledge and experiences.

Key words: legislation, networking, capacity building, environmental assessment

#### **FOLLOW-UP ON THE UTILITY OF EIA GUIDANCE DOCUMENTS**

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For local capacity building in environmental impact assessment (EIA), the development of guidance materials is often advocated. These are aimed mainly at proponents and their consultants, since these stakeholders are usually responsible for undertaking EIA studies and presenting proposals for evaluation by the public and decision-makers. In Western Australia, EIA guidance documents are intended to:

- allow for better environmental protection;
- increase the certainty of outcome of EIA for proponents;
- enhance the consistency of advice given to Government;
- permit proposals to be planned and designed to meet guidance principles from the outset, with no surprises; and
- provide a clearer basis for Government decision-making.

But how effective are EIA guidance materials in practice?

This paper reports on a follow-up survey of 20 environmental consultants in Western Australia to determine the influence of guidance materials (developed by the Environmental Protection Authority over last 3-5 years) on their EIA practices.

It was found that EIA guidance did influence the practices of environmental consultants and were perceived to enhance EIA outcomes. However a number of shortcomings were identified. Suggestions for improving the utility of EIA guidance in the future include:

- provide greater clarification of the purpose of EIA guidance and make the “core” guidance component of these documents more explicit
- develop guidance only on those issues of major environmental significance
- increase industry input during EIA guidance development
- reduce the length of time that EIA guidance documents remain in “Draft” status

Incorporation of these suggestions should improve the utility of future guidance materials for environmental consultants, and thereby contribute to EIA capacity building.

Key words: practitioner perspectives, EIA guidance, follow-up, capacity building, environmental consultants

#### **SETTING-UP BENCHMARKS TO IMPROVE SECTOR PROGRAMS: RULES OF THE GAME FOR AN INTERACTIVE APPROACH**

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##### *Introduction*

The benchmark is becoming an increasingly popular tool for impact assessment in the public sector. Still, governments planning to perform a benchmark face at least two major challenges, namely (1) how can we make the benchmark authoritative and (2) how can we make the benchmark an incentive for improvement.

##### *The research*

These challenges were at the heart of an extensive empirical research into benchmarks of sector programs, which was performed by the Delft, University of Technology. In this research we identified and analyzed over twenty - predominantly international - studies in which sector programs were benchmarked.

##### *Findings*

One of the things that struck us was the wide variety of choices that face organizations when performing a benchmark. Some examples are: do we attract a specialized firm to conduct the survey, do we develop one uniform questionnaire, do we want to identify one single best practice, do we want to gather quantitative or qualitative data and do we allow participants to gather the data themselves or do we hire an outside organization to gather the data for us? These choices are important, but there is a more important issue underlying these choices, namely how to organize the process that leads to these choices. It is our conception that the organization and design of this process determines whether a benchmark becomes authoritative and an incentive for improvement.

### *Implications*

Given our findings and existing literature on process management and interactive decision-making, we conclude that organizations should define rules to design and organize the process and thus to influence the outcome of the benchmark. These rules are rules of the game for (1) determining the content of the benchmark, (2) performing the actual benchmark, (3) interpreting the benchmark and (4) implementing the results of the benchmark.

Key words: benchmark, sector programs, process management, interactive decision-making

## **ENVIRONMENTAL ASSESSMENT AND ITS APPLICATION IN THE ENVIRONMENTAL LEGAL FRAMEWORK IN UGANDA**

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Originally, the environmental legal regime of Uganda was characterised by legislation that did not make it mandatory for developers to include E.I.A as a major component of their major project cycles. However, after the completion of the National Action Plan (NEAP), it became a legal requirement for all project developers to make E.I.A part and parcel of their project cycles. The Constitution of Uganda promulgated in 1995 contains innovative provisions on the management of natural resources and the environment. These provisions form the basis for including E.I.A in all development projects in Uganda. The National Environmental Statute (1995) which is the legal framework legislation in the field of environmental management in Uganda makes E.I.A a legal requirement for all projects developers to carryout environmental assessments. The National Environmental Regulations (1998) gives details to the implementation of the provisions of the National Environment Statute in respect to E.I.A. All the post 1995 environmental legislation make E.I.A a component in all development projects. To date in Uganda, over 800 projects have been subjected to E.I.A, out of which 700 have been approved for implementation. E.I.A has been in force for approximately seven years as a mandatory legal requirement. However, the appropriateness or effective of the legal regime is still being tested. The developers have their concerns on one hand, the policy makers have theirs while the practitioners have theirs on the other hand. These conflicting concerns raise pertinent issues of sustainable management of the environment in Uganda. The purpose of this paper is to analyze the legal mechanisms for implementing the E.I.A process in Uganda. The paper will identify the major gaps and weaknesses and make recommendations that can guide initiation of changes and improvements in the legal framework.

Key words: environmental assessments, legal framework

## **EIA AND GEOTHERMAL ENERGY IN ICELAND (paper and poster)**

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Geothermal resources in Iceland are closely associated with the country's volcanism and location on the Mid-Atlantic Ridge. Geothermal energy plays an important role in the energy supply providing about 50% of the total primary energy supply while hydropower provides 18%, oil 30% and coal 2%.

The principal use of geothermal energy in Iceland is for space heating but expansion in the energy intensive industry has been partly met by increased geothermally produced electricity.

A state institution, the Planning Agency, oversees the EIA process in Iceland. The chief environmental factors under consideration in the process regarding developments in geothermal areas are water resources and disposal, geologic factors, landscape and visual effects, tourism and recreation, vegetation, hot spring microflora and fauna, noise pollution, and air quality. These factors are scale and location dependent but the geothermal regions in many cases enjoy some form of a protected status and are sensitive and pristine areas. A clear governmental policy on protection and utilisation of high enthalpy geothermal regions in Iceland is not available but clearly essential in light of the increasing interest in their exploration and possible utilisation.

There are advantages in geothermal energy in comparison to fossil fuels, nuclear energy and hydro-electric power. However, question marks regarding the renewability of geothermal reservoirs linger as well as a tendency to underestimate other environmental effects pertaining to geothermal energy utilisation.

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The paper will address the following points in view of the EIA experience on geothermal energy plans in Iceland:

- geothermal energy utilisation, statutory environment in Iceland
- Location dependent environmental factors: Small scale projects-irreversible effects
- EIA as a basis for sound decisions: The importance of comprehensive assessment at an early stage
- Case studies

Key words: geothermal energy utilisation, geothermal resource management, EIA, location dependent assessment

### **CAPACITY BUILDING FOR COMMUNITY PARTICIPATION IN EIA IN KENYA**

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EIA legislation in Kenya is covered by the Environmental Management and Coordination Act of 2000. The Act provides for the participation in the process and access of the EIA report of proposed major development projects, to the public. Unfortunately, there is little or no participation of local communities in this important process. This is because the majority of the communities living adjacent to these projects have low literacy levels (2% gross tertiary school enrollment) and are more often than not, low income earners (gross per capita income of \$340 per year). The result is that the EIA process is not given high priority in their other priorities. In addition, communities initiate small-scale cottage industries, which have significant cumulative environmental impacts in the long run, but these rarely come under the purview of the EIA process. Consequently, these communities come to realize and acknowledge negative impacts of such projects far much later when the projects are on the ground.

This paper examines the constraints and limitations that inhibit the active participation of these communities as well as efforts being formulated by EIA experts in the country to build capacity of the communities to participate in EIA. It elaborates on how these communities can be made to appreciate the importance of EIA in designing their small-scale cottage industries.

Key words: capacity building, community, participation, EIA, large scale and small-scale development activities, Kenya

### **CONTRIBUTIONS OF SUSTAINABILITY ASSESSMENT TO BIODIVERSITY SCENARIOS IN UPLAND EUROPE**

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An EU Fifth Framework research project on scenarios for reconciling biodiversity conservation with declining agriculture use in the mountains of Europe (BIOSCENE) began in December 2002.

The project is structured around a strong integration of socio-economic and ecological perspectives, concepts and methodologies. It is focused on six study areas in Norway, UK, Slovakia, France, Switzerland and Greece. A key component is the sustainability assessment of alternative scenarios both for agriculture and rural policy and for biodiversity management.

One of the benefits that characterises this project is the fundamental conceptual debate that is driving the interdisciplinary approach. By its nature it is operating at the cutting-edge of new integrative concepts grounded in cultural and institutional diversity.

The purpose of the presentation is to give an outline of the sustainability assessment (SA) methodology being developed for this project. It departs from the UK and international experience, but it is being designed to respond more specifically to the needs of the overall research objectives. For example, while it is objectives-led, it is also strongly grounded in baseline information relating to biodiversity and rural policy and ecological and socio-economic data. A particular aspect of the approach is the engagement of stakeholder panels in each study area throughout the research, which emphasizes the participatory nature of the research methodology.

The presentation will focus on the methodological approach to SA, the role of the stakeholders, the nature of sustainable development objectives being developed and the steps in the SA procedure.

Key words: sustainability assessment, sustainability appraisal, stakeholders, integration, strategic impact assessment, biodiversity, rural policy

#### **DISASTERS MANAGEMENT AND ENVIRONMENTAL IMPACT ASSESSMENT: GAPS AND LINKAGES**

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The paper provides an overview of the nature of disaster management and identifies how disaster management and environmental impact assessment can be linked in practical ways. Disaster management encompasses a number of interventions, including preparedness, mitigation, planning, preparedness and relief. A number of these intentions are amenable to normal environmental impact assessment (EIA). For other interventions, particularly relief and short term rehabilitation, a new Rapid Environmental Impact Assessment in Disasters methodology has been developed. However, while in theory there should not be any significant gaps in EIA coverage of disaster management efforts, in practice significant gaps do exist between nor-

mal EIA (and associated) processes and efforts to deal with disasters. The paper will identify how these gaps can be bridged to improve the effectiveness of both disaster management and EIA efforts.

Key words: disasters, environmental impact assessment

#### **THE ANALYTIC HIERARCHY PROCESS AND SEA: AN EVALUATION OF POLICY OPTIONS TO REDUCE MERCURY FROM U.S. POWER PLANTS**

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The analytic hierarchy process (AHP) is offered as a useful decision-aid in strategic environmental assessment. Its application in the evaluation of a range of mercury reduction policy options is presented.

In December 2000, the US Environmental Protection Agency (EPA) announced that regulation was necessary to control mercury air emissions from coal-fired power plants. Mercury is the toxic of greatest concern among air toxics emitted from power plants which are the largest source of anthropogenic mercury emissions in the United States.

The selection of a preferred strategy is currently the subject of a public policy debate in the U.S. among three key interests or stakeholders: the electric utility industry, government regulatory agencies such as the EPA, and environmental groups. Many possible mercury emission reduction frameworks or strategies may reduce and/or eliminate power plants as a source (e.g., fuel switching to cleaner burning fuels or renewable resources, demand-side management, installing pollution control technology). Various reduction strategies have different implications in terms of effectiveness, cost, feasibility, efficiency, cost distribution and stakeholder acceptance. Selecting one reduction strategy over another involves trade-offs — trade-offs that might be viewed as desirable by some stakeholders but unacceptable by other stakeholders.

A form of multi-criteria analysis, the AHP provides a framework to tackle complex decision making. It provides a logical and systematic process for making better decisions in complex decision situations characterized by conflicting objectives, uncertainty and different perspectives. The AHP facilitates complex decision-making by organizing multiple perceptions, feelings, judgments, memories and data into manageable decision-making elements.

Key words: strategic assessment, policy, mercury, multi-criteria, analytic hierarchy process

#### **ECOLOGICAL SUSTAINABILITY AND NON SUSTAINABILITY: ASSESSMENT OF A RUN-DOWN AREA EXTENSION IN ESTUARINE ENVIRONMENT**

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In this work we have tackled the issues about a bauxite residue (also known as red mud) disposal site in an industrial area situated along the coast of South Sardinia, Portoscuso (Italy). The aluminum production in the Eurallumina Plant of Portoscuso (Cagliari) began in 1973. The red mud, left from the Bayer process in enormous quantities, had been initially dumped in the open sea, and subsequently in a wetland basin near a natural protected area (the lagoon of Boi Cerbus), part of the SICs (Sites of the Community Interest of the European Union). After 30 years of activity, the basin is now 22 metres high and it is stretched to the limit of filling capacity. We have analyzed the proposals of alternative sites, particularly, the proposal of the basin extension toward the west, which could include 70 hectares of sea.

The analysis of feasibility study presented by the Eurallumina Society highlights the need for closer examination of environmental characterization of the affected area, potential impacts analysis, included indirect and cumulative impacts, and health and ecological risk analysis. The purpose is to put forward a correct methodology to assess the ecological sustainability of the proposed project, considering the entire production cycle and the other activities operating in the industrial area. The final aim of this study is to define the basis for a strategic environmental planning of Portoscuso's territory and of the entire industrial area with aluminum transformers and big power plants.

Key words: red mud, cumulative impacts assessment, health and ecological risk analysis, ecological sustainability

#### **MIXING IMMIGRANT FARM WORKERS WITH MIDDLE CLASS EUROPEANS: A SOCIAL IMPACT ASSESSMENT OF LOW-INCOME HOUSING IN URBAN NEIGHBORHOODS**

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In 1998 Intercommunity Housing in cooperation with Mercy Housing Inc., a national non-profit corporation, proposed the construction of Sterling Meadows, a housing project for low-income agricultural workers and their families in Bellingham, Washington. Families with annual incomes of 60% or less of the area median income would be eligible to live in the development. The selected site was a middle income, single family neighborhood near a major motorway and adjacent to a regional shopping center. The proposed facility would have space for 72 families and include parking, a large community building, playgrounds and some 1.2 acres of open space of which most was a wetland.

In December of 2000, an SIA was completed prior to the beginning of construction. Potential impacts and key stakeholders were identified from transcripts of public hearings, discussion with neighbors, school authorities, the police and social service agencies. It was determined that population in the neighborhood would increase dramatically. In addition, the presence of a new ethnic group with different cultural practices and beliefs would disrupt the community. Demands on the schools for teachers with Spanish language skills as well as special programs would increase. It was also suggested that property values would decline due to the arrival of an ethnic group who shared different views on private property.

In March of 2003, one year after the units were fully occupied, a follow-up SIA was completed. With the exception of two families, all were Hispanic and recent immigrants (many illegal) from Mexico and Latin America. Sixty percent (60) of the population was under 15 and only 5% spoke English. Eighty percent (80) of the adults could neither read nor write their native language. They were illiterate.

The paper details, with supporting statistical documentation, the major social impacts identified in both the original and follow-up SIA. The elementary and middle schools each added an ESL (English as a second language) teacher. Property values experienced some decline, but the area changed from owner-occupied single family units to renter occupied. The new renters in the immediate vicinity of the project were also recent immigrants--Asian and Russian with a few Hispanics. Vandalism and petty crime increased dramatically as measured by the number of complaints to local police.

A goal of Mercy Housing was to ease the transition from the Hispanic to the American culture, where values, beliefs and practices are quite different. There was some evidence that, at least for the residents, they were beginning to adjust in a positive manner to their new setting.

#### **BUILDING CAPACITY WITHIN THE FRAMEWORK OF AN ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY FOR A HYDROELECTRIC DEVELOPMENT IN NORTHERN QUEBEC - CANADA**

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Hydro-Québec and the Cree of Eeyou Istchee signed an agreement in connection with a hydroelectric project in northern Québec, Canada. The project calls for construction of a powerhouse (up to 770 MW) and partial diversion of a river (600 m<sup>3</sup>/s is proposed as a diverted flow).

Over a period of four years, Hydro-Québec held information sessions in Cree communities that would be directly affected by the project. These information sessions culminated in late 2001/early 2002 in the execution of an agreement, the Boum-

hounan Agreement. This Agreement foresees that the project shall be submitted to the environmental and social protection regime stipulated in the James Bay and Northern Agreement as well as to applicable environmental legislation in Canada.

The Boumhounan Agreement differs from previous agreements with the Cree as it establishes mechanisms and provides financing for the Cree to build capacity to carry out the EIA and SIA jointly with Hydro-Québec and to incorporate their knowledge into the EIA and SIA. A Cree/Hydro-Québec Feasibility Study Group was set up. Full-time Cree representatives and coordinators were hired and fully equipped offices were opened in Cree communities directly affected by the project. Throughout the process the Cree are assisted by specialists and lawyers. Efforts have been put forward to make sure that the Cree are involved every step of the way in evaluating the impact of the project and making decisions.

So far, this new relationship shows that once trust is established, thinking becomes more focused and creative leading to further improvement and optimization of the different aspects of the project and its acceptance by the Cree local communities.

Key words: hydroelectric development, indigenous people, capacity building, public involvement, environmental and social impact assessment

#### **COMMUNITY AND ITS IMPORTANCE TO SUSTAINABLE DEVELOPMENT – CIDA**

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Small community development projects are a significant part of development. Because low population levels and growth, and a resilient environment, are no longer prevalent in many developing countries, small projects employing careless environmental practices do make a substantial and cumulative contribution to the slow degradation of environmental and human resources.

In this context, improved environmental practices on such projects are essential to human development. However, there exists two key factors which impede communities' ability to manage environmental effects of projects better: lack of accessible information on small project EA and lack of capacity in communities to implement small community projects without damaging the environment. Overriding all of this from an African context is the issue of governance. NEPAD and the donor community agree that significant investment in Africa can only occur if countries implement democratic reform. This criteria is applicable to small community development projects which historically have not reaped full benefit due to lack of local participation and management. However, much work is being done to rectify this. Many multilateral and bilateral donors are now in the process of developing projects and programs to enhance community environmental management. This talk will focus on the work and challenges that CIDA faces in this regard.

Key words: community, EA, capacity, sustainable development, governance, public, local knowledge

#### **REDESIGNING THE EUROPEAN EIA DIRECTIVE**

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The EU directive 85/337/EEG (amended by directive 97/11/EG) will be evaluated for the second time. Dating from 1985 and drafted in the years before, it is time for a complete redesign.

In 1985 the EIA directive was the first instrument for an integral and preventive approach of activities with impacts on the environment. Today the context of EIA is completely different. A redesign is necessary to reflect the new developments in EIA, the introduction of SEA, the developments in the environmental policies and in other directives of the EU. The IPPC directive, the Seveso directives, the Habitat directive and the directives for air quality, water and noise for instance create a different field for EIA.

Other international developments as the Espoo Convention on transboundary impacts, the Aarhus Convention on public participation, the Biodiversity Convention and the EU Governance initiative of the European Commission are also challenges for the directive. Health is again becoming an issue.

The goal of EIA could be the same: to take the environmental impacts into account in the decision making. The field of application, the procedural requirements, the connection with the decision making and contents requirements are the main areas where new ideas are required. What are the ideas?

The importance of the directive for the member states is clear but a new directive could also be an impetus for the development of EIA in general. EIA professionals and practitioners should participate in this development.

Key words: European directive, EIA development, context of EIA

#### **EIA MODELS AND CAPACITY BUILDING IN VIET NAM: A COMPARISON OF DEVELOPMENT AID PROGRAMS**

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There has been a decided lack of empirical research examining development Aid agencies as "agents of change" in EIA systems in developing countries, particularly research examining the model of environmental planning practice promoted by aid agencies as part of capacity-building. This paper briefly traces a conceptual framework of EIA, then introduces the concept of "EIA capacity-building." Using Viet Nam as a case study, the

paper then outlines the empirical results of research focusing on the extent to which aid agency capacity-building programs (n=9) promoted a Technical vs. Planning Model of EIA, and on the coherence of capacity-building efforts across all aid programs. A discussion follows, where research results are interpreted within the Vietnamese context, and implications of research results are identified for three main groups of actors. The paper concludes by calling for development aid agencies to reconceptualise EIA capacity-building as an opportunity to transform developing countries' development planning processes.

Key words: environmental impact assessment models, developing countries, capacity building, Vietnam, development aid

## **CAPACITY BUILDING FOR INDUSTRIAL DEVELOPMENT IN DEVELOPING COUNTRIES: THE CASE OF ENVIRONMENTAL MANAGEMENT SYSTEMS IN SMES IN THE REPUBLIC OF COLOMBIA**

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Capacity building has been an essential tool to ensure the successful implementation of environmental initiatives. In Colombia, government at the local level has been conducting training seminars on environmental concepts for Small and Medium Enterprises (SMEs). These seminars have contributed to raising the level of awareness in the SMEs with emphasis on current environmental issues affecting human health and the environment including threats to ecosystems and natural resources, toxicology, air pollution and water contamination among others.

In 2002, local environmental authorities and private organizations have also provided assistance on the development of voluntary compliance initiatives to improve environmental performance. ISO 14001 and Responsible Care are being used as a voluntary mechanism/scheme to achieve continuous environmental improvement and increase profits for businesses. The training has helped SMEs to better understand environmental scenarios and coordinate the environmental activities with other government agencies.

Government and private organizations have been conducting gap analysis for SMEs' Environmental Management Systems (EMS) to identify any areas requiring strengthening and providing advice regarding what steps companies should take to ensure successful third-party certification audits; and reviewing SME's EMSs for conformance with ISO 14001, including objectives and targets, identification of environmental aspects, tests of significance for environmental aspects, standard operating procedures and corrective action mechanisms. Private organizations have not only developed and presented customized training on the ISO 14001 EMS, but also provided internal auditors training.

This study analyses how capacity building and technical assistance help SMEs in complying with the laid down standards, and support and enhance the participation of developing countries in world trade.

Key words: capacity building, voluntary initiatives, small and medium enterprises, environmental management systems, ISO 14001, Responsible Care

## **A MODEL OF SOCIAL IMPACT FOLLOW-UP FOR LOCAL AND REGIONAL SUSTAINABLE DEVELOPMENT**

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In 1997, a five-year multidisciplinary research program on SIA and follow-up was conducted in real time, i.e., following the project cycle of the implementation of an industrial megaproject (Alcan, Quebec, Canada). The insights and lessons derived from the report are aimed at improving formal and informal practices of social impact assessment and follow-up as well as fostering the building capacity of the stakeholders and the host communities.

The results of the research program show that the characterization of the community and belonging region is a prerequisite to the near-term analysis of the social impacts of planned change as well as the development of more appropriate maximization and mitigation measures. The study demonstrates, for EIS, the importance of: 1) systematically and rigorously assessing the social impacts prior to public hearings, 2) adopting a comprehensive conception of social impacts, 3) identifying a methodology for measuring and monitoring them during the EIS process. In the case study, the EIS exhibits a low level of concordance between the components described and the impacts analysed. The final part of the report is related to the methodology used in EIS. A dozen methodological observations were drawn from the different cycles of the industrial project. The research program formalizes the components of the SIA and follow-up model, which is presented in a computer animation format. Six key components and their subcomponents were identified: temporal and spatial scales, stakeholders, issues/impact categories, stages of the process, measurement and information sources, and means of communication. The model is not based on a normative but rather a comprehensive and explanatory one. Its guiding principle is that civic participation moves towards a better social equity and environmental justice. The model uses the representation of a bridge. This illustrates, in a computer animation format, the links between the planned change and sustainable territorial development, the links between stakeholders, spatial and temporal scales, issues/categories of social impacts, etc.

In conclusion, a follow-up social impact model and process can, under certain conditions, provide social value-added. One of these conditions is the implementation of an integrated multidimensional approach to the impacts of planned change.

Mots-clés: modèle de suivi des impacts sociaux, plus-value sociale, évaluation environnementale stratégique

## **ROGUES OR SAINTS? SEVEN GOOD REASONS FOR PROPONENTS TO PARTICIPATE IN EIA FOLLOW-UP**

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EIA follow-up is commonly referred to as controlled activities undertaken during and following the construction and implementation phases for new development. It can encompass a broad spectrum of activities, from regular site inspections and surveillance to compliance statements, to a very formal, systematic process of monitoring and audits.

Applying EIA follow-up within EIA is no longer an option but a sound precaution and a pro-active measure in today's heavily regulated industrial environment where the announcement of

new development is often treated with dismay and opposition by local residents. Increasingly, successful development is viewed in terms of its final result - its operational environmental performance, its acceptance by stakeholders, its contribution to sustainable development, and critically the scale or magnitude of its environmental impact over all life-cycle phases. For the astute proponent, all the evidence suggests that EIA follow-up has a valuable role to play in good developmental practice, encouraging the integration of environmental perspectives into developmental programmes, the systematic implementation of mitigation and the triggering of environmental risk responses posed through construction activities.

During one of the defining EIA follow-up workshops held in Hong Kong during the IAIA 2000 conference, participants identified and debated the merits of four key activities as the primary building blocks for EIA follow-up processes and participation. These were perceived as monitoring, evaluation, management and communication. Re-examination of these four activities in an industrial context identifies seven distinct proponent-orientated concepts or functions of EIA follow-up of potential benefit.

This paper shares experience with EIA follow-up from an industry viewpoint to assist with learning from experience and capacity building. In the paper the seven functions are examined in greater depth alongside specific case studies.

Key words: EIA, EIA follow-up, proponent, industry, monitoring, audit, post decision, communication

## **SEA & ENERGY - CAN EXISTING STRATEGIC DECISION-MAKING FRAMEWORKS FOR ELECTRICAL NETWORK PLANNING PPP ADAPT TO SEA?**

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SEA has yet to make an impact on the decision-making processes of industrial sectors. In the UK, statutory provision and guidance is awaited on how the UK Government will seek to implement Directive 2001/42/EC, the SEA Directive. At present formal assessments of environmental impact for policy, plan and programme (PPP) are restricted to UK governmental action, with selected policies and development plans being appraised. No statutory procedure or UK requirement exists for SEA of the PPP of industry or other significant independent national concerns. To be successful in practice SEA must bring forward or initiate change in the strategic decision-making processes that are accepted as valid worthwhile components of corporate planning and decision-making pathways. Ultimately for proponents this must enhance or contribute to the 'deliverability' of the final solution.

Contemporary policy-makers have recognised SEA's theoretical potential and few doubt the power of the SEA Directive to compel due diligence to strategic environmental development. However, consistently successful industrial applications have failed to appear in practice, and the application of SEA amongst proponents remains scant and inconsistent. If SEA is to fulfill its potential, it must become relevant and responsive to the requirements of business. The challenge for industry is to determine whether SEA should be utilised as a stand alone

process whose results are then incorporated into the process of decision-making or whether the process of SEA can be embedded as an integral component of the collective decision-making process itself.

The focus of this paper is on the potential role of SEA in electrical transmission system planning, whether SEA practices can assist existing planning frameworks, and how this is best achieved in practice.

Key words: SEA, decision-making, electricity, energy, transmission

## **DEVELOPMENT OF ENVIRONMENTAL INDICATORS FOR STATE OF ENVIRONMENT REPORTING IN SOUTH AFRICA**

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A process was initiated in 2000 to develop environmental indicators for enhanced state of environment (SOE) reporting in South Africa. The project stemmed from the realisation that a commonly agreed core set of indicators and access to good quality data to support the indicators was one of the major obstacles for reporting on the status of the environment in South Africa. The project, carried out by CSIR Environmentek, HSRC and Mzuri Consultants on behalf of the South African national Department of Environmental Affairs and Tourism (DEAT), consisted of four phases: scoping; selection of issues and criteria; selection of indicators and implementation. Indicators were developed according to eight themes, namely: atmosphere and climate; biodiversity and natural heritage; environmental management; human well-being; inland water; land use; waste management and marine, coastal and estuarine resources. The indicators address priority environmental issues currently facing South Africa, and emerging issues that are becoming more prominent in South Africa. The framework for reporting on the indicators is flexible so as to allow continuity between different levels of SOE reporting (local through to global). The strategy for implementation is cost-effective to afford DEAT the opportunity to conduct this exercise independently of donor assistance. The indicators were developed through a participatory approach that relied on public opinion, stakeholder consultation and expert judgment. The extensiveness of the stakeholder participation process allowed the pro-

ject to be shaped by stakeholders to some extent. The stakeholder participation process shaped the outcome of the project and largely influenced the indicators that were selected for use.

Key words: environmental indicators, state of the environment reporting, SOE, stakeholder consultation, environmental issues, South Africa

## **HEALTH RISK ASSESSMENT OF KEROSENE USAGE IN AN INFORMAL SETTLEMENT IN DURBAN, SOUTH AFRICA**

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In Durban, South Africa, studies have shown that more than seven out of ten households in low income metropolitan areas rely on kerosene for domestic purposes, causing widespread problems of poor indoor air quality. In light of the known health effects of kerosene usage, this study aimed to quantify the health risk for people living in a densely populated informal settlement known as Cato Crest within the Durban metropolitan area. The pollutants investigated included nitrogen dioxide, benzene and toluene. Nitrogen dioxide is known to affect respiratory and immune systems, benzene is carcinogenic while toluene has a neurological health end-point. All three pollutants are harmful when inhaled. The United States Environmental Protection Agency (US EPA) health risk assessment (HRA) framework was applied. Information on the exposure patterns of residents in Cato Crest were acquired through questionnaires in which data on fuel use, building structure, cooking habits and time-activity patterns were collected. Air quality monitoring of nitrogen dioxide and volatile organic compounds was also conducted in the households. The time-activity pattern survey revealed that the exposure periods of individuals in Cato Crest were far greater than the default exposure periods used by US EPA. The results of the health risk assessment showed that residents of Cato Crest may experience significant health risks as a result of kerosene usage in their homes. Exposure to 1-hour nitrogen dioxide concentration is not likely to produce adverse health effects, whereas exposure over a 24-hour period indicates a potential health risk to sensitive individuals in two of the households when US EPA exposure values are used and in all of the households when locally derived exposure values are used. Benzene poses a health risk to sensit-

ive individuals in 50% of the households when local exposure parameters are used. There is no health risk associated with toluene exposure.

Key words: health risk assessment, kerosene, time-activity patterns, South Africa, indoor air quality

## **L'ENVIRONNEMENT ET LA NON REVERSIBILITÉ DES IMPACTS DE LA LIGNE LTF (LYON-TURIN)**

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La ligne du train grande vitesse(LGV), dite aussi ligne aute capacité (LAC) entre Lyon (France) e Turin (Italie), qui passera dans le tunnel de base du Fejus, dans les Alpes, entre la region francaise de la Maurienne et la vallée italienne du Cenischia et de Souse, a été évaluée du point de vue de l'impact sur l'environnement au niveau de la géologie, du paysage, du déblai. Le territoire alpin touché par lo projet est caracterisé par son ambiance naturelle et par sa grande valeur historique et paysagère.

Il a été, depuis la domination romaine, un corridor habité entre l'Italie et l'Europe, dont il conserve l'empreinte, marquée par les particularités de la végétation et du paysage.

La traversée du Val Cenischia par la ligne Ltf, Lyon Turin Ferroviaire, signifie:

- un impact visuel fort du viaduc
- des nuisances acustiques sur l'habitat
- la traversée des zones inondables du flueve Cenischia
- l'impact sur un paysage agraire historique (Moyen Age)
- l'impact du stockage/mise en depot du déblai

Le viaduc complet, qu'il soit à grande transparence hydrogéologique, territoriale et naturelle, perpendiculaire à la vallée, en s'appuyant sur les alignements historiques de la plaine, se présente comme un impact non reversible, sans possibles compensations.

Dès que des mesures compensatoires sont pas possibles, un bilan satisfaisant est pas possible. Le rapport analyse les différentes solutions alternatives dans la vallée et l'hypothèse de regrouper les axes structurants (autoroute et LGV) pour franchir la vallée au plus étroit de sa brèche, proposé par le mémagement et qui est encore a discuter. La manque d'autres instruments porte à una hypothese "do nothing" qui, avec les problèmes financiers, pose en discussion la ligne Ltf-LGV dans son ensemble.

Key words: environnemet naturel, environnemet historique, impacts non reversibles, aménagement

## **BEFORE EIA: DEFINING THE SCOPE OF INFRA-STRUCTURE PROJECTS IN THE NETHERLANDS**

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One of the perennial problems of EIA implementation is defining the scope of a project. What is the problem underlying the project and for whom is this a problem? What are the project's objectives and why? Thus, what are relevant alternatives, impacts and measures to investigate during the EIA?

A common criticism on EIA is that the essential decisions on the scope of the project are made before study has been carried out. Because of this issue, for instance, the instrument of SEA has been developed. In practice, however, there might still be a considerable gap between a general strategic plan defining - policy objectives, constraints etc. - that is subject to SEA and the specific projects that are developed with EIA. In an attempt to open up the rather informal process of defining road infrastructure projects in the Netherlands, the Ministry of Transport has developed new guidelines on so-called "reconnaissance studies."

In such explorative, preliminary studies both problems and possible solutions are explored. The two main questions to be answered are:

- What are the transport and transport-related problems in the study area?
- What are possible sustainable solutions for the identified problems?

If the outcome shows that there are urgent problems, which can be solved by infrastructure development solutions – purpose and need are clear – the Minister of Transport may start a so-called route determination/EIA procedure. If problems are less urgent or require only small-scale solutions, other procedures for further elaboration may be more appropriate - this might include the "doing nothing" option.

The new guideline for the execution of reconnaissance studies lays strong emphasis on identification of problems from a spatial point of view. It seeks relationships between problems on the transport network and the (underlying) causes for these problems arising from the nature, volume and spatial distribution of related functions. The aim is to take in this preliminary stage a broader perspective than infrastructure including also the interests of functions as housing, working, recreation and nature. The result is that strategic policy is translated in a transparent way into an operational project. In this way the relevant study topics are selected which enhances the efficiency of the subsequent EIA study.

In this paper we will discuss the outlines of this tool, its relationships with SEA and EIA, as well as the first experiences gained with its application for the A27 motorway corridor between the cities of Utrecht and Breda in the centre of the Netherlands.

Key words: EIA, SEA, scoping, problem definition, infrastructure planning, road infrastructure, area-oriented approach, sustainability, The Netherlands



## LE PROJET QUÉBÉCOIS DE POLITIQUE EN MATIÈRE D'ÉVALUATION ENVIRONNEMENTALE STRATÉGIQUE

Mots-clés: évaluation environnementale stratégique; politique

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Au Québec, l'évaluation environnementale s'applique à des projets ponctuels et à quelques programmes dans le milieu hydrique et forestier. Quelques mandats d'enquête sur des questions stratégiques ont été confiés au Bureau d'audiences publiques sur l'environnement : cette pratique est plutôt exceptionnelle. Il n'existe donc pas de mécanisme systématique d'évaluation environnementale stratégique (ÉES) au Québec.

Conscient de l'utilité de l'ÉES pour la mise en œuvre du développement durable, le ministère de l'Environnement s'est engagé à déposer au gouvernement d'ici la fin 2003 une politique en matière d'ÉES.

Ce projet de politique fait suite à la réflexion d'un groupe de travail interministériel et à la consultation de 21 ministères et organismes québécois. Le projet de politique fait présentement l'objet d'une consultation publique.

La politique sera implantée graduellement et s'appuie sur les principes suivants:

- chaque ministère ou organisme visé par la politique est responsable de l'implantation de l'ÉES dans son champ de compétences ;
- l'ÉES est amorcée dès le début du processus d'élaboration ou de révision d'un PPP (politique, plan ou programme);
- la mise en œuvre de la politique est sous la responsabilité du ministère de l'Environnement qui mettra sur pied une équipe de soutien qui assistera les ministères et organismes dans la réalisation de leurs ÉES et produira des avis dans tout dossier comportant une ÉES;
- un mécanisme de tri préliminaire est utilisé pour déterminer la nécessité de réaliser une ÉES;
- une ÉES peut être approfondie ou succincte selon l'ampleur des impacts environnementaux appréhendés;
- le public peut intervenir lors du cadrage de l'ÉES et de l'analyse du rapport d'ÉES;
- une rubrique sur les implications environnementales d'une proposition de PPP serait incluse dans tout mémoire transmis au Conseil des ministres en appui au processus décisionnel.

## **SEA FOR OLYMPIC GAMES - FUTURE OPPORTUNITIES FOR RECOGNISING SUSTAINABILITY**

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The European Directive on Strategic Environmental Assessment will be implemented into national law until July 2004. Besides the defined planning processes, which are enclosed in the annex, there will be informal planning procedures, which are not covered by the EU Directive. However, there is a conditional option, which allows the adoption in further SEA studies.

One example with high influence on the local and regional development with major impacts on the environment is the planning process of hosting Olympic Games. The Games in Sydney in 2000 gave a positive example on how to recognise environmental impacts of such events in their process, but even in this case there was no systematic assessment. Looking at the forthcoming games in Athens 2004 or the planning process in Beijing for 2008, there seems to be no serious consideration of environmental effects in advance. At the moment a selection process in Germany will determine which city will be presented to the IOC as the national Applicant City for hosting the games in 2012.

The paper provides a suggestion on how a SEA could play a significant role to consider environmental concerns in the planning process for major events like the Olympic Games. Thereby the role of public participation and the prospects of such a process will be described. The presentation is based on a study for the candidate city Frankfurt on the Main, which introduced SEA as a tool for the planning process. Furthermore, based on the case study, some suggestions for integrating different planning processes will be made. Finally, some general guidelines for adopting SEA in such informal planning processes will be drawn.

Key words: SEA, Olympic Games, public participation, planning process, case study

## **TRANSPORT INFRASTRUCTURE ASSESSMENT PRACTICES IN DENMARK AND THE NETHERLANDS; HOW SIMILAR COUNTRIES CAN DRAW LESSONS FROM EACH OTHER**

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The actual practice of impact assessment on transport infrastructure in The Netherlands has historically been characterised by making only ad hoc and politically opportunistic use of evaluation methods. Such studies, be they EIAs, CBAs, participative consultation procedures or other means of assessing the desirability of transport infrastructure investments, are of-

ten conducted and laid out in attractive reports. However, when push comes to shove the actual decision-makers handling the budgetary decisions in fact make up their own minds and lobby circuits influence money streams more than careful analysis. At the end of the day, this opportunistic practice is seen as inevitable, or even desirable: openness, flexibility and the primacy of politics should prevail. Reports read and interviews conducted in Denmark have shown that assessment and decision-making practices there are remarkably the same as in Holland.

Be this as it may, cross-national comparison has provided evidence that this need not always be so. In countries such as Germany and Sweden, where the assessment practices are considered rather more closed and technocratic, use made of ex ante evaluations is more rigorous and much less opportunistic. Refined forms of CBA and EIA stand in high regard, their position is guaranteed in legislation and they are all always conducted. Outcomes of impact assessments are respected more and very difficult to just push aside.

As drawing lessons from more rigorous countries such as Germany and Sweden has proven to be both administratively unfeasible and politically unpopular in more open/flexible/opportunistic countries such as The Netherlands and Denmark, drawing lessons from each other seems much more promising. In the paper 'Transport infrastructure assessment practices in Denmark and The Netherlands; How Similar Countries can draw lessons from each other,' the Danish and Dutch transport and planning systems and practices are compared and their subtle differences are utilised as sources of inspirations for drawing lessons on how to improve their assessment practices. In the past, Denmark has already adopted a Dutch-style planning legislation and location policies. In the future, The Netherlands also can learn quite a few things from Danish experiences.

Key words: lesson drawing, opportunistic use of assessment methods, transport planning, spatial planning, claim to comprehensiveness, ad hoc evaluation practice

## **WIND ENERGY STRATEGIES IN IRELAND**

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Development of alternative energy sources is a priority at international, European and national level for both environmental and energy policy reasons. The Irish Government's strategy for the provision of 500MW of electricity from renewable and indigenous sources (mainly wind) by 2005, is in line with official European and United Nations targets for reducing dependency on fossil fuels and emissions of greenhouse gases. Ireland's Planning and Development Act 2000 requires that County Development Plans include objectives for the provision of energy. This is deemed to include renewables in accordance with the Government's Climate Change and Wind Energy Strategies.

It is acknowledged that Ireland has a wind resource which is among the richest in Europe. This is mainly concentrated in mountainous and coastal areas where landscape quality and environmental designations are also of considerable importance. Consequently, there are often significant land use planning conflicts as well as public opposition due to concerns in relation to environmental impacts.

County Wind Energy Strategies are critical instruments for anticipating, avoiding and minimising excessive environmental impacts. The strategy evaluates and analyses wind energy resources and applies innovative techniques and approaches to anticipate and accommodate environmental and spatial conflicts for wind farm development.

The strategy recommends the clustering of wind farms in an appropriately identified area of the county. This will help to maximise the wind energy potential of the designated area whilst ensuring confined visual impacts, minimised nuisances to the population and most important, minimised effects on the environment as a whole.

Nevertheless the strategies are yielding unexpected and controversial results amongst planners and operators of the Irish power system. A careful resolution may secure a sustainable approach for an evident and necessary growth in the use of wind energy resources.

Key words: impact avoidance, renewable energy, wind farms, strategy, Ireland

### **REVIEWING THE QUALITY OF ENVIRONMENTAL IMPACT STATEMENTS: A CASE STUDY ON ROADS CONSTRUCTION IN A SPANISH REGION**

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The European experience in the development of Environmental Impact Assessment has demonstrated, in general, a poor quality in the studies. The European Commission started in the 90s several initiatives to provide same tool to evaluate the quality of EIAs and as a result of these, a check-list was proposed for help its quality control. Nevertheless, nowadays there no is evidence that this instrument is being used and the level of quality remains, maybe, under the desirable levels.

The research presented in this paper is part of a study of Ph.D. thesis developed in the Civil Engineering School in Valencia Polytechnic University. More than 50 EIS studies provided for Regional Ministry of Civil Works have been analysed with the European Union Quality Control System to understand how the different check-lists allow evaluation of these documents. There are two objectives of this research: one is the evaluation of EIA procedure and quality studies in the public administration using the different methods; the other objective is to evaluate also the check-lists as a good or bad tool.

Multi-criteria methods and expert groups analyses have been used to study each EIA document. Several deficiencies are frequent such a poor argumentation in the selection of best alternative in the EIA project; also the public participation is not as important as should be desirable in the justification of EIA laws.

### **ENVIRONMENTAL AND SOCIO-ECONOMICAL EVALUATION OF FOUR DIFFERENT SITES FOR A PRINCIPAL DOMESTIC AIRPORT**

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During World War II, a military airport was built inside the City of Reykjavik. This airport became the centre of domestic aviation for the whole country. Now, 50 years later, the airport land has become most valuable for urban development. The city government therefore wants the airport relocated. Four different alternatives have been considered. The first alternative is to maintain the airport in the same place but reduce its area considerably. This would free up land close to the city center for further urbanisation. A second alternative is based on reclaiming land offshore alongside the present airport. A third possible location is a rugged lava field just south of the Reykjavik area, and the fourth alternative is to move the domestic traffic to the Keflavik International Airport, which is about 60 km from Reykjavik. The relocation has become a hot issue in the country. The people living in the countryside with frequent errands to the Capital want to keep the airport in the same place. The people in Reykjavik on the other hand see the land under the airport as a valuable area for urban renewal.

To be able to debate this in an orderly fashion, the four locations have been studied from an environmental and socio-economical point of view. The four alternatives are classified by four different categories: a) economy and capital investment, b) social impacts, c) direct environmental consequences, and d) public safety. The environmental, socio-economical and safety factors are evaluated for each alternative. Questionnaires were submitted to city and government officials to obtain different viewpoints and priorities. For assessment of the various factors, the analytic hierarchy process methodology is applied together with the multi-attribute-utility theory. The quality index of each alternative is finally obtained in the same manner with some sensitivity analyses to strengthen the results.

Key words: airport relocation, quality indexing, analytic hierarchy process, sensitivity analyses

### **THE BLUE MODEL, EDUCATION AND EFFECTIVE ENVIRONMENTAL MANAGEMENT IN SOUTH AFRICA**

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The South African environment faces constraints typically associated with third world countries in Africa. The situation is further exacerbated by the country's use of first world technologies whereby various waste streams, alien and additional to those emanating from third world countries, are produced that impact on land, air and water resources. Through its inability to enforce current environmental legislation (mostly through a lack of government capacity), the absence of markets capable of absorbing the costs associated with environmentally acceptable products and the strains placed on it from the third

world section, the country is not in a position to address adequately the requirements of effective environmental management for a first world country. The lack in government capacity stems from a number of causes. There is a general shortage of qualified personnel in all relevant departments to enforce legislation and the situation is worsened by insufficient funding to obtain the required personnel and equipment, and/or to provide adequate training to existing staff. The Blue Model consisting of an Environmental Protection Unit, three Media Research Commissions, Education and three Development Funds was developed to address the environmental challenges facing South Africa. This paper gives a brief outline of the Blue Model, concentrating on the Education section of the model, proposed to address shortcomings in this field within the South African public and government. The model succeeds, in theory, in meeting the requirements set by both first and third world sectors present in South Africa. To assess its functioning in practice and address present conditions in the country, acceptance of the Blue Model or similar by the South African government is essential for the wellbeing of the country and its inhabitants.

Key words: environmental management, education, capacity building

### **RELOCATING INDUSTRIAL PREMISES FROM GREATER CAIRO TO NEW CITIES: IS THERE A DIFFERENCE IN ENVIRONMENTAL IMPACTS OF TRANSPORT ACTIVITIES**

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The main industrial, warehousing and other premises of Egypt Eastern Company for Tobacco is currently located in Giza governorate. The company is contemplating moving all of its premises to one big location on the 6<sup>th</sup> of October to a new city. In this context, this research is concerned with assessing and comparing the environmental impacts resulting from the transport activities in both the do nothing scenario (i.e., the company continuing to operate from its current premises in Giza) and the do something scenario (i.e., the company relocating the 6<sup>th</sup> of October).

To achieve this objective, the research follows a unique line of analysis, where two logistics chains that simulate activities and flow of raw materials and products for the company are developed. The first chain represents the do nothing while the second represents the do something scenario. Significance of transport activities in both chains is identified, where type of transported commodity, trip origins and destinations, as well as the modes of transport are all identified. This is done for all transport stages identified by the logistics chain analysis.

Relevant data is collected, compiled and analysed to synthesise travelled distances, operating hours, number of trips and average speeds for each of the considered commodities as well as for each of the stages, where transportation activities are involved. Different emission factors were utilised to reflect differences in vehicle type, fuel type as well as average speed. Furthermore, these emission factors were multiplied by a growth factor to reflect the differences in operating and vehicle conditions between developed and developing countries. The expected annual values of six types of emissions were com-

puted for both scenarios. These include: NOX, CH<sub>4</sub>, NMVOC, CO, N<sub>2</sub>O, and CO<sub>2</sub>. A comparative analysis is then used to determine the scenario with the least potential environmental impacts resulting of transport activities.

Key words: environmental impacts, transport activities, industrial relocation, Egypt

## **ENVIRONMENTAL ASSESSMENT OF ROAD ALIGNMENTS BASED ON MULTICRITERIA SCOPING: A CASE STUDY OF CAIRO-AIN SUKHNA FREEWAY**

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The research starts by identifying and classifying the environmental systems expected to be affected as a result of road transport projects. This is followed by specifying the most common environmental impacts expected to occur as a result of road transport projects. The research, then, presents a generic conceptualization of the process known as Environmental Impact Assessment (EIA) as related to transport projects.

The core of this research lies in adapting the EIA procedure and developing a multicriteria scoping framework through which alternative alignments for the Cairo-Ain Sukhna freeway are environmentally compared and assessed. This will be mainly based on semantically assessing and ranking four alternative alignments using 60 criterion. Criteria are selected to cover technical, economical, social and environmental aspects as related to the considered freeway alignments. This is followed by conducting a scoping exercise to identify specific alignment related impacts (positive and negative).

A comparative analysis is then used to rank the alternative alignments based on their specific potential impacts. In this context, the research relies on available baseline information collected from maps, site visits and consultants reports. This is then followed by points weighting giving higher scores to environmental dimensions. Such weightings are applied to the rankings given and the best alternative is identified based on its environmental friendliness in relation to the other technical, social and economic considerations.

The research also reviews the geometric standards specified for the Cairo Ain Al Sukhna freeway and develops an environmental assessment of such standards. In conclusion, the paper presents an identification and classification of strategies, policies and remedial measures that can be applied to mitigate the deleterious environmental effects of road projects in Egypt.

Key words: environmental assessment, freeway, Egypt

## **CAPACITY BUILDING FOR EIA ON THE GOVERNMENT LEVEL IN EGYPT: LESSONS LEARNT**

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In February 1994, the Government of Egypt issued law No.4/94 concerning protection of the environment. The objective of the law was not only addressing pollution measures and control, but also involved new developments and projects in-

cluding expansions of the existing ones. New establishments are required to carry out an Environmental Impact Assessment (EIA) before construction. Relevant articles in the Executive Regulations, issued by the Prime Ministers decree No.338 of 1995, complement the law. The Egyptian Environmental Affairs Agency (EEAA) is mandated to implement law 4/94 and is responsible for the review and decision making for EIA in Egypt. During the past years, the EIA system had witnessed several developments and improvement.

In 1994 only 5 EIS had been submitted for review to the EEAA. The numbers had increased drastically in the following years to reach over 10,000 studies in the Year 2000. This increase in the number of EIA studies required to build the capacity of the EEAA central department at EEAA to handle efficiently such studies, within the allowed time stated in the law of 60 days.

This paper presents a brief description of the EIA system in Egypt -- defined within the context of law 4/94 -- and describes the steps taken by the Egyptian Government to build the capacity within its EIA central department. Statistics will be presented to show the annual EIA submitted to the agency and indicators to show the efficiency of the staff after building their capacity which is a continuous process. Lessons learnt from the evolving EIA system in Egypt is also concluded presenting the author's perspective which could benefit other EIA systems in developing countries.

Key words: capacity building, lessons learnt, indicators, training, Egypt

## **SHORELINE IMPACT ASSESSMENT AS A TOOL FOR ICZM IN EGYPT**

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In light of the growing global concern about environmental problems and the importance of achieving sound management of the natural resources, and realizing the framework of sustainable development, the Government of the Arab Republic of Egypt had adopted several laws to achieve sustainability in its planning and management.

Law No. 12 of 1984 concerning water resources and shoreline and Law No. 4 of 1994 concerning protection of the environment, were among those laws issued by the Government of Egypt to achieve sustainability. The objectives of those laws, however, has not been confined to addressing erosion set back line and pollution problems emanating from existing establishments on the coastal area, but also from new establishments which are set up. According to Law 4 of 1994, new establishments are required to carry out an environmental impact assessment (EIA) before embarking on the construction or the implementation of the project. The Egyptian Environmental Affairs Agency (EEAA) is mandated, by law 4/94, to review and make decisions regarding EIA. Furthermore, those estab-

ishments are required to carry out an additional Shoreline Impact Assessment (SIA) if constructed within the setback area identified by laws 12/1984 and 4/1994. The Egyptian general Shore Protection Authority (SPA) is mandated by both laws to grant license in the set-back area.

The paper presents a general description of the legal system in Egypt for development near the shoreline and the main feature of the Shoreline Impact Assessment (SIA) with its relation to the ICZM framework program and the EIA in Egypt. This work had been carried out as a technical support for the Egyptian Shoreline Protection Agency and funded by the Danish Aid (Danida).

Key words: coastal, impact assessment, integrated coastal zone management, technical capacity building, Egypt

### **ENVIRONMENTAL ASSESSMENT OF PLANS AND POLICIES: A PROPOSAL FOR THIS APPLICATION**

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Environmental Impact Assessment (EIA) has proved to be an efficient tool for environmental management. It provides the means to incorporate environmental concerns on the development of project engineering, public works, etc. Nevertheless, development plans, public policies and, in general, all the plans that have an implication on land use have a considerable impact on the environment which is not evaluated.

Regarding this gap, the European Community created a new Directive that will oblige all country members to adopt EIA on policies evaluation, development and land use plans. This figure has the name of Strategic Environmental Assessment (SEA). It has been pointed out by researchers that for a long time it has been a vital component of EIA.

The University of the Azores is developing a research work to propose general guidelines for SEA. The first case study will be the evaluation of the Land Use Plans in the Azores. Being an archipelago in the middle of the Atlantic, the Azores represent 9 islands and 19 Municipalities. The land use presents some pressures on natural resources that will have to be controlled, namely human pressure through housing, tourism and economic activities, of which cattle raising is the most expressive.

Key words: environmental assessment, development, planning

### **ENVIRONMENTAL IMPACTS OF ECONOMIC LIBERALISATION: A CASE OF THE RUSSIAN FEDERATION**

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Economic liberalization may have various implications for the environment. Positive effects are potentially associated with improved efficiency, investments into cleaner technologies, responsiveness to environmentally aware markets, and ending subsidies to heavy industries. On the other hand, market liberalization may result in weaker environmental controls, economic instabilities distracting attention from environmental issues, and increasing orientation towards profit-making leading to more intensive exploitation of natural resources. In addition, trade liberalization may result in shifts towards more pollution and resource-intensive industries.

This paper seeks to quantify effects of economic restructuring in Russia on air pollution from productive economic sectors in the 1990s. Air pollution in Russia had significantly declined in 1991-1999; however, this decline was largely due to economic decline, as the overall pollution intensity of the economy had decreased only slightly. The factors that affected the pollution intensity are (1) a minor decrease in the combined share of industrial and transport activities in the economy and (2) changing pollution intensities of the industrial and transport sectors.

The pollution intensity of the Russian industry had remained relatively stable during the 1990s. This was the result of the two opposite and mutually canceling trends: (a) increasing shares of pollution-intensive branches such as metal smelting and oil production vs. less pollution intensive manufacturing and (b) decline in pollution intensities within the industrial branches. The article proposes a methodology by which the contribution of both factors to the overall pollution intensity of the industrial sector can be quantified.

The findings of the paper demonstrate that shift towards more pollution-, resource- and energy-intensive industries as a result of economic liberalization emerges as a significant negative factor of the process of economic transition threatening sustainability of emerging market economies. This can potentially be quantified and considered in assessing environmental impacts of trade liberalisation measures.

Key words: air pollution, economic liberalization, economic restructuring, process of transition, environmental performance, Russia

### **SUSTAINABILITY IMPACTS OF DISASTER RELIEF EFFORTS IN CASE OF CHERNOBYL NUCLEAR POWER PLANT ACCIDENT**

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Three aspects should be considered in management and remediation of areas contaminated by the accidental release of radioactivity:

- the environment
- health and well-being, including the psychological impact
- the economic and social status of the populations

These aspects are not independent of one another. In the case of the Chernobyl accident they have mutually interacted to produce a downward spiral in the quality of life of the affected populations. This paper will discuss the lessons that have emerged from that experience and how they might be used in future situations.

How radioactive contamination is managed is a powerful determinant of the success in dealing with the other two primary aspects. For example, "ring fencing" the risk into the contaminated areas by the prohibition of processes that disperse the risk to populations outside the affected areas can be counterproductive for the affected population with minimal real detriment for the wider unaffected populations.

In the case of the Chernobyl accident, health and well-being have been more adversely affected by the psychosocial aspects of the accident than by the direct effects of radiation. The perception that health detriment will be significant has the effect of depressing economic and social development in the affected populations, in the case of Chernobyl, almost to extinction. The almost complete lack of economic activity, and consequent need for state subsidy, in the affected regions, in large measure due to the ring fencing of risk, has resulted in a dependency culture, with little perceived prospect of a return to normality, for millions of people.

The combined impact of a failure to address these three priority areas properly can be clearly seen in the aftermath of the Chernobyl accident and is elaborated in the UN needs assessment report of 2002. It is clear that the early introduction of a "recovery strategy," tailored to the specific needs of the affected communities would have been highly beneficial and likely much less financially costly than the present policy.

Key words: Chernobyl, sustainable development, disaster response

### **COMMUNITY BASED ENVIRONMENTAL IMPACT ASSESSMENT; SOLUTION TO MITIGATING IMPACTS OF COMMUNITY DRIVEN DEVELOPMENT PROJECTS. (CDD)**

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CDDs, currently the focus of many development and donor agencies in poverty alleviation and sustainable development in developing countries, pose a serious threat to the environment. Whereas it is evident that major/large scale projects are the greatest threat to the environment, it is apparently emerging that CDD and social funds projects (e.g., small scale irrigation, fertilizer application, small scale quarrying and mining) can have a very significant adverse effect on the environment especially cumulatively and hence need to be subjected to the Environmental Impact Assessment (EIA) Process.

Community Based EIA provides a framework of applying safeguards to small scale development activities as proven studies being undertaken currently in Kenya to be replicated in the other East African Countries. Empowering the local communities to undertake their own EIAs, through the adaptation of the existing sophisticated and technical EIA training manuals and training of trainers to reach the communities, is slowly ensuring that environmentally and socially sound design of small scale activities at the local and community level is minimizing costly mistakes and project failures.

CB-EIA is yet another dimension of IA at the lowest level possible and strives to demystify the concept of EIA as an "elitist" by simplify existing EIA tools like screening forms, assess

ment matrix, etc., into a user-friendly level applicable by the communities for small scale development projects.

This paper is of significance to the IAIA because it is yet another collaborative effort involving natural resource issues and community development. It aims at giving control of development decisions and resources to community groups, training them on EIA and ensuring sustainability of natural resources at the community level.

## **CAPACITY-BUILDING FOR EIA IN VIETNAM**

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Vietnam has had legislation requiring environmental assessment since 1994. Despite efforts to build capacity, the implementation remains weak. Electricity of Vietnam, the national power utility, is attempting to address this, as the utility embarks on an ambitious expansion of the country's power generation and transmission facilities. This paper provides a case example of capacity building for EIA at Electricity of Vietnam, including a model used in a capacity building plan developed for the utility. The paper anticipates key factors in future implementation of the plan, and identifies potential benefits of the model.

Key words: capacity building plan for EIA, environmental assessment, case example, model for capacity building, environmental management systems, donor-driven EIA, safeguard policies, implementation of capacity building

## **EIA IN VIETNAM: A NATIONAL PERSPECTIVE ON EIA**

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This paper will provide a concrete example of an EIA regime in a developing country; outline some of the barriers, both practical and methodological in implementing EIA in a developing country; and highlight some of the strengths of an EIA regime that is tailored to the national context.

Vietnam has had legislation requiring environmental assessment since 1994. The GOV places high priority on EIA as a major tool in achieving sustainable development. Administration of the EIA process is one of the chief responsibilities of the country's environmental protection agencies, and scarce budgetary resources are allocated to that function. Nonetheless, despite efforts to build capacity for EIA, the effectiveness of the EIA system remains weak. Priorities for improving it are outlined.

A distinguishing, perhaps unique feature of the regulations governing EIA is the requirement for EIA of existing facilities. In a country with few other mechanisms to control pollution, EIA is a major source of information on polluters. Measures are planned that would strengthen not only EIA follow up mechanisms but also provide a key tool for pollution management.

Key words: environmental assessment, national context for EIA, EIA legislation, tool for pollution management, EIA follow-up

## **HEALTH IMPACT ASSESSMENT OF SECTORAL POLICIES AT THE NATIONAL LEVEL: AGRICULTURE, FOOD AND NUTRITION POLICIES IN SLOVENIA**

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Health impact assessment is increasingly addressing large scale, upstream health determinants. As required by European Union legislation, the development of policies concerning entire sectors of civil society should undergo an evaluation of their health implications. This task is challenging, as it requires: (i) the prediction of complex chains of events, affected by endogenous and exogenous factors, with a variety of potential health consequences; and (ii) the consideration of many exposures and risk factors, including some with only suspected or uncertain health effects.

An HIA of the effect of changes in agriculture and food policies in Slovenia, as entailed by European Union accession, is being conducted jointly by the Slovenian Ministry of Health and the WHO. A wide range of stakeholders were involved including farmers, consumer organisations, schools, public health, regional development specialists and officials from the Ministry of Agriculture, Economic Development and Health. The exercise has resulted in setting up a detailed scoping phase. Areas of work that were deemed most relevant are: environmentally friendly and organic farming; diet, nutrition and health; mental health and stress; occupational exposure; socio-economic status; and food safety. The complexities of



European agricultural policy and how it will be applied to Slovenia has made conducting the HIA difficult. Also, for most of the themes identified in the scoping, it is in principle necessary to: identify relevant health outcomes, assess the strength of the available evidence and evaluate the contribution to the health impact, qualitatively or, ideally, quantitatively, as a function of the proposed policy options and their web of causal effects. All these steps are very demanding and highlight the limitations in currently available methods for such ambitious, yet necessary, evaluations.

These difficulties should be urgently addressed, in order to provide the decision making process with the best possible characterization of the human health dimension.

Key words: agriculture, EU accession, food safety, health impact assessment, nutrition, Slovenia

## **ZUIDERZEELIJN, ENVIRONMENTAL IMPACT ASSESSMENT OF A FAST RAILWAY CONNECTION IN THE NETHERLANDS**

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The northern part of the Netherlands is economically less developed than the western part, the so-called Randstad. A couple of years ago, the construction of a fast rail connection between the northern part of the Netherlands and the Randstad was agreed upon, the so called 'Zuiderzeelijn'. This fast connection should have a threefold goal:

1. to strengthen the economic development in the northern provinces
2. to improve the accessibility of the northern part of the Netherlands
3. to relieve the pressure on the Randstad (in terms of housing and traffic).

At the moment, several alternatives with different types of trains and infrastructure, different timetables and different routes are under discussion. In the Netherlands, for large infrastructural projects as this one, an ex ante evaluation in the form of a cost-benefit-analysis (CBA) is required. The CBA focusses on the effects, the costs and the benefits of the different alternatives. This presentation will specifically go further into the issue of assessing environmental impacts of new rail infrastructure.

The following environmental impacts of a new fast link have been studied for the six alternatives:

- emissions of CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>2</sub>
- noise
- impact on landscape and nature

Crucial for this kind of assessment are the premises taken. Are all (foreseen) effects included? Is energy use and emissions related to the construction of infrastructure included in the assessment? How are effects on landscape, which are hard to quantify, treated?

The outcome of the CBA showed that, depending on the alternative, the costs of the fast link exceed the benefits with 0.7 / 3.4

billion Euro. In all alternatives, there is an increase of emissions of CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>2</sub> and an increase of noise loads.

## **DRAWING A LINE BETWEEN ENVIRONMENTAL DEGRADATION AND PRESERVATION: PERSPECTIVES ON DREDGING**

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Environmental management and conservation has become a critical consideration globally, in the spirit of sustainable development. Efforts are therefore aimed both at ensuring that pristine environments are conserved while attempting to restore degraded regions. Many development projects can ordinarily be implemented with minimal damage to the environment, but this requires very careful planning and implementation. Sometimes, a development tool, which is potentially ecologically damaging can also be used for ecological preservation. There then arises a need to draw a clear line between environmental preservation and degradation. Dredging is one of such tools, which can function in both ways. This paper examines dredging in the context of environmental preservation on one hand and environmental degradation on the other hand. It uses the proposed dredging of the lower River Niger in Nigeria as a case study and identifies issues that can be used to delineate the preservation functions of dredging from the degradation potentials. It concludes with a call for adequate studies to be carried out before making decisions on what tools to use for particular developments.

Key words: environmental management, environmental conservation, environmental degradation, dredging, River Niger, Nigeria

## **CITIZEN PARTICIPATION PROCESS IN OPERATING SUDOKWON LANDFILL SITE**

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Citizen participation initiatives are used to remedy the disproportionate effects of environmental damage on particular groups, such as minority and local community members. Through efforts to ensure environmental justice and social equity, Sudokwon (which means the Greater Seoul Metropolitan Area and it includes Seoul, Incheon and Gyeonggi Province) Landfill Site is taking steps to incorporate citizen participation into decision making concerning the operating of landfill facilities and local community support around them. As a rule, participation initiative enables the local community to become more active participants in important local environmental situations, such as offensive odor, groundwater pollution and degradation of life condition. In addition, the initiative addresses environmental justice concerned by providing opportunities for all members of a local community to have a voice in the operating process. Citizens are also often able to provide valuable information regarding local conditions for facilities to consider in operating situation.

Sudokwon Landfill Site Management Corporation (SLC) has supported that a significant economic incentive be provided to all households which are potentially adversely influenced by the operation of Sudokwon Landfill Site. In addition to providing public health, and environmental protection far in excess of what will be achievable under the Act for Promotion of Waste Facilities and Local Community Support (APWL), and the Act Relating to the Establishment and Operation of Sudokwon Landfill Site Management Corporation (ASLC). Thereupon the Council on Local Community Support (COLCS) and SLC are working to promote a plan on support depending upon mutual deliberation. So the owners and/or residents within 2 to 3 km radius of the landfill boundary should be provided with an annual payment to compensate them for the uncontrollable complaints associated with the landfill operation. It is being used to address the concerns of those individual households that are within the sphere of impact of an active landfill work. Certain specific approaches are devised to address these concerns.

Key words: citizen participation, landfill operation, APWL, ASLC, COLCS, sphere of impact

## **APPLICABILITY OF TRAFFIC IMPACT ASSESSMENT TO DEVELOPMENT PROJECTS IN THREE MIDDLE EASTERN CITIES: IS THERE A DIFFERENCE**

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In many cities of the world, and particularly in developing countries, development projects are causing significant impacts on urban travel demand. This growing demand accompanied by inadequacies of transport infrastructure supply, as well as inefficient traffic management and control, all in all, led to severe traffic related problems. The main deleterious traffic related outcomes include traffic congestion and delays, increase in vehicle operating costs and energy consumption, traffic accidents and environmental pollution.

Typically, traffic impact assessment (TIA) studies are conducted to assess the impacts of proposed land use changes on components of the traffic system. In this paper, the applicability of (TIA) procedure is investigated with respect to three development projects. The first is San Stefano complex in Alexandria, Egypt, the second is Bur Juman extension in Dubai and the third is Jabal Al Kabah development project in Makkah Holy City.

The development of the San Stefano complex involves various changes to the surrounding land use pattern. The new complex is meant to provide a variety of functions, including commercial outlets, offices, cinemas, restaurants, lounges, apartments, a hotel, a beach resort and other miscellaneous uses. The Bur Juman extension complex provides a variety of functions, including commercial outlets, office, cinemas, restaurants, lounges, apartments, and other miscellaneous uses. The master plan of Jabal Al Kabah development indicate an expected 40,000 residents considered as the maximum holding capacity of the 8000 hotel rooms. In addition, some 1425 service facilities employing 2,000 persons would exist in the public support area of the development.

The paper is concerned with examining the differences in the applicability of TIA that might occur as a result of differences

in the nature, characteristics and location of the three considered projects. Based on the experience gained from these studies, the paper develops a conceptualisation of a generic procedure for conducting TIA.

Key words: traffic, impacts, assessment, procedure, urban, development

### **THE ROLE OF SCIENCE IN ENVIRONMENTAL IMPACT ASSESSMENT: PROCESS AND PROCEDURE VERSUS PURPOSE IN THE DEVELOPMENT OF THE-ORY**

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Increasing emphasis has been placed in recent years on development of the theory of Environmental Impact Assessment (EIA), primarily as a consequence of increasing recognition that the theoretical basis of 'state-of-the-art' EIA is inadequately developed and detailed. This study reviewed consideration given in the research literature to the role of science in EIA in order to explicate implicit theories. It is suggested that there are two main conceptions of the role of science in EIA (EIA as applied science and EIA as civic science) and five distinct models are identified within these paradigms. These models appear to be based predominantly on existing philosophies of science (such as positivism or relativism) and simplistic and ill-defined conceptions of the purposes of EIA. A broad model is proposed for the advancement of theory on the role of science in EIA which emphasizes conceptual consideration and empirical investigation of the purposes, and hence outcomes, of EIA and the causal processes utilised to achieve these purposes. The model necessitates a reorientation of the research agenda, away from process and procedure to focus on substantive purposes, and this will require more integrative and connective research than has been commonplace in the past. The EIA research agenda must evolve and mature if this globally significant decision tool is to fulfill its potential.

Key words: environmental impact assessment, theory, role of science, decision making

### **CORPORATE ENVIRONMENTAL MANAGEMENT TOOLS AT HUNGARIAN LOCAL GOVERNMENTS**

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Managing local environment has always been a key aspect of local policies even before environmental problems gained large scale attention in the 1980s. It has, however, not been long ago that environmental management tools, such as impact assessments, environmental planning, programming, and management systems started to play more significant role in local policies. Long term planning and the implementation of systematic tools have been strongly supported by the development of the sustainability agenda. The 1990s have experienced

enormous development in the field of corporate environmental management throughout the world. The emerging economies of Central Eastern Europe are following these trends rapidly. And whilst the general trends are very similar to those experienced in the western world, there are significant differences due to the differences in historical and cultural backgrounds, environmental conditions and economic situations. Not surprisingly perhaps, complex environmental management tools (such as EMS) are hardly applied by Hungarian local governments. EMS is being implemented at the local government of the city of Miskolc - no other municipalities apply EMS or eco-BUDGET or any other qualified tools. Of the environmental management tools according to the Plan-Do-Check-Revise management cycle local governments tend to apply some elements of planning, some organisational and operational tools that are derived from general (i.e. non-environmental) management schemes, but only few elements of checking and revision. The paper considers and compares applicable experience existing in other countries around the globe and highlights possible policy instruments at local and central governmental level to enable municipalities more extensively to apply best environmental management practices.

Key words: EMS, local environmental policy, Hungary

### **INTEGRATED STRATEGIC ASSESSMENT OF THE PROPOSED GORGON GAS DEVELOPMENT IN WESTERN AUSTRALIA**

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ChevronTexaco, in conjunction with its joint venture partners, is seeking to develop the Gorgon Gasfields located off the coast of Western Australia. The proponent maintains that the only commercially viable location for the necessary gas processing plant is Barrow Island, the most accessible land to the gasfields. The proposal to use Barrow Island represents a significant political challenge, because although Barrow Island has supported an operating oilfield since 1967, it has been a Class A Nature Reserve since 1910 and has unique and internationally significant conservation values.

However, in recognition of the significance of this resource, and the potential benefits which could flow to the State of Western Australia from its development, the Government has agreed to assess the proposal at a strategic level to determine whether an in-principle approval for access to Barrow Island could be awarded to ChevronTexaco. This represents the first attempt by the Government of Western Australia to conduct an integrated, strategic assessment of a development proposal, a process for which there is currently no statutory basis.

The assessment process involves evaluation of the strategic, economic, social and environmental ramifications of the proposal and a detailed investigation of alternative development locations. The process is now well underway, and a final decision is expected from Government in September 2003. If in-principle approval is awarded, the proposed development will still be subject to statutory environmental impact assessment (EIA) processes prior to final approval.

The Gorgon evaluation process is occurring at a time when the need to develop and implement integrated, sustainability-based

assessment processes for projects of strategic State significance has been recognised in Western Australia. Gorgon is therefore seen as a case study the lessons from which will inform the development of such future processes, and as such is the subject of a Masters research project.

Key words: integrated assessment, strategic environmental assessment, research, Australia, sustainability

## **LINKAGES BETWEEN STRATEGIC ENVIRONMENTAL PLANNING AND CORPORATE ENVIRONMENTAL MANAGEMENT**

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The paper aims to explore ways in which strategic decision-making and planning tools can be enhanced through strengthening their conceptual and operational linkages with environmental management in corporations, especially with corporate Environmental Management Systems (EMS).

In the last decade, public authorities have been incorporating environmental considerations in local and regional planning, using a variety of tools such as Strategic Environmental Assessment (SEA), Local Agendas 21, and Integrated Coastal Area Management. At the same time various voluntary approaches (e.g., "cleaner production," "eco-efficiency," and EMS) have emerged from the private sector. Despite certain success, both types of approaches have been criticized. In particular, it was pointed out the environmental plans are often not implemented and voluntary initiatives are largely driven by private interest with insufficient connection to public environmental policies and objectives.

A number of linkages between strategic environmental planning and EMS can be identified. First, strategic environmental planning can benefit from influencing EMS in corporations that impact sustainability of the territory or sector in question. Secondly, strategic tools can borrow from corporate environmental management experience through developing environmental management systems at the strategic level which would perform the follow-up function for SEA in a similar way that EMS often perform follow-up functions for (project-level) Environmental Impact Assessment (EIA).

However, it is not clear to which extent the experience of corporate EMS can be transferred to strategic level management by public authorities. A city, a community, a territory or even a sector is not a corporation and cannot be "managed" in a traditional sense of the word. Thus, distinct environmental strategic management tools and systems linked to strategic planning and decision-making systems have to be identified and developed.

Keywords: SEA, EMS, linking tools

## **BARRIERS TO CIVIL SOCIETY'S INVOLVEMENT IN ENVIRONMENTAL ASSESSMENTS OF TRADE AGREEMENTS**

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There are several fundamental aspects to civil society's involvement in environmental assessment of trade agreements: accessibility, openness, transparency, and standing.

This paper will examine how these principles are integrated into the participation process of the North American Free Trade Agreement (NAFTA), Central American Free Trade Agreement (CAFTA) and the Free Trade of Americas Agreement (FTAA) to understand what are the barriers to effective civil society's involvement.

Keywords: environmental assessment, trade agreements, civil society, involvement process, barriers

## **A FRAMEWORK FOR EVALUATING OCCUPATIONAL HEAT STRESS IN THE CONTEXT OF HIA IN BAHRAIN**

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Improper control of heat stress in the work place and high climatic heat stress result in occupational heat stress being a significant health hazard to the working populations in hot and arid countries. However, occupational heat stress is rarely addressed in impact assessment studies. This paper proposes a framework based on the socio-environmental model of health to assess the magnitude of occupational heat stress in the context of impact assessment studies in Bahrain, an arid and highly industrialized country in the Arabian Gulf. The data in this study were obtained using unstructured interviews with key informants as well as analyzing statistics, health sector records, regulations and published and unpublished data. Assessment of occupational heat stress using the proposed framework indicates that occupational heat stress is a significant, yet an underreported health outcome in Bahrain. The assessment highlights many limitations in the current data available on occupational heat stress in Bahrain. The framework proposed enables assessors to assess the magnitude of occupational heat stress in impact assessment studies in Bahrain as well as address health inequalities. There is an urgent need to improve

data collection and reporting of occupational heat stress cases in Bahrain if effective mitigation measures are to be formulated and implemented.

Key words: occupational heat stress, health impact assessment, Bahrain

## **PREDICTION TOOLS FOR BIODIVERSITY IN EIA**

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The association of the Environmental Impact Assessment (EIA) process to the term "biodiversity" sounds as a common sense for most people. Practice shows, however, that in many cases the EIA process is lacking both incentive and common methodology concerning biodiversity issues. Recent efforts and progresses should however be pointed out. The 1992 Rio summit and the resulting Convention on Biological Diversity (CBD) found echoes in many countries and resulted in the development of international, national and regional environmental policies. These constitute a strong support to the integration of biodiversity issues in the EIA process. The implementation of these policies at the regional and local scales requires practical tools to assess the impact on biodiversity of potential developments and plans.

Areas located in the proximity of major cities are of particular interest because of the high pressure on the environment and their exposure to existing infrastructure and potential developments. In the greater Stockholm region, the population has increased by more than 10% during the last ten years, resulting in new plans for developments and an increasing pressure on the environment. A study has been initiated that intends to test existing methods and develop new prediction tools for assessing the impact on biodiversity at a local and regional level. The method adopted is based on the identification of parameters involved in the presence/absence of focal species, in the current study the Mountain Hare (*Lepus timidus*). Some of the tested parameters are the spreading capacity, the resource requirements and potential disturbances. The parameters are implemented in a Geographical Information System (GIS) interface in order to generate qualitative prediction maps showing occurrence probabilities of focal species. The prediction tools can thereafter be used in the assessment of the impacts of different development alternatives or plans at the local and regional level.

Keywords: biodiversity, EIA, prediction, focal species, GIS

## **DOES THE USE OF SEA/SA RESULT IN CHANGES TO ENGLISH DEVELOPMENT PLANS?**

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The EIA Centre is undertaking research into the current use of strategic environmental assessment (SEA) and sustainability appraisal (SA) during the preparation of English development plans. The first stage of the results have shown a broadly positive outlook towards SEA, and an increasing use of sustainability appraisal. Furthermore, the results have highlighted benefits to the application of the process additional to assessing the core environmental impacts of the plan. The second stage of the research draws upon the experiences of English planning authorities, investigating the use of SEA/SA in 25 case study authorities in both the south east and north west of England.

This paper outlines the ways in which both SEA and SA have been used by local planning authorities in the production of their statutory land-use plans. Moreover, the paper seeks to address the following broad questions:

- How is SEA/SA integrated within the plan preparation process?
- Does recent development plan SEA/SA practice meet the requirements of the Directive?
- What weight is attached to environmental concerns, relative to the weight attached to social and economic concerns?
- What changes or modifications to development plans have arisen from the use of SEA/SA?

This research is rendered timely as, in England, the Office of the Deputy Prime Minister (ODPM) has produced draft guidance on the implementation of the 'SEA' Directive. Consultation responses have been received and are being assessed, with a view to revised guidance being produced by the summer. This paper will add value to the on-going debate about how current practice can define areas where further discussion and research are needed.

Key words: strategic environmental assessment, sustainability appraisal, case study, development plan

#### **FINDINGS FROM MAPPING AND REVIEWING HIA RAPID APPRAISAL AND SCREENING TOOLKITS**

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Over recent years HIA has seen the development of a number of toolkits and resources for key stages or components of the HIA process: Rapid Appraisal and Screening being the two most common. The Health Development Agency, as part of its 2002/03 work programme considered that it would be timely map these toolkits and attempt to capture and share the learning around rapid appraisal and screening approaches within HIA. A research project was therefore commissioned in order to:

- identify, map and review existing screening (assessing if a HIA is required) and rapid appraisal HIA tools/resources (including where appropriate, integrated tools)
- review the processes, approaches, techniques and mechanisms being used to screen proposals and to undertake rapid appraisals, in particular the elements and processes that need to be in place to make such activities successful
- capture the learning associated with establishing and undertaking screening and rapid appraisals, in particular, how inequalities are being addressed

This paper will present the rationale for, and methods used, to undertake this project. It will also outline the main findings from this research project. Key recommendations for both rap-

id appraisal and screening practice and further work in this area will also be presented.

Key words: health impact assessment, rapid appraisal, screening, research findings

#### **INFLUENCING HIA PRACTICE – EXPERIENCES FROM ENGLAND**

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The Health Development Agency's HIA work programme for 2002/03 included the generation of 'promising practice' guidance for HIA within England. However, the provision of paper-based guidance alone is unlikely to be sufficient to alter current practice. Therefore, building on the findings of the Cabinet Office's cross-sectoral review of spreading good practice (2000) and the NHS Centre for reviews and Dissemination Effectiveness Healthcare bulletin on Getting Evidence into Practice (1999) we ran four 'promising practice' workshops in order to pilot the evidence into practice approach and to help generate promising practice guidance on:

- Monitoring and evaluating your HIA
- Addressing inequalities within your HIA
- Influencing the decision making approach with HIA
- Deciding if an HIA is required (Screening)

This paper will present the rationale for, and approach used, to pilot the evidence into practice workshop approach. This paper will also outline what happened during the workshop and the associated outputs generated. Conclusions about the usefulness of the approach, and recommendations for further work in this area will also be presented.

Key words: health impact assessment, learning from practice, guidance

#### **THE NEED FOR CONFLICT ASSESSMENT AND DISPUTE RESOLUTION DESIGN CAPACITY WITHIN THE PRIVATE SECTOR OPERATING IN CONFLICT AND POST-CONFLICT SITUATIONS**

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Since 2000 the office of the Compliance Advisor/Ombudsman has operated as an accountability mechanism for the World Bank Group's investments with the private sector. Complaints to the CAO often originate with scope, transparency and participatory nature of impact assessment. Resolution of complaints, however, necessitates consideration of who benefits from development and who decides.

Through situation assessments for mediation and conflict resolution as the result of complaints and from analysis of large high-risk, high-reward projects undertaken across boundaries and the elevated expectations for development that accompany such projects, the paper examines the need for conflict assessment within strategic environment and social impact assessment and the accompanying need for private sector project sponsors and operators to develop upstream dispute resolution design systems to manage inevitable conflicts arising from their entry into conflict situations and from conflicts arising as a result of their entry into a conflict area.

The paper draws upon case studies of mediations of complaints undertaken by the office of the CAO and from examination of other large projects with conflicts arising. These include the Yanacocha Gold Mine, the Chad-Cameroon Pipeline, the Baku-Tbilisi-Ceyhan Pipeline and the Bujagali dam. The paper examines the constraints and the opportunities for companies and gives practical suggestions as well as some opportunity cost analysis to support the notion of investing in dispute.

Key words: mediation, conflict resolution, dispute resolution, design, environment, social impact assessment

### **FROM PROCESS COMPLIANCE TO FOCUS ON OUTCOMES: NEW INNOVATIONS IN ACCOUNTABILITY AND SUBSEQUENT CHALLENGES FOR THE PRACTICE OF ENVIRONMENT AND SOCIAL ASSESSMENT**

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The World Bank Group has bi-focused accountabilities. It is formally accountable to a Board of Directors representing shareholder countries, yet Board decisions are opaque and public oversight limited. Informal accountabilities have emerged as a result of advocacy and activism by interest groups in the developed world and the growth of civil society institutions across the developing world. The instruments of choice of these accountability holders are environment and social impact assessment.

However, the basis for most economic and financial decision making is not disclosed. The resulting disclosure imbalance has forced public attention and demand for participation onto environment and social impact assessment process and product. This has fed resistance within the institution among those who consider implementation of assessment as a break on business. Assessment has also become a proxy for resistance from developing countries to interference in their development priorities by vocal and powerful constituencies in the developed world.

The paper examines these tensions, the need to shift the focus from process compliance as a tool of accountability oversight,

to a focus on real results and outcomes on the ground and the systems changes necessary for such a shift to occur. The paper asks what this means for the future of assessment and the way institutions that depend on assessment for due diligence frame assessment in management systems.

The paper draws upon case studies of mediations of complaints, a review of the impact and effectiveness of the Safeguard Policies of the International Finance Corporation and the process put in place to implement the Policies.

Key words: accountability, international financial institutions, evaluation of assessment, environment, social impact assessment, mediation, conflict resolution  
**“RED LIST TOAD” SAVES MONEY IN HORTICULTURAL DEVELOPMENT PLAN**

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Once upon a time...

there was a municipality that was assigned to be a development area for horticulture. In the Netherlands many greenhouses have to move away from the densely populated coastal area to more remote areas. The relocation is in relatively new land, the polder area that was reclaimed from lake IJssel. The development of this horticultural settlement required EIA reporting. Starting off with a “no more than necessary” target the EIA process was started. The assigned project team started with the intention to make the best of it. And ended up with something better than everyone expected. Stakeholders in this project were the municipality, water management authorities, provincial authorities and nature conservation organisations (the latter speaking on behalf of the red list animal: *bufo calamita* or British toad). The project team put a lot of effort into the communication between these stakeholders and into process management. The guidelines provided by the Dutch EIA commission played a crucial role in this process. Gradually the development plan became more and more environmentally attractive. The area for nature development increased, the water system became more robust and the architectural landscape perspective for the new area improved. In the end it turned out that, compared to the first development concepts, the final version was even an economical more attractive solution.

It may sound like a fairytale but it really happened...

Key words: process management, agricultural EIA, application of impact assessment, land use planning, agriculture and water management

### **ENVIRONMENTAL IMPACT ASSESSMENT: FROM SEGMENTATION TO INTEGRATION**

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This paper defines and explores the relationship among key areas and sub-areas of environmental impact assessment (EIA), including among others: social impact assessment, strategic environmental assessment, cumulative effects assessment, and public participation. A central thesis is that trends toward proliferation of specialty areas and their segmentation are caused not only by the growth and accompanying sophistication of the impact assessment field, but by unresolved and sometimes hidden confusion and disagreement over the concept of “environmental standing” and the relationship of environmental impacts to human concerns. The author attempts conceptual clarification as a means to push the field toward integrated approaches to EIA and its related components and enhance capacity building.

## **ROUTINES FOR EIA AT CERTAIN DEVELOPMENT AGENCIES**

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The Swedish Government has reinforced its commitment to Sector Wide Approach (SWAp) in the support to key development areas. It has instructed the Swedish International Development Cooperation Agency (Sida) to increase its efforts to participate in such a process, and to shift from project to programme support whenever possible. Sida will therefore increase its co-financing with other donors and go into cooperation with a few donors in the position as “silent partnership”. With this in mind the EIA policies of some development cooperation organisations have been studied.

The result is mainly based on information available at the internet but also attained from direct information.

The study is principally made of such organisations that Sida has or will begin cooperation with in the form of “silent partnership.” Other organisations that have been studied are various UN agencies, multinational banks and development cooperation agencies of some of our neighbours among the Nordic countries.

A conclusion from the study is that there are both similarities and differences compared to Sida’s policy, but the main difference is that no one seems to make EIAs for all their projects which Sida has to do, even if the EIA can be very small (actually just a screening).

Key words: EIA guidelines, development cooperation, silent partnership, Sida, Sector Wide Approach (SWAp)

## **BUILDING CAPACITY IN SEA IN SUB-SAHARAN AFRICA**

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This paper will discuss the experience and lessons learnt from a three-year programme of SEA relating to water use in catchments in South Africa, undertaken by the Department of Water Affairs and Forestry, and the initial stages of a one-year SEA being undertaken by the Ghanaian government into its poverty reduction strategy. The key issues for capacity building arising in both SEA processes relate to:

- Changing institutional structures for decision-making
- Responding to rapid revisions in legislation, policy frameworks and guidelines
- Involving stakeholders
- Adapting methodologies to meet the resources available



- Achieving the right balance of skills in the project team
- Ensuring continuity in staffing
- Tackling SEA at national, regional and local level
- Integrating bio-physical, social and economic components of the assessment

Key words: environmental pollution, environmental protection, ERML, cooperation and alliances

## **SIA ON DAM IN THE PLANNING STAGE IN KOREA**

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Because of the increasing water demand through the economic growth and improving life quality, Ministry of Construction and Transportation in Korea plans to build 12 more dams to fulfill the water demands by the Prolonged Plan of Dam Construction (2001-2011). However it is the reality that an initiative for a dam construction is hard to accomplish because of the strong opposition of the local residents, environmental organizations and NGOs. Therefore, the Social Impact Assessment (SIA) for a dam construction is becoming more significant. The Social Impact Assessment of dam constructions would be carried out in 4 stages: the policy stage, planning stage, implementations stage and post-evaluation stage. It is necessary to operate the SIA at the policy or the planning stage in order to reduce the conflict with the local residents. Though SIA is not considered at the policy stage in Korea, it would be significant to examine a method to operate the SIA at a lower stage, the planning stage. At the planning of dam construction stage the SIA is carried out while passing a propriety examination and priority environmental assessment. Mainly to examine the problems on the legal bases, the procedure and content of the SIA and to make a counterproposal are discussed here.

## **INTERNATIONAL CO-OPERATION FOR ENVIRONMENTAL CONTROL AND MANAGEMENT: EXPERIENCES FROM ERML**

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Over the years, it has become increasingly clear that environmental pollution and damage know no boundaries and that if the entire globe is to be preserved, joint efforts have to be made. To this end, several treaties and conventions have arisen, aimed at global networking for environmental management. One of the best approaches to improved environmental protection is to have environmental managers from different parts of the world teaming up to work cooperatively. This has been the ERML approach. In this paper, perspectives of ERML's co-operation and alliances with different companies from within and outside Nigeria is presented. The successes and failures of such relationships are carefully presented, using case studies and life examples. In addition, issues and problems associated with such relationships are highlighted and ways of overcoming bottlenecks are presented.

## **BUILDING CAPACITY FOR HEALTH IMPACT ASSESSMENT IN LITHUANIA**

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Lithuania is currently getting prepared to become an EU member. In the course of doing so, the country seeks to strengthen its capacities in the field of public health as to be able to meet the requirements set by the *acquis communautaire*. In the framework of a larger EU financed project, one of the components was to develop HIA capacity. A working group of 10 professionals and policy makers in the field of public health was formed. Two main activities were carried out: firstly, a training course on HIA was developed for the working group members. In the future, this course will be implemented as a regular part of the social medicine curriculum at the Medical University of Kaunas, Lithuania. Secondly, a pilot HIA on the newly developed national housing strategy of Lithuania was started in order to develop an HIA method tailored to the national setting of Lithuania. After this project, first steps will be made towards structurally embedding HIA in the context of Lithuania. Therefore, throughout the project attention is being paid to this context, including policy and political culture, legal framework, already existing IA, and professional capacity. As a work in progress, the project provides lessons about HIA development and implementation that may be relevant for other middle income countries, especially those that are accessing the EU.

Key words: health impact assessment, middle income countries, capacity building

## **A HEALTHY URBAN POLICY? HIA ON THE DUTCH GOVERNMENT'S URBAN POLICY**

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In 1994 the Dutch government introduced the urban policy to tackle a number of problems in major cities in the Netherlands. Goals of the urban policy are: improving safety, stimulating integration, enhancing the social infrastructure, preventing unemployment and regeneration of districts. In covenants the cities and the government register their agreements on the urban policy. Last year, the Dutch government decided that health should have a more clear-cut position in the urban policy. The Ministry of Health therefore asked the National Institute of Public Health and the Environment (RIVM) and the national umbrella organization of public health services (GGD-Nederland) to conduct a health impact assessment on the urban

policy. We screened the covenants of four cities on health relevance and possibilities for promoting and improving health. The goal of the screening was to find starting points for clearer positioning of health in the Dutch government's urban policy. Findings: Although many of the policy measures described are health-relevant, this relevance is not explicitly named, not expressed as a goal and not measured. Naming positive health effects and striving to achieve them could strengthen these effects through better timing, making a conscious choice for target groups with health risks and attuning policy to activities in public health care. One of the policy goals for the major cities should be to promote the population's health, especially with regard to people with a low socio-economic status.

Key words: health impact assessment, major cities, screening

## **THE ROLE OF HEALTH IMPACT ASSESSMENT IN THE POLICY PROCESS**

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In a paper presented at the UK & Ireland Conference on HIA (Birmingham, February 2003) we explored the possibilities for HIA utilisation in the policy process from a political-administrative perspective. We considered the HIA to be a knowledge generating and policy relevant research. The central issue was the confrontation between a rational and a political perspective on research and policy-making. Theories of Evidence-based policy-making and the Knowledge Utilisation Studies were illustrated by two Dutch cases of national policy HIA's to show that utilisation is influenced by the policy context. Therefore we argued that HIA design should address policy context characteristics in order to optimise utilisation beforehand.

In this paper we want to proceed on the theme and explore the potential contribution of HIA as a policy instrument to the policy process. In this view, HIA is an administrative means to accomplish policy goals. The main feature is the extended objective: the HIA as a policy instrument intends to describe and explain potential health impacts as well as implement the resulting recommendations. Thus, in order to identify HIA utilisation we need to evaluate the policy process as a whole.

This raises the following questions: what does a process of cross-sectoral health policy look like and how could HIA fit into it? Under which conditions could the HIA, as a policy instrument, contribute to the policy process? Could these conditions be met in HIA design? If so, how? To answer these questions, we will explore the theories of policy instruments, policy design and implementation. We will illustrate these with a Dutch case of cross-sectoral health policy. Also, we will compare the conditions with the political-administrative development of the Environmental Impact Assessment.

Key words: health impact assessment, cross-sectoral health policy, policy process

### **THE ROLE, STATUS AND EFFECTIVENESS OF ENVIRONMENTAL ASSESSMENT IN PLANNING FOR SUSTAINABLE DEVELOPMENT IN EASTERN AFRICA**

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In implementing Agenda 21, countries have been developing frameworks to enhance planning for sustainable development. In support of Principle 17 of Agenda 21, the African Ministerial Conference on Environment (AMCEN) called for strengthening the role of environmental assessment in planning for sustainable development in Africa. Strengthening African capacity in environmental assessment for planning for sustainable development and informed decision-making is identified as key area for action.

In Eastern Africa, countries are trying to build their capacity through development of environmental agencies and laws and adjustment in decision-making processes to allow integration of environmental concerns into development activities. Environmental Assessment tools especially EIA and SEA have been important in providing information for rational decisions, balanced development and sustainable environment.

This paper provides an overview on the role, status and effectiveness of environmental assessment in planning for sustainable development. The paper specifically discusses utilization, capacity and challenges in practicing EIA and SEA in development planning cycles for policies, programmes, projects and in transboundary environmental management in Eastern Africa countries, that are also in transition towards liberalized economies and decentralized governance.

In utilizing EIA and SEA tools in Eastern Africa, it is revealed that wide variations exist among countries in the systems establishment and applications. Countries also face varying challenges including lack of adequate institutional and legal framework, inadequate human and financial capacity, ineffective participation of civil society and private sector, loss of credibility of EIA/SEA process, constrained training institutions, and ill-consideration of transboundary environmental consequences. Consequently, EIA and SEA inadequately applied are ineffective particularly in enforcement and compliance. Development planning and decisions continue being made with avoidable damage to the environment not adequately addressed.

The paper makes suggestion on measures to help address the challenges including establishing linkages with development planners, strengthening capacity, regional co-operation for sharing information, expertise and managing shared ecosystems.

Key words: environmental assessment, sustainable development, sustainable environment, environmental impact assessment, strategic environmental assessment

### **L'ÉVALUATION STRATÉGIQUE DE L'IMPACT SUR L'ENVIRONNEMENT - RÉALITÉS ET PERSPECTIVES À GENÈVE**

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L'évaluation stratégique de l'impact sur l'environnement (ESIE) est un outil d'aide à la décision. Il consiste à appliquer systématiquement les principes de l'évaluation environnementale lors de la planification de plans, de programmes et de politiques publiques, notamment en matière de déplacements ou d'aménagement du territoire. Il permet l'émergence de solutions plus favorables pour l'environnement.

En Suisse, l'ESIE ne fait pas l'objet d'une législation fédérale spécifique. Cependant, la prise en compte des principes généraux de la protection de l'environnement, au stade de la planification, fait l'objet de prescriptions dans la législation relative à l'aménagement du territoire. Au niveau cantonal, le nouveau plan directeur introduit l'ESIE comme un des outils de planification répondant aux principes du développement durable. Elle est entrée en vigueur à Genève le 1er janvier 2002.

En permettant la comparaison des impacts environnementaux de plusieurs variantes et l'identification des solutions les plus compatibles à la protection de l'environnement, l'ESIE se distingue notablement des études d'impact sur l'environnement (EIE) dont le but est de vérifier la compatibilité d'un projet dans un environnement donné.

Sa mise en application est délicate et nécessite une forte collaboration entre les services de la protection de l'environnement et la direction de l'aménagement du territoire. Par ailleurs, l'ESIE étant à la charge de l'autorité et non plus à celle du requérant, son financement pourrait être un frein à sa généralisation.

La systématisation de l'ESIE à l'ensemble des plans, programmes et politiques sera accompagnée d'un suivi des mesures de minimisation et d'accompagnement inscrit dans un processus d'amélioration continue. Nous développerons prochainement un système d'information à références spatiales qui facilitera l'élaboration des EIE et des futurs plans directeur cantonaux.

Enfin, pour répondre aux exigences d'un développement durable, le concept d'évaluation stratégique de l'impact devra s'appliquer aux domaines du social, de la culture, de l'économie et de la santé.

Key words: évaluation stratégique, ESIE, Genève

### **LES OUTILS DE COMMUNICATION ET D'ANALYSE AU SERVICE DE LA PARTICIPATION PUBLIQUE**

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Le Bureau d'audiences publiques sur l'environnement (BAPE) fêtera ses 25 années d'existence en décembre 2003. Ses activ-

ités sont présentement plus intenses qu'elles ne l'ont jamais été. Elles découlent de l'initiative des citoyens qui jouent le rôle d'élément déclencheur lorsqu'ils requièrent la tenue d'une audience publique. L'action du Bape dans la société québécoise est donc intimement liée à la volonté des citoyens d'y participer. Afin d'évaluer le taux de satisfaction des québécois à son égard, le Bape a effectué un sondage et recueilli les commentaires de groupes de discussion représentatifs de sa clientèle. L'analyse des résultats montre un taux élevé de satisfaction envers les services rendus par le Bape. Afin de pouvoir répondre à des exigences toujours plus élevées et de s'ajuster aux caractéristiques d'une société sans cesse en évolution, le BAPE a élaboré une liste d'améliorations de ses services.

Le champ d'action du Bape s'étend sur les 17 régions administratives du Québec : comment cet organisme arrive-t-il à rejoindre rapidement les citoyens concernés par les projets ? Quels sont les outils de communication qui permettent de toucher une clientèle diversifiée répartie sur un territoire aussi vaste et de lui donner accès à toute l'information concernant les dossiers en cours ? Comment le Bape arrive-t-il à traiter efficacement des dossiers dont le sujet et les impacts sont extrêmement variés ? Quels sont les outils d'analyse que les experts du Bape ont développés au cours des ans et qui contribuent à la production de documents de qualité et au succès de l'organisme?

Mots clés: outils de communication, outils d'analyse

## **THE POTENTIAL USE OF SEA AT A RIVER BASIN ORGANIZATION**

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The aim of this paper is to discuss the potential role that Strategic Environmental Assessment could play in the framework of a River Basin Authority, as established by the Water Framework Directive 2000/60/EC (WFD), which came into force on December 22nd, 2000.

The purpose of the WFD is "to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater", for which each Member State shall produce river basin management plans (as established in Article 13), for which -according to the SEA Directive 2001/42/EC- an environmental assessment must be carried out.

Moreover, concerning other plans that are produced at a River Basin Organization, this presentation tries to elucidate which of them must be subject to an environmental assessment.

Furthermore, the paper focuses on the case of Júcar basin, that covers 42,989 Km<sup>2</sup> in the east of the Iberian Peninsula.

Key words: decision-making, strategic environmental assessment, SEA, hydrological planning

## **RELATING SEA TO ITS CONTEXTS AND TO SUSTAINABLE DEVELOPMENT**

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The general expectation that Strategic Environmental Assessment (SEA) will contribute to sustainable development remains poorly conceptualised, despite appearing persistently in most academic and policy literature for over a decade. This paper seeks to contribute to the debate, focusing on the idea of SEA as a context-specific instrument, which can operate at two levels: the immediate context (including activities linked to planning, decision-making and assessment, hereafter referred to as the "policy process") and the wider context (including administrative, cultural, institutional and political dimensions).

The relationship between instrument and context is crucial when defining the purpose of SEA: "why apply this instrument in this context?". This link requires first an understanding of the problems and failures of current policy processes from an environmental and sustainability perspective; once these have been explored, the purpose of SEA can be defined in terms of what it can do about them. Drawing on empirical evidence (from infrastructure investment authorities in developing and developed worlds), two broad purposes can be identified: modernist and transformative. The latter relates to the immediate context (the policy process under evaluation) and seeks to influence it. The former relates to both contexts with the aim of triggering incremental structural changes leading, in the medium and long term, to more effective conditions for sustainable development.

In situations where contexts fall short of ideals of strategic, let alone sustainable, frameworks of policies, plans and programmes, SEA can provide an arena, which strengthens the capacity of such contexts to deliver sustainable initiatives: influencing the definition of the problem, raising strategic questions, promoting consultation and opportunities for argumentation and deliberation.

Thus, given the political will, SEA can be conceived as a tool for a long-term strategy of institutional learning and structural change, as well as a more immediate means of influencing strategic decisions.

Key words: strategic environmental assessment, purpose, context, sustainable development

## **THE USAID AFRICA BUREAU ENVIRONMENTAL GUIDELINES FOR SMALL-SCALE ACTIVITIES IN AFRICA – AN OVERVIEW AND TOUR OF SECTOR-SPECIFIC MATERIALS**

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To complement the general principals and skills focus of USAID's Bureau for Africa Environmental Assessment and Sound Design Course, the Bureau has developed sectoral best management practices, as well as mitigation and monitoring guidelines. These *Environmental Guidelines for Small-Scale Activities in Africa* treat the specific environmental design and environmental impact mitigation issues for a wide range of small scale development activities including medical waste, water and sanitation, micro and small enterprises (tanneries, textile dyeing, agricultural processing, small-scale mining, etc.), ecotourism, farm to market roads, pesticides/IPM, renewable energy, solid waste, community-based natural resource management, fisheries, livestock, agriculture, irrigation, forestry and others. Each guideline provides a brief description of the sector, potential adverse environmental impacts, specific guidance on sector program design, mitigation and monitoring measures, and annotated resources and references with links (many web-based) to more in depth guidance.

Key words: ENCAP, environmental guidelines for small-scale activities, best practice, mitigation

#### **THE USAID AFRICA BUREAU ENVIRONMENTAL ASSESSMENT TRAINING COURSE FOR SMALL SCALE ACTIVITIES**

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Since 1995 USAID's Bureau for Africa has sponsored 22 presentations of the five day "*Africa Regional Course in Environmental Assessment (EA) and Environmentally Sound Design for Small Scale Activities*" reaching over 1000 participants and 400 organizations. The course provides an introduction to the principles of environmentally sound design; EIA principles; mitigation and monitoring of small-scale development activities; and compliance with USAID environmental review requirements. Course participants are generally USAID partners of various types including NGOs, university and host-government personnel or environmental professionals. The course includes a carefully structured 1-day field trip to assess actual or proposed project activities. Participants then write draft environmental documentation based on their site visit experience. A full description of the basic course, its agenda, *Facilitators' Guide, Organizers' Notes* and training materials can be found at [www.encapafrika.org](http://www.encapafrika.org).

Upon course completion, those trained are expected to be familiar with environmental documentation and review proced-

ures. They will be able to prepare environmental documentation which:

- takes into account the ecological, institutional, legislative, regulatory and socio-economic contexts within which proposed activities or projects will be undertaken
- demonstrates sound environmental design and implementation
- makes use of a full range of environmental assessment tools and methods (checklists, matrices, maps, references, handbooks, local ecological and social information, etc.)
- fully identifies and evaluates environmental impacts during all stages of the activity (e.g., design, construction, operation and decommissioning)
- provides practical mitigation and monitoring strategies for implementation of environmental documentation recommendations
- contains implementable environmental workplans (including responsibilities, timelines, cost and human and material resource commitments)
- follows USAID requirements and format for preparation of environmental documentation, specifically for environmental reviews

This presentation examines the course structure and materials, pre-planning, course content, role play, workgroup exercises, getting the most from *learning-by-doing* case site visits, results and future directions.

Key words: USAID EA training, ENCAP, small-scale activities, learning-by-doing

#### **THE USAID AFRICA BUREAU ENVIRONMENTAL CAPACITY BUILDING PROGRAM (ENCAP) – AN OVERVIEW AND INTRODUCTION TO THE ENCAP CD-ROM**

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USAID's Bureau for Africa has promoted environmental review for small-scale activities and projects among its partners, and indirectly for USAID's own staff, for over six years under their Environmental Capacity Building Program (ENCAP). Many of the products are found at [www.encapafrika.org](http://www.encapafrika.org). This session provides an overview of the ENCAP Program and a tour of the ENCAP CD-ROM. ENCAP has four primary components.

**The Environmental Assessment and Sound Design Course** is the core element of the program. This 5 day course has been

given over 22 times since 1995, reaching 1,000 persons and 400 organizations. It is described in a separate presentation under the *Capacity Building in IA for Small-Scale Development Activities Session and Workshop*.

The *Environmental Guidelines for Small-Scale Activities in Africa* treat specific environmental design and environmental impact mitigation issues for a wide range of small-scale development activities by sector. These are reviewed in greater detail in a separate presentation under the *Capacity Building in IA for Small-Scale Development Activities Session and Workshop*.

The *EIA Professional Development Fellows Program* is a recent initiative in which junior EIA professionals picked through a competitive selection process are matched with public or private hosts engaged in high-level EIA activity or placed on an EIA team. The USAID-funded pilot program for 8 Fellows has been very successful and a proposal for a 5 year expanded multi-donor supported program is now under discussion.

ENCAP recently launched an initiative promoting *Improved Performance of Micro and Small Enterprises (MSEs) through Cleaner Production*. As an initial step toward field-testing the new approach, a three day regional training course was conducted by Tellus in July 2002 and sponsored by TechnoServe in Mozambique. Sectoral 'best practice' fact sheets were also developed. These include, among others, leather processing, wet textile operations, food processing, brick and tile production and small-scale mining.

Key words: ENCAP, small-scale activities, EA training, professional development, cleaner production, small-scale guidelines, best practice

#### **ENVIRONMENTAL SCREENING/REPORTING FOR SMALL-SCALE ACTIVITIES (SSA) - APPROACHES, INSTRUCTIONS, REVIEW PROCESSES, LESSONS FROM THE USAID AFRICA BUREAU ENVIRONMENTAL CAPACITY BUILDING PROGRAM (ENCAP)**

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The purpose of this presentation is to explore with participants the specific materials and approach USAID requires be used for impact assessment of small-scale activities where a sub-granting mechanism is employed in which subproject proposals are developed locally and subsequently submitted for potential funding. A similar approach could be used to ensure proper adherence to World Bank Safeguards in Community Driven Development or Social Funds projects with small-scale activity components.

USAID's Environmental Review Form and Environmental Review Report Procedures will serve as examples accompanied by a discussion of how the use of these procedures are applied by USAID Missions and USAID implementing partners in the field to promote environmentally and socially sound design, and how this process might be adapted for use by other donors, NGOs and local and district governments in developing countries.

In addition, some attention will be devoted to the concept of providing annual Environmental Status Reports for small-scale activities which track progress with mitigation and monitoring of potential impacts.

Key words: ENCAP, small-scale activities, environmental screening, environmental review form, environmental status report, EA training, small-scale guidelines, best practice

### **TRAINING OF TRAINERS IN IMPACT ASSESSMENT FOR SMALL SCALE ACTIVITIES**

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Drawing upon USAID's Bureau for Africa experience since 1995 in presenting the five day "*Africa Regional Course in Environmental Assessment (EA) and Environmentally Sound Design for Small Scale Activities*" course, an effort is being made to place greater emphasis on the Training of Trainers who will in turn provide Africa-based training, as well as potential follow-up mitigation and monitoring services, to project implementing partners.

Doing so requires a different type of course, of 7–8-days in length and targeting local consultants, university staff, government professionals, NGOs and others. The intent of this training is to create a cadre of in-country specialists who can provide regular training in impact assessment for small-scale activities, continuously, as well as provide technical assistance to aid project implementation partners in applying and complying with the environmental procedures of host countries and donors, for example those of USAID or those specified under World Bank Safeguards.

This training approach is recommended for projects with a number of smaller infrastructure subprojects and/or subgranting over time, where repeat trainings may be needed in the future. Increasingly, USAID, the World Bank and other donors are relying on a TOT approach to increase capacity in diverse fields.

This presentation examines the course structure and materials for *Training of Trainers in Impact Assessment for Small Scale Activities* including pre-planning, course content, instruction and facilitation approaches, testing knowledge and training skills.

Discussion will focus on alternative approaches to Training of Trainers in IA for small-scale activities, possible tricks of the trade, innovation and follow-up.

Key words: World Bank, safeguards for small scale activities, CDD, social funds, USAID EA training, ENCAP, small-scale activities, learning-by-doing, training of trainers

### **CAPACITY BUILDING IN STRATEGIC ENVIRONMENTAL ASSESSMENT: PRIORITIES IN POLICY, INSTITUTIONAL AND TECHNICAL CAPACITY STREAMS**

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Many interpretations of what SEA is, and can deliver, appear to currently exist around the world. This may be a sign of different cultural interpretation of strategic decision-making; it may also be a sign of incipency, or immaturity, given an early learning stage about its role and capacities as a decision-support tool; or it may even be a sign of its inadequate utilization as an assessment tool, quickly turning SEA into a promising panacea for all problems, and consequently running to make SEA a non-specific and useless tool.

This presentation intends to raise the issue of capacity-building needs for wise and sound implementation of SEA. Capacity building is at the very top front of all sound and balanced development processes that engage existing human, technical and institutional resources in the most appropriate and effective way. While the learning by doing principle is important and must be encouraged, it also needs to be backed up by consistent drivers that, based on actual results, stimulate innovative actions and wise practices. This also applies to SEA.

The departure level for these reflecting points is the experience gained with over 20 professional training courses on SEA that the author has run over the past 5 years at national and international levels, for sectoral and multi-sectoral purposes, having trained, and interacted, with about 400 people from various parts of the world on the issue of professional capacities for SEA. The presentation will therefore elaborate on the policy, institutional and technical capacity-building needs for good practice SEA, and will make recommendations particularly on the training needs for SEA as a trigger for enlarged capacities.

Key words: strategic environmental assessment, capacity building, training

### **GUIDING FRAMEWORK FOR STRATEGIC IMPACT ASSESSMENT IN SPATIAL PLANNING IN PORTUGAL**

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A research project was commissioned by the Direction-General of Spatial Planning in Portugal to develop guidance on Strategic Impact Assessment (SIA), specifically designed to apply to the nature and characteristics of spatial planning practice in Portugal. This Guidance was also intended to ensure that the requirements of European Directive 2001/42/CE on the effects of certain plans and programmes on the environment would be met by spatial planning authorities.

The Guidance for SIA was developed at the New University of Lisbon over a period of two years and was concluded in December 2002. It involved consultation with spatial planning and impact assessment professionals and was conceived to be used ahead of the adoption of any legislation. However, due to political reasons, it was decided that the Guidance would only be issued following the adoption of specific legislation for SEA.

This paper will present the final Guidance as it currently stands as a result of the research project, it will show the assumptions and methodology suggested and also the articulation with the planning process.

Key words: strategic environmental assessment, spatial planning, national approaches to SEA, guidance, methodological approach

## **IS TRIPLE BOTTOM LINE THE END OR THE BEGINNING OF (SOCIAL) IMPACT ASSESSMENT**

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Triple bottom line (TBL) reporting is a concept that is sweeping across the business sector, government and NGOs. However, many of the issues faced by consideration of the social in TBL are very similar to issues faced by social impact assessment (SIA) in its connections with biophysical environmental impact assessment (EIA) and the financial considerations associated with projects including economic and fiscal impact assessment, and cost-benefit analysis. It would appear that the advocates of TBL and those bodies who have adopted TBL are ignorant of SIA and other forms of impact assessment. The presentation will outline TBL and will consider whether TBL spells the end of impact assessment, or whether in fact it provides a new opportunity for impact assessment to be relevant.

Key words: triple bottom line, TBL reporting, social impact assessment

## **COMMUNITY HEALTH IMPACT ASSESSMENT**

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Health impact assessment (HIA) has been ascendant over the past dozen years. The purpose of this paper is to call attention to a needed extension to the community level, and to forge a linkage with the cognate field of community based participatory research. Facilitating that further implies capacity building within the professional community of HIA practitioners as well as with intended beneficiaries in local communities.

For half a century the concepts of “community health” and “community care” have been gaining currency, lately propelled by a general tendency toward political and institutional decentralization. For example, community management of cardiovascular disease has been widely prescribed for resource-poor communities in Africa and elsewhere. Current applications to HIV/AIDS prevention and treatment are likewise envisioned. Community capacity for meeting these needs remains in question, however.

The issue for HIA can be simply put: how, and to what extent, can local communities in both developed and developing countries participate effectively in the HIA process to promote improved access to quality health care for all? One approach might be to explore and extend the community component of standard HIA procedures at each step in the assessment cycle.

Another part of the process involves reviewing various “community-based” models deployed throughout the developing world, such as those of Partners in Health and the Program for Appropriate Technology in Health, and evaluating their effect-



iveness and feasibility. Based on that, it may be possible to devise a social learning model specifiable to a wide range of applied settings.

Advances along this line are designed to broaden opportunities for community participation and to enhance efforts toward community empowerment.

Key words: community empowerment, health impact assessment, participatory action, research

## PROACTIVE AND CREATIVE

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Enlarging on the conference theme of "Impact Assessment and Capacity Building," the organizers ask "Is IA a purely regulatory approach or does it represent both a way and a means of improving development impact, increasing the sustainability and quality of investments?"

One of the "fundamental changes" in IA practice they detect may lie in the direction pointed in IAIA President Peter Leonard's "greetings and invitation to participate": "We expect IAIA to become ever more action-oriented in order to influence developments and best practice in the field of impact assessment." This paper seeks to advance that effort, based on previous experience, current practice, and future promise.

Ideally, the field of impact assessment may be characterized in two phrases, "comprehensive and integrated" and "proactive and creative"--comprehensive in its coverage of assessment levels, scales, schedules, and sectors and integrated across disciplines, methods, and perspectives; proactive in its anticipation of trends and events, and creative in conceiving, devising, and implementing preferred alternative futures.

In actual practice, however, there has been an evident lack of foresight provision, and of early entry in the policy planning and decision process. Having previously expanded on the "back end" of the assessment cycle (e.g., monitoring), attention must shift now to the "front end": needs assessment, problem identification (or creation), normative planning, and environmental and community design.

On this view, improving EIA (and other IA) effectiveness depends on innovating and initiating environmentally sound development planning and design proposals. The point is underscored by case experience in Nigeria and South Africa. Such a strategy has major implications for institutional and professional development; for example, IAIA would become an environment and development association.

Key words: IAIA, impact assessment

## THE MARRAKECH CONNECTION

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The idea of "connection" is integral to impact assessment. Annual meetings afford an opportunity for IA practitioners to connect with one another, and with the peoples and places of the host country and region. Last year, "A new element introduced in the IAIA '02 conference ... [wa]s a highlight focused on the host country. What is there to be learned from Dutch IA and sustainable policy making practices in the European context?" This year in Marrakech, IAIA seeks "To provide our Moroccan hosts with a unique opportunity to benefit from their experience at the very time when the country starts the implementation phase of its Environmental Impact Assessment regulations."

To connect with this unique people and place involves an understanding of the diversity and complexity of historical experience and contemporary events. "Impact history" is a way of perceiving these temporal and spatial connections, which extend two millennia in the past and worldwide in the present. These events, highlighted in other Marrakech conferences (WTO, Kyoto, etc.), exemplify pivotal global trends. They can be located and localized in the geographies and genealogies of the North African region, and experienced at first hand though the practice of "impact tourism."

Distinctive of this area for most IAIA participants are its ecology and culture. The former is diverse in the case of Morocco, which is often compared to California, but here the desert and its mystique have a compelling presence. Vicarious cultural experience has been received through cinema (the "Casablanca Connection") and expatriate literature, but in these times it is the alleged "clash" of cultures and civilizations which holds the center of attention and concern.

Key words: impact history, impact tourism, Morocco

## COMPARING RIVERS: THE MISSISSIPPI AND THE NIGER

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This paper reports on a conference held 7-8 November in New Orleans, Louisiana, sponsored by Tulane University, New Orleans District, U.S. Army Corps of Engineers, Social Impact Assessment Center, IAIA-Nigeria, Africa Program, American Association for the Advancement of Science, and World Bank Institute, and endorsed by IAIA. It is also a partial update of the Niger Delta Project for 2002-03.

Why compare rivers? Why these two? In 1953, Tafawa Balewa, then Minister of Transport, visited the United States and observed how the Mississippi River was contributing to the nation's economic development and believed that the Niger river could play a similar role in Nigeria. After independence in 1960, Balewa became Nigeria's first prime minister. Although he died tragically in 1966, his dream of inland waterways development has continued down to the present.

In June 1999, the newly elected civilian government initiated a master planning process for physical and social development to

achieve “the speedy and global transformation of the Niger Delta Region into a zone of equity, prosperity and tranquility.”

In 2001 the government approved a plan to dredge a navigation channel in the Lower Niger River some 573 kilometers up-stream. Some communities along and around the proposed waterway raised concerns however about potential environmental, social, and economic impacts of the proposed action.

The conference aim was to bring together interested and affected parties to review the knowledge base and identify issues bearing on community, regional, and national development, and to forge linkages among counterpart institutions in the two regions. By all accounts, a successful beginning was achieved and will be followed up.

Key words: community impact assessment, Niger dredging, water resources development

### **ESTIMATING THE CONTRIBUTION OF THE FARGODOME TO THE AREA ECONOMY**

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Tourism has become an important economic sector in many parts of the world, and many regions, states, and local areas are increasingly looking to expenditures by visitors as a potential source of economic growth. Some communities have developed facilities to host sports events or other forms of entertainment to attract out of town visitors. Thus, the multi-purpose sports arena/auditorium has joined the industrial park as a community economic development initiative.

This paper estimates the economic contribution of a multi-purpose sports and auditorium facility located in Fargo, North Dakota, USA. Since opening its doors in December of 1992, the FARGODOME (DOME) has hosted a wide variety of sporting events (e.g., college and high school football, rodeo, motor sports events), concerts, trade shows, and other forms of entertainment (e.g., ice shows, circuses). The purpose of this study was to estimate the contribution that FARGODOME event attendees and participants make to the Fargo area economy. Major steps in the assessment process included (1) determining the residency and expenditure patterns of event attendees and participants, (2) estimating the aggregate direct economic contribution to the area economy by combining event attendee attributes and expenditures with FARGODOME records of the number of events held at the facility and attendance at each, and (3) estimating the secondary economic impacts associated with the DOME's direct economic contribution. Event attendees and participants (e.g., exhibitors, athletes and accompanying persons) place of residence and expenditures were obtained through intercept surveys of attendees/participants at selected DOME events. The project team worked closely with DOME personnel in designing the data forms and determining the events where information was collected. The expenditures made directly by the DOME to local entities (i.e., for payroll, benefits, utilities, etc.) were added to the

attendees/participants' expenditures outside the facility to arrive at the total direct economic impact (contribution) to the Fargo area. Then, the North Dakota Input-Output Model was used to estimate the secondary (multiplier) effects resulting from DOME activities. Economic impacts will be reported using indicators such as gross business volume (gross receipts) of various economic sectors (e.g., retail trade), personal income, and employment.

Key words: economic impacts, visitor spending, sports events

## **ENVIRONMENTAL IMPACT ASSESSMENT OF LITHUANIAN COASTAL ZONE ACTIVITY IN TIME OF POLITICAL AND ECONOMICAL TRANSITION**

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Lithuania is looking forward to join to the European Union in 2004. Among the first EU legal environmental documents, which have already been adopted in Lithuania, was environmental impact assessment (EIA) law.

At present time Lithuanian coastal zone is the most economically, socially, and environmentally developing region in the country. A lot of new marine, industrial, mining and also service organizations are concentrated in this unique natural landscape of coastal zone.

This part of Lithuania, which has so high anthropogenic load of human activity, needs sustainable development in order to save itself for the future generations. Quays building, deepening of water area and also big waves, high-speed wind and navigation constantly influences Curonian Lagoon and Curonian Spit. In this case EIA fulfilling is the political country's purpose.

The main idea of EIA procedure is answer to question where, what way, and how much the society allows economic activities organizers to produce or render service. In this context public participation in the procedure of evaluation has a really democratic feature.

Three-year experience shows that the conclusion of EIA is successfully implementing into practice as pollution prevention or contamination decreasing means. Successfully solving these issues can provide social and economic benefits. Scientific and technological aspects during any object influence evaluation should be stressed. Scientific achievement and its implementation into practice and advance technology application may essentially change environmental assessment conclusion.

EIA putting into practice at service and industrial enterprises has led to the point that this process is now one of necessary procedures, which prevent the organizer from future economic unprofitable and environmental threats.

Key words: EIA, coastal zone, pollution prevention

## **IMPLEMENTING SEA AT NATIONAL POLICY LEVEL IN SWEDEN - VIEWS FROM THE DEFENCE SECTOR**

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As a part of its environmental management system, the Swedish Government has decided that environmental assessments shall be carried out for all communications, propositions and rules issued by the Government that may have significant implications for the environment. Requests for Governmental commissions shall also contain a demand for an environmental assessment if the issue to be investigated may have major effects on the environment. The environmental assessments shall be based on the fifteen Swedish national environmental objectives. On behalf of the Swedish Ministry of Defence, we have developed a tentative approach for how SEA could be applied within the Ministry. We are now starting a pilot project where the approach will be tested in co-operation with the Swedish Armed Forces, which is an important provider of decision support to the Ministry. The presentation will give an overview over the Swedish approach to environmental assessment of national policy and some comments on the progress of the pilot study.

Key words: SEA, national policy, defence

## **TIERING IN ENVIRONMENTAL ASSESSMENT – CAN IT BE DELIVERED?**

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The concept of assessing environmental impacts has been applied both formally and informally for more than 40 years. After an initial focus on project level assessment, attention is now turning to consideration of impacts beyond the project level and the term strategic environmental assessment (SEA) developed and explored. SEA refers to the process of assessing the environmental impacts of policies, plans and programmes (PPPs), and seeks to examine the environmental consequences of higher levels of the planning process and consideration of mitigation of such PPPs where necessary and feasible.

The development of SEA as a procedural tool has tended to be based on two underlying premises, namely that project level EIA cannot be used to address all our concerns about environmental impacts, and that wider aspirations for sustainable development need to be examined outside individual projects. Amongst the several 'claims' for SEA is that some form of tiering within and between levels of planning can be achieved to reduce duplication of effort and maximise use of resources.

This paper defines tiering and what it seeks to achieve. It then discusses previous consideration of the topic in the literature. This is followed by an analysis of applying tiering in practice and distilling out the factors that have contributed to its success – or otherwise. The approach to the concept of tiering in other areas is then explored with regard to methods, outcomes, successes and failures. The requirements for successful application of tiering in environmental assessment are then investigated in the context of the wider planning process, roles of stakeholders, what is in effect being tiered and some of the likely constraints. Finally, conclusions are drawn as to whether tiering can be delivered with recommendations for its future development.

Key words: tiering, strategic environmental assessment

## **MAINSTREAMING BIODIVERSITY AND NATURAL HABITATS CONSERVATION IN INFRASTRUCTURE PROJECTS IN LATIN AMERICA**

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Infrastructure projects have been proven to be a powerful tool for the conservation of natural habitats. Although it is generally known that infrastructure projects can exert significant impacts on natural habitats and on their biodiversity, the Latin American experience demonstrates the potential for such projects to mainstream biodiversity and natural habitats conservation. This paper analyzes efforts to mainstream biodiversity conservation issues in six World Bank-financed infrastructure projects in the Latin American region in sectors such as water and sanitation, municipal drainage, flood protection, transport and energy. The projects include Argentina, Flood Protection; Argentina and Paraguay, the Yacyreta Hydroelectric project; for Bolivia and Brazil, the Bolivia-Brazil Gas Pipeline (GASBOL); Belize, Roads and Municipal Drainage; Colombia, Bogotá's Water Supply and Sewerage Rehabilitation; and Honduras, Roads Rehabilitation, Reconstruction and Improvement.

These projects have implemented a wide and impressive set of biodiversity and natural habitat conservation strategies which can be grouped in the following categories: (i) creation of new protected area, these projects have been responsible for the creation of over 100,000 ha of new protected areas including coastal lagoons, mangroves grasslands and inland wetland ecosystems; (ii) strengthening of existing protected areas, including creation of trust funds to finance costs of park management, financing management plans, park demarcation and construction of basic infrastructure; (iii) specific programs for the protection of rare, vulnerable, endemic and threatened species, such as maintaining endangered species in laboratories and their reintroduction into the wild, and rescue of endangered plants; (iv) restoration of degraded ecosystems, including restoration of approximately 800 ha of urban wetlands which harbor endemic bird species, and 600 ha of borrow pits which were included in a protected area, construction of linear parks, reforestation and fisheries programs; (v) supporting scientific research regarding natural habitats and biodiversity conservation, including publications of books on wetland conservation and surveys of habitats for critical birds; and (vi) support to environmental and conservation programs during project operation, including maintaining ecological flows downstream of a dam and good environmental practices along right of ways of linear projects.

The Latin American experience shows that biodiversity and natural habitats conservation can be mainstreamed in infrastructure projects, thus contributing to sustainable development.

## **KNOWLEDGE BROKERING IN EIA AND SEA**

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The Netherlands Commission for Environmental Impact Assessment (NCEIA) is involved in the practice of EIA and SEA in The Netherlands as well as internationally. The Commission is working on a framework for a broad, easily accessible platform for mutual learning and information exchange regarding recent developments in the practice of IA, the so-called "Knowledge and Learning Platform (KLP)." Focus will be on EIA and SEA experience in developing countries. Apart from learning and information exchange (e.g., full cases, best practices, lessons learned, guidelines, etc.), it is foreseen that the KLP will provide help desk services. The role of the Commission is one of knowledge broker. The Commission will contribute its own experiences and knowledge to the platform, but it is only going to be valuable and effective if others add, contribute and exchange. The KLP should be complementary to already existing initiatives of other IA centres world wide and should support local and regional initiatives for such networks. During IAIA 2003, the set-up of the framework will be presented, and hopefully it will be nourished to come to a useful link in the world of IA networks.

Key words: knowledge brokering, networking, mutual learning, practice of EIA and SEA

## **FACTS AND VALUES IN THE ENCOUNTER BETWEEN SCIENCE AND DEMOCRACY IN THE EIA CONSULTATION PROCESS - AN IMPLEMENTOR'S PERSPECTIVE**

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Spent fuel from nuclear reactors is a potentially dangerous material. It contains a high concentration of many radiotoxic elements, some of them fissile and thus representing a potential energy source, and it emits strong radiation. Therefore, it has to be carefully managed in order to protect human beings and the environment. These are relatively uncontested facts. However, when it comes to deciding on how and where the spent nuclear fuel should be taken care of, there is not a one and only solution emerging from the basic facts about the fuel. For instance, value judgments concerning distribution of risks and benefits between different geographical locations as well as present and future generations will play an important role in the decision process. Decisions concerning strategy, choice of concept and sites will inevitably involve facts, expert judgments and value judgments within different levels of certainty/uncertainty. In Sweden a spent fuel management system has been established for about 20 years and key decisions concerning the planned system for final disposal may come within the next 5-10 years.

This paper will begin by discussing the role of facts and values behind the decisions that has been taken so far concerning spent fuel management in Sweden. The presentation will then focus on the use of an Environmental Impact Assessment (EIA) as a basis for future decisions concerning how and where a safe long-term system should be implemented. According to the Swedish Environmental Code and the Nuclear Activities Act, SKB is responsible for developing the EIA in consultation with concerned parties on a local and national level. It is the explicit ambition of SKB to address this responsibility so that the EIA becomes a reliable, relevant and transparent tool for decision making in this matter. Issues concerning scientific basis, stakeholder involvement and transparency of value judgments in the EIA will be highlighted.

## **HEALTH IMPACT ASSESSMENT (HIA) TRAINING IN ACTION**

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HIA training over the last decade has taken on many forms. University courses, the most traditional form of training, are often unavailable or inconvenient for health and environmental impact practitioners, especially in developing countries where either the courses do not exist or are too costly or time consuming for practitioners to take. Distance learning courses provide an alternative to those practitioners with access to internet and reasonable computer assistance, but provide little to no face-to-face student interaction. Short term (days) special training, such as that offered at the annual IAIA conference, or as within an organization/country provide a seed of enthusiasm, which often withers once students return to their regular jobs without access to continuing education. An ideal situation would probably be a long-term programme offering all these options in a given area, focusing on local problems.

The Health and Environment group of Laval University and the Caribbean Environmental Health Institute (CEHI), in collaboration with Health Canada and the Quebec Institute for Public Health have submitted such a proposal to the University Partnership in Cooperation and Development Programme (Canadian International Development Agency) to fund a six-year environmental health capacity-building programme. The primary focus of the proposal is to enhance the capacity of the Caribbean populations to integrate environmental health knowledge into decision-making and public policy through three activities: multidisciplinary training of environmental health professionals; capacity building for environmental monitoring and health surveillance, including information technologies and laboratories; and interactive development and implementation of a core environmental health programme in the region that incorporates the priorities of the populations and protects the health of the most vulnerable populations.

This presentation will discuss the integrated programme designed as a long term commitment to building capacity in environmental health so that the sixteen participating Caribbean countries can become self-sufficient in environmental health policy and project decision-making.

## **FINANCING PUBLIC-PRIVATE PARTNERSHIPS IN SCIENTIFIC RESEARCH: IMPACTS AND BEYOND**

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### *Introduction*

Recent years have seen a growing interest in public-private partnership (PPP) in scientific research. Financing these partnerships requires qualitative ex ante and ex post evaluation. This is a tough job, because of at least three reasons: (1) The products of scientific research (e.g., reports, designs, ideas, knowledge) are diffuse and hard to assess, (2) it's difficult to establish the exact relationship between these products and the PPP, and (3) the effects of PPP in scientific research are diffuse too and side-effects (like learning) are sometimes more important than official aims.

### *Dilemmas*

The paper provides a framework for assessment that tackles these problems. The framework distinguishes two evaluation methods that complement each other: (1) the measurement of performance, with attention to output- and throughput-analysis and (2) the determining of arrangements that address specific dilemmas that occur at PPP in scientific research. These dilemmas involve, for example, the design process of the partnership, the exclusivity of partners and the joint research programming. Recognising these dilemmas and designing effective arrangements is essential to cope with the dynamics of a PPP and should therefore be involved in the assessment of it.

### *Research*

The framework is a result of a large Dutch research project, performed by the Delft University of Technology. It is based on interviews with several experts in the field and tested on three major Dutch PPPs. The paper will present eight dominant dilemmas and several examples of arrangements that were found during our research.

Key words: assessment, public-private partnerships, dilemmas, process management

## **LES FRUITS DE LA PARTICIPATION DU PUBLIC DANS LES PROCESSUS DE DÉCISION**

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Le Bureau d'audiences publiques sur l'environnement du Québec (BAPE) fêtera ses vingt cinq années d'existence en décembre 2003. Cet anniversaire souligne la participation du public au processus québécois d'évaluation et d'examen des impacts sur l'environnement. De la vision originale et juste de pionniers, la société québécoise s'est forgée un outil d'information et de consultation efficace et durable. Plus de 190 projets et programmes d'envergure ont été l'objet d'enquête, de médiations et d'audiences publiques. Ils ont largement bénéficié de l'implication de la population : meilleure intégration des projets dans la communauté, diminution de la contestation, meilleur suivi environnemental, meilleure qualité des études et diminution des stress sociaux. Le BAPE a servi de forum d'échange d'informations et a permis le développement de diverses ex-

pertises. Par ailleurs, l'anniversaire du BAPE est marqué par l'ouverture d'un nouveau champ de consultation du public lié à l'environnement : les projets d'aires protégées. Le BAPE entend appliquer ses principes et ses façons de faire à ces nouveaux projets issus de la stratégie québécoise sur les aires protégées.

Par quels moyens un organisme consultatif sans pouvoir décisionnel a-t-il pu gagner sa crédibilité auprès du public et se faire la courroie de transmission de ses préoccupations quant au développement de son milieu? Quel bilan peut-on tirer de cette démarche originale du Québec? Quels enseignements et quels bénéfices peuvent en tirer les autres? Si le modèle convient à la spécificité québécoise, il ne peut l'être à tous les pays. Toutefois, ses valeurs et l'expertise développée pourront guider avantageusement quiconque voudrait s'engager dans une démarche de consultation et de prise en compte des avis de la population.

Key words: participation du public, forum d'échange d'informations, effets de la participation

## **THEORY VS. PRACTICE IN IMPLEMENTATION OF AARHUS CONVENTION SUBTITLE: ENVIRONMENTAL INFORMATION, EDUCATION AND PUBLIC AWARENESS IN EASTERN AND CENTRAL EUROPE**

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Theory versus practice in a project for implementation of the Aarhus convention. The project countries are Armenia, Azerbaijan, Belarus, Georgia, Moldavia, Ukraine. The project objective is to support the implementation of the Aarhus Convention and broad recognition of the rights it seeks to guarantee through increasing access to environmental information and participation of the general public and other environmental stakeholders within the project countries, in decision making, taking into account of the related importance of access to justice. This objective will be achieved through enhancing the capacity of government officials and people from civil society (a.o. NGOs) to be able to meet a greater demand for information about the environment and encourage greater public participation in development decisions that have an environmental impact. Project components: - Enhanced system for training the target groups on the requirements of the Aarhus Convention. - A clear understanding by the target groups of the requirements of the Aarhus Convention, in particular those related to the Information and participation elements, and greater competencies to implement these requirements. - Pilot projects on national and local level in the six countries. - Greater awareness of how requirements of the Aarhus Convention can be met.

These theoretical components sound nice, but the everyday practice is different and sometimes surprising.

Key words: environmental information, education, public awareness, Aarhus Convention

## **SEA IN LEBANON**

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Land use planning is one of the major problems leading to environmental degradation, and threatening cultural as well as natural resources in Lebanon. Approximately 90% of the country's surface area is still unclassified and often subject to haphazard development. This is an important fact given that land use planning plays a critical role in shaping and regulating economic trends in real estate and tourism markets, two of the major economic sectors in the country.

The situation is exacerbated by limited strategic planning, particularly with respect to assessing environmental impacts and linkages among potentially damaging public actions and undertakings. At the institutional level, urban planning involves many stakeholders, namely, the Directorate General for Urban Planning, the Higher Council for Urban Planning, the Council for Development and Reconstruction, and municipalities.

SEA promises to be an efficient approach for addressing these shortcomings. It will facilitate sector as well as cross-sector impact identification, analysis and assessment of environmental risks associated with major economic activities and environmental pressures, with special focus on land use planning. Accordingly, it will help to deliver many of the country's regional and international environmental commitments, and to promote better governance and sustainable development through internalising transparent environmental criteria at an early stage in the decision-making process.

Recent regulatory developments have paved the way for the development and application of SEA, namely, a Framework Law for Environmental Protection, a Decree on EIA (under consideration), and a national land use planning initiative. SEA will enable the integration of economic and social appraisals in the future, constituting as such a prelude for Sustainability Impact Assessment (SIA) in order to promote sustainable planning and policy formulation at the national level.

Key words: land use planning, SEA, sustainable development, environmental governance

## **THE METAP INSTITUTIONAL STRENGTHENING PROGRAMME FOR EIA IN NORTH AFRICA, THE MIDDLE EAST AND THE MEDITERRANEAN REGION**

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The paper describes the regional EIA capacity building project of the Mediterranean Environmental Technical Assistance Programme (METAP), sponsored by the World Bank in association with UNDP, the European Commission and the European

Investment Bank. The project involves all the developing and transitional countries of North Africa, the Middle East and Southern Europe which have access to the Mediterranean, with the association of two of their Middle Eastern neighbours, Iran and Yemen. The project began in 1999, with the development and application of a methodology for evaluating the status of national EIA systems, and a series of regional and national EIA workshops. Evaluations have been undertaken in thirteen of the countries, and regional workshops are held annually, through which national governments' EIA Directors share their experiences. National institutional strengthening and capacity building workshops have focused on priority national issues raised in the evaluations, while regional technical workshops have been held for NGOs, EIA consultants and academics, experts involved in reviewing EIA reports, and government officials responsible for developing and administering EIA systems. A train-the-trainers workshop has also been conducted, to help countries extend the learning process beyond the project's workshop attendees. The project is coordinated from a regional centre established for the purpose in Tunisia, from which workshops and training programmes are organised, and where a project website has been established to share detailed information between the countries and to provide a source of knowledge on EIA around the world.

The paper summarises the status of EIA in the region, describes the approaches that have been adopted to capacity building and institutional strengthening, and draws lessons that may be applicable more generally.

Key words: capacity building, developing countries

## **SUPPORTING IMPACT ASSESSMENT IN URBAN REGENERATION PROCESSES**

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The first decades after World War II showed a tremendous upsurge in urban construction. Today, the neighborhoods built in those years are in poor condition. In The Netherlands alone, some thousand run-down residential areas need to be renovated or reconstructed in full. This situation presents the opportunity for municipalities to revitalize these areas, making them more attractive for mid-range and higher income groups. It also poses a tough challenge: how to reconstruct a neighborhood in a way that is sustainable in all aspects (people, planet and profit) while still providing affordable housing for its current low-income residents?

Urban regeneration projects require a concerted effort of many stakeholders: residents, housing corporations, contractors, providers of energy and drinking water, and a range of municipal authorities. In this paper we will present MEDIA (Modeling Environment for Design Impact Assessment) as a tool for structuring and supporting sustainable urban regeneration. Urban regeneration is viewed as a multi-stakeholder process of planning, negotiation and decision making. The conceptual

model of MEDIA integrates an analytical approach to design and impact assessment with a process approach to multi-actor policy and decision making. Some 150 design decisions at different spatial levels (region, city, neighborhood, block, house) have been identified. For each decision, the available options have been linked to impact variables such as mobility, public safety, the use of space, materials, energy, and water, the emission of CO<sub>2</sub> and waste water, and a range of cost factors that differentiate between different stakeholder roles.

We will describe how MEDIA has been applied both in real-life urban planning processes and in simulated policy exercises with students. These applications show that MEDIA can provide effective process support by facilitating agenda setting and issue identification, quantitative what-if analysis and discussion in sub-groups, and confrontation and integration of partial plans.

Key words: urban reconstruction, impact assessment, design, policy making, negotiation

## **RISK ANALYSIS FOR CAPACITY DEVELOPMENT IN LOW INCOME COMMUNITIES**

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The United Nations International Drinking Water Supply and Sanitation Decade (1981-1990) made significant strides in increasing access to improved water and sanitation services worldwide. However, by 2000, there were more than one billion people without access to improved water supply and two billion without access to improved sanitation service. Thus, the supply of services has been insufficient to sustain burgeoning demand. Like the sanitation decade, previous interventions focused primarily on service capacity, institutional capacity and human resource capacity in their approach to the problem. This paper demonstrates that sustainable solutions to inadequate water supply and sanitation services requires the building of eight capacity requirements: institutional, human resource, technical, economic/financial, environmental/natural resource, energy, social/cultural, and service capacity. The paper argues that sustainable municipal sanitation systems must be designed to evolve from community-based, labor-intensive systems to centralized, automated systems that are appropriate to the level of capacity requirements in the local area. The approach adapts the methods of risk analysis assessment, evaluation, and management - to the problem of capacity building for municipal sanitation services. The goal is to assure a sustainable access to improved municipal sanitation services (water supply, wastewater/sewage management, solid waste management) to low-income communities. The objectives are:

1. Assess the need for each capacity requirement through an inventory analysis.
2. Evaluate alternatives for providing each service based on impact on the capacity requirements.
3. Manage implementation of the best alternative to satisfy short-term requirement constraints consistent with the long-term goal.

The approach is demonstrated by a case study of the township of Bacoor, the Philippines.



Key words: sustainable sanitation systems, water supply, capacity building, human development

## **ASSESSING THE IMPACT OF INTERMEDIATE AGRICULTURAL PROCESSING TECHNOLOGIES**

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Adoption of intermediate agricultural processing technologies by rural communities is widely seen as necessary for economic and social development. In this circumstance, impact assessment of such technologies is seen as contributing to the formulation, monitoring and evaluation of rural development policies and programs. There is growing concern about the extent of awareness and adoption of intermediate agricultural processing technologies in rural communities and the impact of such technologies on the livelihood of the rural people. It is in this context that the place of intermediate agricultural processing technologies was considered as a useful tool for rural development.

In this study, impact assessment of intermediate agricultural processing technologies for cereal crops was conducted at the Vergelegen rural community in the Northern Province of South Africa. The assessment methodology comprised of the identification of an appropriate project area; collection of data from the target area; performance/technical evaluation of traditional agricultural processing techniques and intermediate technologies currently in use; questionnaire development; design of the sampling technique; structured interviews; statistical data analysis and the formulation of conclusions and recommendations. The results are discussed under seven broad headings, which include general characteristics of the Vergelegen community, agricultural processing activities at Vergelegen, assessing the effects of processing activities with and without intermediate technologies on indicators of impact, such as physical strain, quality of products, productivity, profit generation and income level. The paper concludes with a brief summary of the findings of the study and suggestions for improvement of the processing activities and technologies in the Vergelegen community. The socio-cultural effects of the adoption of intermediate agricultural processing technologies are also discussed.

Key words: impact assessment, adoption, intermediate technologies, agricultural processing technologies, rural development

## **RISK ASSESSMENT OF GENETICALLY MODIFIED PLANTS ON THE SOUTH AFRICAN FLORA**

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Rapid advances in plant biotechnology have led to the production of genetically enhanced plants with altered traits such as resistance to specific herbicides or insects. Even though they are widely used, concerns have been raised that these plants might pose risks to agricultural ecosystems. Aspects of concern are the possible transgene transfer from a genetically modified plant carrying an herbicide or insect resistance to wild-type plants by cross-pollination, the creation of super-weeds and volunteer-weeds, and the movement of a transgene to cultivated plant species. A risk assessment study was therefore conducted to identify and evaluate the risks that genetically enhanced maize and cotton plants might pose for South African agricultural ecosystems. The objectives of this risk assessment study were to collect data on genetically modified plants, to evaluate the impact of genetically modified maize and cotton plants on the South African flora, and to provide recommendation for planting of such genetically modified plants in South Africa. The key finding of the study was that genetically modified maize could be considered as relatively safe for South Africa, whereas cotton might be more problematic due to the chance of out-crossing with weedy relatives, which will require risk limitation strategies to reduce gene flow.

Key words: genetically modified plants, risk assessment, agricultural ecosystems, risk limitation strategies

## **THE EVOLUTION OF EIA CONSULTATION IN THE NIGER DELTA**

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In less than a decade, the concept and principles of Environmental Impact Assessment (EIA) has become established in Nigeria. This has rapidly stimulated growth in public awareness. In recent years the most significant challenge to Shell Petroleum Development Company's (SPDC's) business in the Niger Delta has been identifying and addressing issues pertaining to the impact of its activities on society, health and the sensitive ecosystems of the Niger Delta. In keeping with its objective of carrying out world class EIAs, SPDC has sought greater involvement and input from all stakeholders in the activities and plans of the company. This process of involvement and engagement is referred to as consultation.

Stakeholder consultation is a regulatory requirement, and SPDC is committed to contributing to sustainable development employing structured consultation and engagement processes

as essential tools. The practice of consultation has evolved from holding one or two public meetings late in the EIA process to the current practice of organizing scoping workshops early in the EIA process. The objective is to ensure that stakeholders become integral to and are fully involved in the EIA process and that the issues they raise are adequately addressed. This reduces conflict and helps forge a lasting partnership between the company and her stakeholders.

This paper describes and discusses the evolution of the EIA consultation process in SPDC, options to overcome some of the pitfalls of the existing guidelines and also highlights the many advantages of initiating public involvement early in the EIA process and making it an integral feature of the impact assessment process.

Key words: environmental impact assessment, stakeholder consultation, Shell Petroleum Development Company

## **TOWARDS A TOURISM DEVELOPMENT PLAN FOR MAPUTALAND, SOUTH AFRICA: PUBLIC PARTICIPATION AND CAPACITY BUILDING PROCESS**

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Maputaland has been identified as a prime tourist destination in South Africa in view of its many natural and cultural attractions. To date there has been limited tourism development, largely as a result of conflicts between nature conservation authorities and local communities and uncertainties over land ownership. The area thus remains one of the most underdeveloped parts of South Africa in terms of its local economy and infrastructure. The aim of this research was to develop a sustainable tourism plan or at least a set of recommendations based on sustainable development principles that could guide future tourism initiatives. Through a process of 23 workshops over a period of 26 months, from October 1998 to November 2000, the local community was exposed to a number of sustainable development principles and was engaged in tourism planning. Although a number of attempts have been made in the past to develop a tourism plan for the area, the value of this study is that sustainable development was an explicit goal and local community involvement in the development of the plan was of pivotal importance. The outcome of the process was the drafting of a Memorandum of Agreement between the principal stakeholders, namely, representatives from the conservation authority and two local communities. Regretfully, the MoA was not formally adopted by the conservation authority which was undergoing structural changes and it was recommended that such an agreement should be considered after the restructuring process. However, this study has provided the first step towards a set of recommendations for tourism development based on the inclusion of all stakeholders.

## **WHERE IS HEALTH IN STRATEGIC ENVIRONMENT ASSESSMENTS? RECENT POLICY DEVELOPMENTS IN EUROPE AND EMERGING CHALLENGES**

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The presentation describes recent work to integrate health aspects as part of environment assessments in Europe.

It provides first the rationale for this activity, in that health has been formally part of EIA but in practice it has been conspicuously absent. If HIA were carried out as part of assessments of planned policies, plans and projects, it could yield health benefits in a similar way that EIA promoted environment ones. The principles that guided us while examining the potential and limitations of enhancing the health assessment as part of EIA are outlined.

This activity was in response to the wish of government to see health impacts examined as part of the policy making processes, expressed in European intergovernmental fora around 1998/2000. This led to the negotiation of a new protocol on SEA, and to developments in the European Union and European Commission.

The response was to develop incentives for such assessment to be implemented, and to understand stakeholders views, interests and issues on HIA in SEA. Workshops and expert documentation were developed to clarify those processes and their links, and an ad hoc working group and a vice chair for health provided inputs to the negotiation of the SEA protocol.

The key issues, advantages and limitations of having HIA as part SEA or EIA as raised in those discussion will be outlined in the presentation.

The final text of the SEA protocol refers to health in an unequivocal manner, attributing responsibilities over the health questions at different stages of the assessment process.

The challenges ahead for those who will implement the health assessment when the SEA protocol enters into force, and for

those who will use the results for policy and decision making processes, will be raised for discussion.

Key words: SEA, HIA (health impact assessment), legislation, convention, health

## **EMERGING APPROACHES TO INTEGRATED APPRAISAL**

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Integrated appraisal is a fast emerging area of interest in public sector decision-making and the subject of an increasing level of discussion. Integrated appraisal, for the purposes of this paper, is defined as a process of assessing the performance of options or proposals in terms of their economic, social and environmental implications, although other forms of integration, such as the integration of stakeholders into the appraisal process, are also discussed.

An emerging trend in appraisal is the development of “checklist” style integrated appraisal tools. These essentially comprise a list of questions or criteria organised around a series of impact categories that address economic, social and environmental concerns. The questions are designed to prompt consideration of the potential impacts associated with the options or proposals under scrutiny. Useful as these checklist approaches might be for “screening” or “vetting” potential impacts, they generally advocate a “broad brush” approach to appraisal and stop short of providing advice on how more detailed, in-depth appraisal might be undertaken should this be considered necessary.

In contrast to those tools limited to 'screening' potential impacts, some emerging integrated appraisal tools advocate more detailed impact investigation. These developments indicate a trend towards a two-stage approach to integrated appraisal:

- an initial stage at which the potential impacts of the options or proposals under consideration are 'screened' or 'vetted' against a wide range of economic, social and environmental criteria;
- a second stage of more detailed appraisal where this is considered necessary using appropriate appraisal tools.

In undertaking more detailed appraisal, six appraisal tools or families of tools have been identified that might be employed: CBA, MCA, LCA, Risk Assessment, Environmental Assessment and related tools (e.g. Social Impact Assessment), and Sustainability Appraisal and related tools.

The paper draws on several examples of emerging approaches to integrated appraisal in Europe.

## **ORGANISED COMMUNITY PARTICIPATION IN IMPACT ASSESSMENT: THE BONNY EXPERIENCE**

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Worldwide, public involvement in the Environmental Impact Assessment (EIA) process is recognised as a firm foundation of openness and trust on which a future relationship between

stakeholders and project sponsors can be built. This fact is recognised by the national regulations guiding EIA practise in Nigeria and the Shell Petroleum Development Company of Nigeria (SPDC) policies on the environment.

Public involvement is, however, progressing from fulfilling a legal requirement to active participation of stakeholders. In the past, public involvement in the EIA process had been in particular limited to presenting the EIA report to the communities for review, public comment and collating community development "wish lists." This is gradually changing as the emergence of Community Based Organisations (CBOs) has led to greater involvement of communities in the EIA process.

One example of such organised community participation is found within the Bonny Island, Rivers State, Nigeria. The island is strategic to oil and gas development in the Niger Delta with respect to oil and gas exploration and exportation in the east of the Delta. The concentration of industries (Nigeria Liquefied Natural Gas (NLNG), Mobil NGL plant and SPDC Bonny Crude Oil Terminal) has placed high demands on the social structure and the biodiversity of the island. The Bonny community constituted a "consultative committee" to ensure that environmental and sustainable development concerns are well articulated, documented and addressed by the industry. This initiative for us in SPDC provides opportunities for further expansion and better development for indigenous participation.

This paper is a case study of SPDC's experience with the Bonny Environmental Consultative Committee (BECC) participation in EIAs. It highlights: advantages of such community initiative, drawbacks, challenges ahead, areas of possible improvement and need for capacity building. The story of this experience is reported using three different EIA projects carried out by SPDC within the Bonny environment.

Key words: BECC, Bonny, Bonny Crude Oil Terminal, CBOs, condensate, consultative committee, NLNG, public participation, SPDC, stakeholder, wish-list

#### **INCLUDING UNCERTAINTY ANALYSIS IN THE EVALUATION OF PROJECT ALTERNATIVES: A CASE STUDY IN ECOLOGICAL IMPACT ASSESSMENT**

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For an Environmental Impact Statement (EIS) to effectively contribute to decision-making, it must include one crucial step: the estimation of the uncertainty factors affecting the impact evaluation, and of their effect on the evaluation results. Knowledge of the uncertainties better orients the strategy of the decision-makers and underlines the most critical data or methodological steps of the procedure. Accounting for uncertainty factors is particularly relevant when dealing with ecological impacts, whose forecasts are typically affected by a high degree of simplification. By means of a case study dealing with the evaluation of road alternatives, this paper explores and discusses the main uncertainties that are related to the typical stages of a ecological impact assessment: uncertainty in the data that are used, in the methodologies that are applied, and in the value judgments provided by the experts. Subsequently, the effects of such uncertainty factors are tracked back to the result of the evaluation, i.e., to the relative performance of the project

alternatives under consideration. This allows to test the sensitivity of the results, and consequently to provide a more informative ranking of the alternatives. The paper concludes by discussing the added-value for decision-making provided by uncertainty analysis within EIA.

Key words: biodiversity, uncertainty, sensitivity analysis, roads, ecosystems

#### **THE EUROPEAN UNION'S SUSTAINABILITY IMPACT ASSESSMENTS OF WTO TRADE NEGOTIATIONS**

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The European Commission is undertaking a series of Sustainability Impact Assessments of the trade negotiations that are currently in progress between member states of the World Trade Organisation (WTO), under the agenda agreed in Doha in 2001. These SIAs assess the environmental, social and economic impacts in the European Union and other developed countries, and in developing and least developed countries, of the proposed trade agreements that are due to be adopted on or before 1 January 2005. The full programme of SIAs consists of an initial overview assessment of the complete Doha agenda, a series of detailed sectoral studies of individual measures, and a final overview study to be completed as the negotiations draw to a close. The initial overview and a first set of sectoral studies has been completed. The paper describes the methods that have been used, and summarises the results to date.

Key words: trade, sustainability impact assessment, strategic impact assessment

#### **ASSESSING CARIBBEAN SUSTAINABILITY PROCESSES AND ADVOCATING STRATEGIES FOR SUSTAINABLE DEVELOPMENT: PRELIMINARY ASSESSMENT OF THE CAPACITY OF NON-GOVERNMENTAL AND COMMUNITY BASED ORGANISATIONS FOR SUSTAINABLE DEVELOPMENT**

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The capacity for Caribbean non-governmental organisations (NGOs) and community-based organisations (CBOs) to pursue initiatives towards sustainable development was assessed through a survey of groups from six islands in the Caribbean, namely, Saint Lucia, Barbados, Grenada, Tobago, Trinidad, and Suriname. The administering of the survey questionnaire was predominantly done by way of personal interviews although in some cases questionnaires were transmitted electronically to the target organizations followed by communication via telephone to effect clarification. Generally, the selected sample of NGOs/CBOs averaged 34 in number across the six case study countries/territories with a success rate of approxi-

ately 67 percent in terms of interviews actually completed - ranging from 100 percent in Trinidad and Tobago to 48 percent in St. Lucia. Results of the survey indicated that the universal thrust toward the recognition of the need to promote civil society's participatory role in "governance" is just as evident in the Caribbean as elsewhere in the world. The consensus was that civil society constituted the best vehicle for citizen participation and a means through which the state could learn from the voices of marginalised members of society. However, it was recognised that the state has a responsibility to proactively do all that is necessary to enhance the capability of the NGO/CBO sector especially with respect to access to information, education and training and financing. The results indicate that a collaborative approach to such participation is increasingly identified as the preferred and more meaningful model and one that requires firm commitments from governments for its effective promotion given the importance of civil society participation to successful governmental decision-making and programme implementation.

Key words: Caribbean, NGOs/CBOs, environment, assessment, capacity-building

### **EIA POLICY AND PRACTICE AT STATE AND MUNICIPAL LEVEL IN MEXICO**

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Important regulation, institutional and common EIA practice changes have taken place at the Morelos State, in central Mexico, since its first Environmental Act was issued in 1989. EIA process is becoming relevant in terms of its requirement for project approval, but weak in terms of its mitigation requirements, follow-up, and monitoring processes. Mitigation is only considered under federal or state standards, land and water use permissions, and other local stated requirements, while monitoring is applied at a very low scale during project implementation and operation. In September 2000 the Environment and Water State Commission (CEAMA) was created to coordinate actions related to exploitation, use, preservation and restoration of the ecological equilibrium and environmental protection among municipalities, federation and the State. This commission is also involved in reviewing aspects related to water supply, sewage and wastewater treatment. Inside the CEAMA, a Technical Committee on Environmental Impact has been created, gathering professionals from different institutions (Land use and civil works, Ecology, National Water Commission, Water Technology Mexican Institute, The Morelos State Inhabitants Federation, NGOs and Academia, among others), to review any project's EIA requirement compliance. After 31 sessions reviewing 268 EIS applications, some important conclusions have emerged: 1) Unify and improve the EIS State and Federal guidelines, 2) Promote more municipal and public participation, 3) Train municipal authorities on EIA and 4) Establish strong linkages between project construction requirements, including EIA to avoid any legislation gap. Those gaps

have allowed the proponent to start constructing the project, even when not all the authorizations have been issued, and just paying low fines. On the other hand, several mechanisms are being adopted to avoid discouraging investments of some commercial, recreational, housing or other developments in the State.

### **THE IMPLEMENTATION OF EIA REGULATIONS IN TAIWAN DURING THIS DECADE**

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Following the passage of US NEPA 1969, more than 100 countries have already set up their EIA systems, but less than half are implementing specified EIA Acts at present, and each has different evaluation criteria. In Taiwan, we passed an EIA Act in December 1994.

In this paper, the author reviews the regulations following implementation of the EIA Act, to analyze the review process of projects and key evaluation criteria, including consideration of alternatives, action design, screening, scoping, preparation of relative documents, reviewing, consultation, public participation, mitigation, monitoring, follow-up, and SEA system. Finally, the conclusion and suggestions to all IAIA member countries will be involved.

Key words: consideration of alternatives, action design, screening, scoping, preparation of relative documents, reviewing, consultation, public participation, mitigation, monitoring, follow-up, SEA system

### **INTRODUCING STRATEGIC ENVIRONMENTAL ASSESSMENT IN KOREA: A STEP FORWARD IN ENVIRONMENTAL ASSESSMENT SYSTEM**

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Korea has adopted Environmental Impact Assessment (EIA) since the late 1970s. With a rapid growth of environmental awareness as well as the diversification of development activities, however, it has recently produced a strong demand for a

new assessment process related to the strategic level of policies, plans and programs. While some national projects already in progress often result in severe environmental debates (e.g., large scaled reclamation of coastal land by drainage, establishment of urban highway network, etc.), decision-makers in Korea begin to recognize that environmental considerations at the early stage for proposed policies, plans and programs are more significant than at the specific project stage. Consistent with the new government's strong commitment to environment, therefore, we plan to apply Strategic Environmental Assessment (SEA) in Korea.

There are two important factors to be considered when applying SEA in Korea. First, Korea has already carried out a legislated process of preliminary environmental scan (PES) the last two years to identify and minimize environmental impacts in the early stage for some plan and project levels, but not for policy level yet. Second, currently the Ministry of Environment is a unique organization to take the initiative by checking all types of proposals for environmental concerns even though individual legislative act exists independently. In this study, we suggest that the preexisting PES system can effectively be upgraded and expanded to sustain certain SEA principles by solving the following problems. The major concerns are (1) the legislation procedure including establishment of individual target area required for SEA in policy, plan and program levels, (2) strong cooperative inter-relationship between departments by reestablishment of the role of Ministry of Environment, and (3) integration of environmental, social, and economic considerations into decision-making processes. Finally, we are discussing the comprehensive developing plan for SEA in Korea and its relevance.

Key words: SEA, Korea

#### **HEARTS PROJECT: ASSESSMENT AND INTEGRATION OF HEALTH IMPACTS FROM URBAN TRANSPORT SYSTEMS**

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Urban transport is responsible for several health effects that are measured independently from one another, hindering an integrated assessment of the impacts of air pollution, noise and

traffic accidents. HEARTS (Health Effects and Risks of Transport Systems) is a research project aiming at developing an integrated approach to health impact assessment of urban transport and providing a tool able to build capacity for local administration to look at transport in an integrated manner. HEARTS is part of the 5th Framework Programme of the EU and is run by an international consortium, including leading European research institutions and the WHO-ECEH.

The research team is defining the procedures for the development of an integrated health assessment methodology based on selected methods for modelling effects from transport-related air pollution, noise and accidents. The procedures must undertake a deeper understanding of the geographic and social distribution of the different health risks of transport within urban areas and a clearer characterization of the population sub-groups most at risk from multiple health effects. This will allow a better targeting of public health and transport-related policy interventions to mitigate related risks.

The challenges that are animating the research include the possible levels of integration relative to:

- Information about activity and mobility of the population
- Availability and use of dose/effect relationships
- Aggregation of exposure/risk on time-space scales
- Estimation of a disease burden encompassing different effects

The models and programmes will be linked, within a Geographical Information System and a data-warehouse. In September 2003, three European cities will test the methodology on the basis of realistic policy option. The improved ability to use and develop integrated models will facilitate the dialogue between different sectors of the urban administration, policy makers and stake holders, and explicit trade-offs in urban transport and land use planning decisions.

Key words: health, transport, air pollution, noise, accidents

#### **TAILORING THE METHOD: UNDERSTANDING THE ROLE OF STAKEHOLDER INVOLVEMENT IN INTEGRATED APPRAISAL**

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Stakeholder involvement is important in light of recent calls for greater openness and transparency which have been articulated as a need for greater stakeholder participation in a range of "environmental decision making processes," some of which have been appraisal processes. In particular, integrated methods of appraisal are likely to be carried out for complex issues involving a diverse range of information, together with trade-offs necessitate the involvement of stakeholders.

The key issue, however, is understanding how stakeholder involvement can be meaningfully incorporated into integrated appraisal processes, such that the perceived benefits are realised. It is too easy to focus on the methods of stakeholder involvement without understanding the context of the appraisal, and the implicit assumptions of power relations behind those methods.

Three levels of stakeholder involvement can be identified as relevant:

- information feedback
- involvement and consultation
- extended involvement

With respect to appraisal processes, the first two levels of involvement provide ways in which stakeholders could be involved in existing processes and can be thought of as “opening up” the appraisal process without radically changing where the power lies. The third level refers to more extended involvement and within this area new “methods” have been developed which aim to involve lay people in environmental decision-making. They have been termed by some, as Analytic-Deliberative Approaches (Stern and Fineberg, 1996) since they emphasise analysis and deliberation. This level, due the nature of the involvement has the potential to transform existing appraisal processes into new approaches that can provide greater benefits in terms of a normative ideal of ‘fairness’ and ‘competence.’ This paper will discuss, with recent examples, the challenges and benefits to integrated appraisal of this type of stakeholder involvement, and in what contexts it might be appropriate to use it.

## **A FRAMEWORK FOR QUANTITATIVE HEALTH IMPACT ASSESSMENT**

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Prospective health impact assessment (HIA) involves making predictions about the health impact of policies. We propose a theoretical framework for the quantification of this health effect and a way to put it in practice.

Outcome needs to include mortality and morbidity, give disease specific and generic indicators of health, facilitate comparison between policy options and be sensitive to the effects of the policy concerned.

Our framework involves three steps. First, we estimate the effects of a policy or project on the levels of determinants of health. Secondly, this estimate is used to calculate a change in disease incidence. Thirdly, the corresponding change in health indicators is calculated. We focus on the last two steps.

In the second step, the prevalence of determinants and relative risks are used to calculate potential impact fractions (PIFs). The PIF expresses the proportional change in incidence of a disease when exposure of a population to a determinant is changed.

In the third step, health indicators are calculated. In addition to the PIFs calculated in step two, this requires data on total mortality, as well as disease specific incidence, prevalence, and mortality, and a measure of severity. Next to disease specific

measures, we propose the Disability Adjusted Life Expectancy (DALE) as a generic indicator. DALE combines mortality and morbidity after weighting for the seriousness of the disease, facilitating comparison between policy options, and can be calculated using a multi-state life table (MSLT).

A static version of the MSLT is implemented in a spreadsheet, a dynamic version in Prevent Plus. As an example we recalculate an HIA on Dutch tobacco policy. A 30% increase in the price of tobacco in 2000 results in a decrease in smoking prevalence by 12 % in Dutch males. This avoids 1050 lung cancer deaths annually and increases DALE by 0.35 years.

Key words: health impact assessment, public policy, quantitative, methodology



## **ENVIRONMENTAL ASSESSMENT OF ENERGY OPTIONS IN REMOTE RURAL AREAS: CASE STUDY OF PERU**

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In this paper we present the results and some lessons learnt from rapid environmental appraisals performed in two rural villages of Peru where renewable energy projects have been established. Forums such as the World Summit 2002 aim for increased energy services to the world's estimated 2 billion poor people and expect this to be achieved with significant use of renewable energy so that greenhouse gas (GHG) emissions of the West are not replicated. Various international aid agencies are adopting a 'sustainable livelihood' approach toward such energy projects. This requires an understanding of the relative merits of technologies based on their environmental and other impacts. Direct environmental impacts are generally local and relatively straightforward to manage (but not always managed properly). In common with many infrastructure projects, rural energisation can have unintended consequences. There is little understanding within the literature concerning such indirect and cumulative impacts of small scale energy infrastructure development. As part of a larger research project (funded by the UK Department for International Development), rapid rural appraisals were undertaken in two geographic zones of Peru on existing installations. These post-evaluations provided lessons for how relative assessments of environmental impacts may be performed, and revealed some of the inherent difficulties. They also suggest that expected environmental benefits of such projects are not guaranteed and indirect impacts inherently difficult to predict.

Key words: sustainable livelihoods, environmental assessment, cumulative effects, indirect effects, sustainability assessment, stakeholders, strategic impact assessment, rural development, renewable energy.

## **ENVIRONMENTAL IMPACT ASSESSMENT OF STRAWBERRY GROWING**

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Special attention is paid to the impacts produced by the use of methyl bromide since the Protocol of Montreal acknowledged it officially as an active substance responsible for the destruction of the ozone layer. Thus, this pesticide has been subjected to many reduction programmes till its total prohibition by the European Commission.

To minimize the impacts produced by this intensive farming, there are several choices. On the one hand, the change of the methyl bromide to another product without its environmental problems, as those proposed by European Union and Spain. On the other hand, there are the alternatives to the intensive farming from the perspective of the integrated management of agriculture.

The research is focused in the province of Huelva (Spain), the most important zone of strawberries production in the European Union.

Key words: agriculture, strawberry growing, intensive farming, methyl bromide

## **DEVELOPMENT AND INTEGRATION INTO A GIS OF AN EXPERT SYSTEM ADAPTED TO THE SPANISH LEGISLATION FOR THE SCREENING STAGE OF EIA**

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This paper studies the contributions that the new technologies, particularly Geographic Information System (GIS) and expert system, can make to improve the process of Environmental Impact Assessment (EIA).

First the levels in which GIS can contribute to the EIA process are defined. In the last level, the GIS is integrated into a decision support tool like an expert system. This integration is illustrated with an expert system sample case, developed at the University of Huelva for the screening stage (with ARC-GIS 8) adapted to the Spanish legislation of EIA 6/2001. This expert system is based on the one developed at the Oxford Brookes University.

The mean conclusion is that GIS maximizes its utility in the process of EIA when it works integrated in a Decision Support System (DSS) or Expert System (ES) which complement and structure its possibilities of analysis.

Key words: screening, expert system, GIS

## **EVOLUTIONARY SYSTEMS FOR MUNICIPAL SANITATION SERVICES IN LOW-INCOME COMMUNITIES**

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In the year 2000 there were 1.1 billion people worldwide without access to improved water supply and 2.4 billion without access to improved sanitation service. (WHO, 2000 no comparable statistics for solid waste). Asia accounted for 63% of the population not served by improved drinking water supply, Africa for 28%, Latin America, and the Caribbean (LAC) for 7% and Europe for 2%. In the case of sanitation, Asia accounted for 80% of those without access to improved service, Africa 13%, LAC 5%, Europe 2%. These deficiencies lead to higher rates of morbidity and mortality from sanitation-related diseases like cholera and diarrhea, and a vicious cycle of poverty, in which the inaccessibility of basic services constrains economic growth, which in turn limits the resources available for investment in basic sanitation services. Little more than a decade after the United Nations International Drinking Water Supply and Sanitation Decade (1981-1990), its modest gains have eroded. The percentage of the population in low-income countries (LIC) not served by improved water and sanitation services declined from 56% to 31%, and 54% to 44%, respectively, between 1980 and 1990. However, from 1990 to 2000, the percentage of LIC population not served by improved water service declined from 31% to only 24%. In the case of improved sanitation services, it actually increased from 44% to 51%. Thus, the interventions of the UN's Water and Sanitation decade were unable to sustain the constantly increasing demand for service. This paper presents an approach to the planning and delivery of municipal sanitation services (MSS drinking water, wastewater/sewage, and solid waste) that leads to sustainable access to improved MSS. The paper first identifies the key interdependencies between the three services and the need to approach their planning as a system of integrated services, not as independent units. The paper discusses the institutional, human resource, technical, economic, environmental, and social requirements for sustaining MSS capacity. The paper focuses on the evolution of municipal sanitation systems from community-based, high-entropy systems to centralized, low-entropy systems, keyed to the service areas growth in capacity to manage them. The paper highlights the importance of two criteria in the evolution of MSS: i) seeking an economic multiplier effect from all sanitation project investments, ii) risk-based approach to system assessment, analysis and management that balances short-term budget and policy constraints with the long term goal of sustainable, improved MSS. The paper concludes with a case study of the staged response to deficient solid waste management service in the municipality of Bacoor, the Philippines.

Key words: capacity-building, community-based systems, evolutionary infrastructure, sustainable sanitation systems

## **CAPACITY BUILDING FOR APPLICATION OF WORLD BANK SAFEGUARDS TO SMALL SCALE DEVELOPMENT ACTIVITIES**

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The World Bank has significantly increased its engagement with communities, local level governments, and NGOs through Social Fund projects, Community Driven Development (CDD) projects and emergency operations. The Bank's safeguards policies and procedures need to be tailored to these new realities, e.g., new instruments, new actors, etc. The Bank is seeking suggestions and recommendations for better ways to meet the needs of those responsible for the development process at the community and local levels by helping them analyze the environmental and social soundness of their activities within the framework of the Bank's safeguards policies and procedures.

This session (i) reviews Bank Safeguards as they relate to small-scale activities, including the need for safeguards screening and review, mitigation, monitoring, and best management practice, and (ii) provides an opportunity for dialogue among practitioners on possible strategies and approaches to use safeguards to improve the design of CDD, social funds and emergency programs, projects and activities.

Key words: World Bank, safeguards for small scale activities, CDD, social funds, training of trainers

## **CAPACITY BUILDING IN IAIA-NIGERIA**

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Capacity building for impact assessment and community development has been the main thrust of IAIA-Nigeria since its inception in 1998, commencing with a workshop on "Environmental Impact Assessment a Tool for Sustainable Development." The 1999 AGM theme was "Municipal and Industrial Waste Management." An "Environmental Impact Awareness" project was launched that year for high school students, and programs proposed for youth employment, women's empowerment, and AIDS prevention.

The 2000 AGM was a statewide workshop on "Sustainable Impact Assessment and Crisis Management in the Niger Delta Region of Nigeria," at which Bayelsa State participants explored problems and possibilities for community development and proposed solutions to them with and without external support. Following that, in early 2001 a "Community Development Management" workshop was organized for building community capacity to formulate and implement development plans.

This experience reinforced the benefit of linking environmental concerns with development needs by creating and mobilizing community resources. For example, at these workshops representatives of the "Concerned Communities" criticized government failures to mitigate potential adverse impacts of proposed Lower Niger River dredging and to engage in community consultation. We proposed that these communities undertake their

own assessment and convened a workshop in November 2001 to launch that process, followed a year later by an international conference in New Orleans, Louisiana, on "Comparing Rivers: The Mississippi the Niger," aimed at building local capacity and strengthening institutional linkages between these regions.

Future plans involve following up on all these initiatives and preparing communities to participate in the World Bank's "Community Driven Development" programs through community based participatory research, assessment, and management in biodiversity conservation, primary health care, and related areas.

Key words: capacity building, community development

## **CAPACITY BUILDING IN SMALL SCALE DEVELOPMENT ACTIVITIES: PRACTICAL EXPERIENCE**

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This paper presents EIA capacity building practical experience in small scale development activities in Central Kenya. The development project is an initiative supported by missionaries to intervene in stopping environmental degradation in a region of about 5000 sq. km. Since the change of the land tenure from the previous colonial large scale holders, many important environmental changes have occurred, including massive land degradation, lack of fuel wood, poor soil fertility and incipient poverty. The community project aimed to reverse this trend by interventions that include farm tree planting, agro-forestry farming techniques, reforestation in the state and forest reserves and tree planting campaigns in the public utility lands.

A group of eleven participants was selected for the course, among them local school teachers, adult educators, forest and agricultural extension workers and project representatives.

The EIA training took 8 days for training and a test EIA. The training materials were developed from various sources and three case studies developed.

Among the major observations made was the difficulty in establishing the need of an EIA because the local legislation is not very well developed, lack of clear actual examples of environmental damage relating to a project development in the local area, misconceptions about what EIA was all about, and the role of EIA in attracting new development activities.

In conclusion, it was doubtful whether the participants could carry out an EIA as a result of the training. Among the challenges included lack of local EIA guidelines for environmental screening project criteria and lack of general awareness for the need of EIA. EIA as a planning tool and its adoption and integration in development planning is still low in developing countries.

There is a clear need to contextualise the EIA training. The training materials should be adopted into local contexts and relevant and practical case studies should be developed. Perhaps a screening process training would be more cost effective for small activities, to integrate and use during the project planning.

Key words: EIA training, small scale activities, challenges, observations

## **RESULTS OF A NATIONAL HIA: THE HEALTH IMPLICATIONS OF THE COMMON AGRICULTURAL POLICY IN A COUNTRY JOINING THE EUROPEAN UNION**

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This paper presents the results of a HIA on the effect of joining the EU on National Agriculture and Food Policies in Slovenia. All countries joining the European Union are required to adopt EU law which takes precedence over national law. The EU Common Agricultural Policy (CAP) accounts for nearly 50% of the EU budget and consists of a vast amount of inflexible legislation which has no public health consideration.

The Slovenian Ministry of Health is the first government to prospectively assess the health impacts of adopting the CAP into national policy. The results of the HIA were fed into the government policy process as part of development of the inter-sectoral national food and nutrition action plan.

This paper will present the evidence used in the HIA to formulate the results and recommendations made to the government of Slovenia. These include recommendations for specific agricultural sectors affected by the CAP such as the fruit and vegetable, dairy and wine regimes, and for options in the rural development policy. The recommendations focus on how CAP policy instruments can be used to promote production of "healthy" products and improve the socio-economic status of the rural population.

For example, the Slovenian population currently only consume 75% of the WHO recommended intake of fruit and vegetables, and only 60% of fruit and vegetables consumed are grown in Slovenia. There is an opportunity to increase consumption and increase the market sector for horticulture. This will have direct health benefits in reducing cardio-vascular disease and cancer, but will also have indirect effects on socio-economic status by preserving livelihoods on the small farms currently a feature of the rural landscape.

The paper will present the types of policy measures proposed in order that Slovenian agricultural policy can achieve public health benefits within the restrictions of the CAP. It will also discuss the results of a process evaluation which reveal the wider impact this HIA has had in policy making in Slovenia.

Key words: health impact assessment, agriculture, policy

## **LIVING NEAR THE FIRE: PSYCHOSOCIAL MONITORING OF A SOLID WASTE INCINERATOR**

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It's not enough to assess environmental impacts exactly when they've happened. Follow up studies assume great importance as they capture the global picture of what goes on as time goes by. In this sense, a case study of the monitoring of the psychosocial impacts of the construction stage of the solid waste incinerator Valor Sul will be presented. Following the environmental impact assessment study, since February-March 1999 two extensive studies have been conducted every year. Having as a starting point the questionnaire applied in the EIA, a survey was conducted with a representative sample of the region habitants (n=300), aimed at measuring several psychosocial aspects such as knowledge about the incinerator, noise and air quality annoyance, perceived threat, attitudes, visibility of the infrastructure, and perceived distance. Since in the EIA some effects regarding the objective distance to the incinerator were identified, three zones were considered in all the studies with equal number of inquiries: 1Km – Zone 1; 5Km – Zone 2; 10Km – Zone 3. Results showed a remarkable consistency and pictured, as in the EIA, the neutrality of perceived impacts, with the residents in the nearest zones showing greater negativity. In this sense, attitudes were in general neutral and annoyance relatively to noise and air quality and perceived threat were low in general although in the nearest zones they were higher. Place identity, visibility and perceived distance were variables that interacted to determine some significant differences among these results and contributed to enhance the predictive power of these data. The consistency obtained in these various studies reveal the accuracy of the results obtained in the EIA and allowed to understand the reaction of the residents during these years of living near the incinerator. These are only some of the benefits of the follow-up study conducted.

Key words: environmental follow-up, psychological impact assessment, solid waste incinerator

## **A NEW ROAD TO DESPAIR: TEST OF THE PSYCHOSOCIAL IMPACT OF A HIGHWAY CONSTRUCTION**

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Following the philosophy of defense of a larger role for psychology in social impact assessment, a case study on the psychosocial impact of the construction stage of a section of the Portugal South Highway will be presented. This study, in particular, seems important since it focus on construction impacts which are almost always neglected. Subsequent to some public consultation data analysis, a questionnaire was designed aiming to assess: the major annoyance sources; physical and psychological health disturbances; and psychosocial processes that feature in environmental stress models (e.g., Palma-Oliveira, 1992). The survey was conducted with three groups of local inhabitants: "Priority 1" habitants, located less than 50 meters from the construction site. More significantly negative impacts were predicted for this group when compared to another one whose homes were located further than 50 meters from the construction. This latter group was divided into those that would have an access to the highway, once the construction was finished ("Priority 3"), and those that, not having an access in their residence area, would never be able to enjoy the advantages of inhabiting near the highway ("Priority 2"). Results showed that P1 individuals responded in a significantly more negative way (e.g., anxiety, pessimistic expectations towards the future) than P2, and that these, in turn, responded in a more worrisome way than P3. These results are easily accommodated by the environmental stress and cognitive adaptation (e.g., Taylor, 1983) models, according to which P1 individuals were in a more stressful situation than P2 and P3, while not possessing the same coping resources that these did; P3, in particular, were not only less subject to the construction hassles, but also more able to see some good in the situation, appraising the event as advantageous as it would come to allow them better commuting options.

Key words: environmental stress, survey research, psychosocial impacts, coping

**MEASURING OBJECTIVELY THE SUBJECTIVE: TOWARDS AN INTEGRATED METHODOLOGY OF**

## PSYCHOSOCIAL IMPACT ASSESSMENT

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In recent years, Environmental Management has been calling more and more psychologists (social and environmental) in to its procedures, because both disciplines aim in to the same goal: managing human behaviour and its consequences for the environment (natural and built). Their part in this area has gained particular relevance in Social Impact Studies (SIS). In spite of this, in most cases, these studies give more attention to social-economic aspects, and less to psychosocial impacts. Therefore, the purpose of this paper is to point out the importance of including a more microanalysis in SIS, by evaluating the latter, in order to identify, predict and mitigate the consequences from a change in the biophysical and/or social environment, for individuals' health and well-being.

Also, social scientists' procedures have been criticized for being subjective and consequently, demanded greater scientific and methodological accuracy. For that reason, this paper will also present some methodologies and instruments for analysing psychosocial impacts (some of them created by psychologists), in terms of two categories and corresponding dimensions: 1) Health and Well-being (physical and psychological); 2) Psychosocial (attitudes, perceptions, behaviours).

Also presented is an SIS of a road infrastructure, from the Environmental Impact Assessment of IC12 (secondary road) Mira/Santa Comba Dão. The objective will be to present an example not only of social-economic impact assessment, but also for psychosocial impacts. The steps for the analysis process and the corresponding methodologies (to identify and predict impacts) will be presented, along with some of the psychosocial impacts expected. From those methods, a proposal will be pointed out for analysing impacts from an environmental stress model viewpoint (Palma-Oliveira, 1992) that allows predicting individuals and social systems behaviour as a consequence from a change in the environment perceived as negative.

Key words: social impact studies, psychosocial impacts, methods, assessment instruments

## IS IT POSSIBLE TO BUILD CAPACITY THROUGH THE PROJECT CYCLE MANAGEMENT IN THE INTERNATIONAL COOPERATION PROCESS? A CASE STUDY IN PERU

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This paper is a draft result from a research project on "Information necessities of stakeholders in international cooperation project cycle management, focusing on monitoring and evaluation process" funded by General Directorate of Research and the Polytechnic University of Madrid, and supported by General Directorate of International Cooperation and Volunteers of Regional Government of Madrid. The first aim of the study is focused on information needs of those stakeholders especially during monitoring and evaluation process, using two regions of Peru as a field area.

There are several actors in the aid process: Beneficiaries, General Public, Recipient Institutions, Counterparts, NGOs, Public Donor Agencies; and each one has different information needs and capacity building so as to decision making. These international cooperation actors use the project cycle management to plan, monitor and evaluate the indicator's state and improvement in the areas they work. This methodology uses the logical framework, based on public participation. As a result of this methodology it should be "logical" to create a framework for a capacity building process as it is improved the participation and development process. But as we see a great gap between theory (or "rhetoric?") and practice we try to answer some questions: Does the Project Cycle Management really build capacities in the International Development Stakeholders? Why yes, why not, and in which cases is it building capacities and in which ones is it not? How is the Capacity Building potential of the Project Cycle Management in our specific Spanish International Cooperation case? and in the Recipient Institutions? ...or in other words: Is this "Project Cycle Management" something useful for capacity building in our specific case study?

We present the methodology used in the research project, the case study in Peru main findings and we analyze what are the key points to improve and built capacities from the Project Cycle Management point of view.

Key words: capacity building, information needs, indicators, participatory monitoring and evaluation, multi-actor process

## **INCORPORATION OF AFRICAN VALUES INTO ENVIRONMENTAL ASSESSMENT**

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Environmental Assessment (EA) tools have been developed and introduced into the developing world from a developed world context, forming an important part of the development planning process in Africa. The societal context in which EA was formulated was characterised by high levels of development and EA was developed as a response to the environmental impacts of industrial development. Environmental assessment tools and practices currently provide poor and developing nations the option to develop on a sustainable path to fulfil the needs of their society.

EA is a mechanism for managing the environment according to objectives that reflect the goals of society. Environmental assessment is therefore not neutral nor readily transposable, to all country contexts. Values can influence the process and the outcome of an environmental assessment by influencing how environmental assessment practitioners conduct EIA. The outcome of an EIA can be influenced by the fact that different values will inform decisions in a variety of ways.

The core values that impart purpose and direction to EIA actions and approaches are integrity corresponding to instrumental ends, utility corresponding to visible ends and sustainability corresponding to ultimate ends for the EA process. Around these core values the traditional and contemporary values of people in Africa need to be incorporated.

This paper challenges that although current EA process and tools are relevant; the philosophical base of EA needs to be appropriate to the country/continent in which it is being used. This is not currently the case and core values for EA in Africa need to be formulated. The core African value expressed in the spirit of Ubuntu (a person is a person through other persons) speaks to the co-evolutionary nature of systems. An African value base for EA is explored within the context of the New Partnership for Africa's Development (NEPAD).

Key words: environmental assessment, African values, Africanisation, NEPAD, regional development, co-evolutionary systems

## **THE ECOSYSTEM APPROACH FOR AFRICAN REGIONAL PLANNING**

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The ecosystem approach is well suited to the needs of large-scale and regional development projects in Africa. The rationale is that it includes the evaluation of cumulative effects, and allows for broad temporal and spatial scales to be considered during the evaluation of potential environmental im-

pacts. This paper proposes that an ecological or ecosystem scale is the most appropriate scale to use when planning and evaluating economic and social development projects in Africa, especially at a regional scale. The ecosystem approach fosters a move towards a more comprehensive assessment of project alternatives and impacts because it builds on the specific relationships that exist between people and their resources, as well as the natural linkages between different ecosystem components

Economic development and greater integration at a regional level are essential pre-conditions for the African continent to break out of its pervasive cycle of poverty and under development. Approaching the assessment of development options from this broader spatial scale (ecosystem, bio-regional) also allows for the cumulative effects of projects within an ecosystem to be accounted for, hence helping to maximise the potential economic benefits whilst minimising environmental costs to the people.

The Greater Limpopo Transfrontier Conservation Area (GLTFCA) is a joint initiative of the governments of Mozambique, South Africa and Zimbabwe to manage adjoining national parks in a collaborative way that will foster regional co-operation, biodiversity conservation and cross-border socio-economic development. The specific features of this initiative are examined here as a case study of an ecosystem approach to regional economic development in the Southern African Region.

Key words: ecosystem approach, environmental assessment, cumulative effects assessment, regional development, transboundary projects, Africa

## **MITIGATION OF THE SOCIAL, HEALTH AND ENVIRONMENTAL IMPACTS FROM THE ITAIPÚ BINATIONAL DAM-PARAGUAY**

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Our group recently conducted an exploratory mission at the Itaipu dam, at the request of the PAHO, in order to begin the preparation of a formal health impact assessment and long-term surveillance plan. The Itaipu dam is the largest in the world and was constructed jointly by Brazil and Paraguay (1975-1982) on the Paraná River, which marks the border between the two countries. The Itaipu reservoir is 170 km long with an average width of 7 km, for a total area of 1350 km<sup>2</sup>, and was the richest of the river basin. However, fish stocks and diversity have decreased over the years, in spite of re-stocking efforts and fishing restrictions. Currently, Paraguay faces the challenges of developing its economy while promoting human

and environmental health. An energy crisis affecting Brazil has prompted Itaipú Binational to consider new management procedures for the dam. Paraguay has resolved to agree with the new management plan, to the express condition that reinforcement measures would mitigate its impacts and ensure a sustainable development of public health and environmental quality. The Paraguayan population living in the direct zone of influence is estimated at 56,000, distributed over an area of 7,000 km<sup>2</sup>. However, epidemiological issues related to the reservoir also concern larger cities of the area. The overall population concerned is in the order of 200,000.

Direct impacts are primarily increase of mosquito breeding areas owing to conversion of littoral marshes and ponds into unstable stagnant waters, and decrease of water quality on account of drop in level of the reservoir. Indirect impacts affect the lifestyles and life conditions of concerned communities, such as involuntary resettlement, decrease of fishery and lack of water. The most important vector-transmitted diseases are malaria, leishmaniasis, schistosomiasis. Malaria is endemic to Paraguay, with *Plasmodium falciparum* as a major risk because of the higher mortality rate, especially in infants. Dengue has recently increased in frequency and intensity in Paraguay. The worst outbreak estimated of 200,000 cases (2000). Diarrheal disease is one of the main problems in Paraguay, major causes of neonatal and postnatal mortality. In this region the infant mortality rate, tuberculosis and Chagas' disease rates are 10 times the national average.

We present here the conceptual framework for the health impact assessment and long-term surveillance.

Key words: environmental, health impacts assessment-developing countries

#### **L'INTÉGRATION DE LA DÉMARCHE D'ÉVALUATION ENVIRONNEMENTALE DANS LE PROCESSUS DE PLANIFICATION, DE RÉALISATION ET D'EXPLOITATION DES PROJETS D'ALIMENTATION EN EAU POTABLE ET D'ASSAINISSEMENT DE L'OFFICE NATIONAL DE L'EAU POTABLE DU MAROC : BILAN ET PERSPECTIVES D'AVENIR**

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L'Office National de l'Eau Potable (ONEP) intègre, depuis sa création en 1972, la dimension Environnement dans le cadre de ses attributions relatives à la production, la distribution de l'eau potable et l'assainissement, récemment intégré officiellement parmi les prérogatives de l'Office, ainsi qu'à la protection des ressources en eau.

Plus spécifiquement, l'ONEP réalise des études d'impact depuis 1992 malgré l'absence d'un cadre législatif marocain en matière d'étude d'impact.

L'ONEP mène actuellement une vaste réflexion concernant l'intégration des aspects environnementaux dans toutes les phases de réalisation des projets et pour étendre le processus d'évaluation environnementale à l'ensemble de ses activités.

Déjà, l'élaboration de directives types pour la réalisation des études d'impact contribuera davantage à une meilleure prise en compte de l'environnement lors de la réalisation des études.

De plus, l'ONEP mène actuellement un vaste chantier visant l'élaboration d'un nouveau cadre organisationnel et opérationnel en regard de la surveillance et du suivi environnemental, de façon à assurer la prise en compte des aspects environnementaux au moment de la réalisation des travaux et de l'exploitation des ouvrages. Cet exercice d'intégration suppose que des mécanismes devront être identifiés pour inclure les clauses environnementales dans les documents contractuels à l'intention des entrepreneurs, assurer une présence sur les chantiers, approuver les rapports de surveillance et de suivi, etc. Le personnel-clé au sein des directions régionales de l'ONEP ainsi que les entrepreneurs, devront également être formés et sensibilisés sur la nécessité d'appliquer toutes les mesures visant la protection de l'environnement et des ressources en eau.

A terme, l'objectif est de considérer l'évaluation environnementale comme un outil permettant d'évaluer l'adéquation entre les finalités poursuivies par les politiques et les programmes de l'ONEP en matière d'environnement et avec les principes du développement durable.

La présentation portera sur le nouveau cadre d'évaluation environnementale de l'ONEP, les activités en développement et les perspectives d'avenir.

Motes-clés : étude d'impact, surveillance environnementale, suivi environnemental, eau potable, assainissement, Maroc

#### **REGULATORY IMPACT ANALYSIS – A COMPREHENSIVE APPROACH**

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The Hungarian Ministry of Justice established a new Department of Impact Analysis, Deregulation and Registration of Law in October 2002.

One of the main objectives of the new department has been the preparation of a Regulatory Impact Analysis/Assessment (RIA) methodology for any legislative preparations of the Hungarian policy cycles.

The aim of the prepared impact assessment methodology is twofold:

1. To serve as a handbook for impact assessment (IA) practices, and serve as a thesaurus of IA tools of *all* concerned professional areas.

Our approach is to unite and stress the most useful parts of the recent assessment approaches and practices:



- the American type 'monetize all' approach
- assessment practices of non- or hardly-monetizable factors, such as external effects, utilities, risks and other benefits of regulation
- the different methods on assessment of social effects of regulation
- the sociological and technical aspects of legislation
- and sectoral IA practices (e.g. health impact assessment (HIA), environment impact assessment (EIA), with emphasis on EU accession.

2. To provide an applicable algorithm on *how to organize a RIA project*.

Our methodology provides useful help on

- defining the regulations to be analyzed
- assessment of the effectiveness of regulation
- defining the effects of the regulation to be analyzed
- defining the affected groups
- involving affected groups' and other representatives of special areas to improve the quality of IA
- building up the Impact Assessment Team
- building up the 'Impact Analysis Chain'
- creating the Logframe Matrix of the RIA project
- 'General Principles' and the 'Think-Real-Approach'
- choosing the right tool to analyze different effects and presenting the results to the decision-makers

Our Regulatory Impact Analysis methodology is to be published in 3 forms:

1. ca. 300 pp handbook (full version)
2. ca. 60 pp internet (a ready-to-use version without examples, graphs and a lot of useful information)
3. ca. 20 pp executive summary (introduction to all chapters)

Key words: regulatory impact analysis, unification assessment practices, defining effects of the regulation, impact analysis chain, logframe matrix of IA project, 'think-real-approach'

## PARAGUAY COUNTRY SOCIAL ANALYSIS

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This paper presents the results of the first Country Social Analysis (CSA) the World Bank completed in the Latin American and the Caribbean Region. The Country Social Analysis reviews existing information and summarize the main features of the socio-cultural, political and institutional context of Paraguay, identifying opportunities, constraints and likely impacts that should be considered in the discussion of policy options with the Government and in the management of the country's portfolio. The CSA identifies the key socio-economic and politic-institutional issues that have a bearing on the achieve-

ment of sustainable poverty reduction and growth. Specifically, the CSA discusses what the key social development opportunities are as well as constraints to socially sustainable development and poverty reduction in Paraguay.

The paper discusses methodological issues relevant for the planning and implementation of a CSA. Then the paper identifies the main social development challenges of the country, and how these affect access and control of resources and assets by different groups. Then the paper looks at what has been the past experience of policy reforms and current policy agenda, which are the main stakeholders of the reforms and which reforms are likely to have the greatest poverty and social impacts on the well-being of different social groups. Finally, the paper provides some methodological recommendations for future CSA and discusses policy options to achieve equitable and sustainable development outcomes to the extent feasible.

## PUBLIC PARTICIPATION, DEMOCRACY AND ENVIRONMENTAL INTEGRATION: CAN EIA/SEA PROVIDE A FEASIBLE CONNECTION?

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Public participation is deemed important as a general feature of democratic societies. It is also a high priority in the attempts to integrate environmental concerns into decision making through environmental and Strategic impact assessments. The political expectation is that more participation and political will could help bring about broad consensus on sustainability measures together with an increase in transparency of the administrative process. In current practices of EIA/SEA, public participation is expected to play an active role in decision making, favouring an open process of collaboration and negotiation between different actors, strengthening the quality of the process and avoiding controversies on the final decision. This paper argues that models of participation, within current impact assessment practices made it impossible to meet some if any of these goals. The strength and weaknesses of current EIA participatory models in transport need to be thoroughly assessed. This paper reviews different forms of participation in transport policy-making under governmental arrangements (impact assessment, planning, LA 21) at local levels, and compares them in terms of the objective they are set to accomplish, legal status, the level of authority under which they operate, the participants stakeholders, the form it takes, the knowledge created in the process and the resulting effect on decision-making. Additionally, the paper looks into models of participation within non-governmental organizations and evaluates them in terms of the level of decision making they try to tackle, the extent of participation they accomplish, and whether they argue about environmental transport problems in specific or within the context of a larger environmental-social critique. The analysis is based on road transport planning in Denmark. The paper attempts to make conclusions about linkages between participatory processes, the cultural dimension of participation and the possibilities for public involvement in EIA/SEA to help on integration of environmental concerns into decision-making.

Key words: public participation models, democracy, environmental integration, links

## **THE DEVELOPMENT OF HIA HUMAN RESOURCE IN THAILAND: THE PAST EXPERIENCE AND FUTURE PLAN**

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The HIA conceptual framework is a new idea in Thailand. In 2001, Health System Research Institute (HSRI) founded Healthy Public Policy and Health Impact Assessment Programme (HPP-HIA) to study and develop HIA concept and instrument, being as a part of public policy driving.

In the first year, the HPP-HIA programme has three targets to drive HIA idea in Thailand. Those are, firstly, to define concept and to make advantage from previous experiences of other country in order to publish articles and books for HIA constructing process. The second is to set up networks in three regions and six policy thematic. The three regional networks consist of the Northern network at Chiang Mai province, the Northeastern network at Khon Kaen province, and the Southern network at Song Khla province. Policy thematic consists of industrial and energy policy, agriculture and rural area development policy, urban area and transportation development policy, water resource policy, international trade and agreement policy, and natural resource based policy. The third target is to support funding for pilot research such as the HIA study of industrial development in the Eastern Seaboard, Thailand, the community conflict of Thailand-Malaysia gas pipeline taken in Southern, Thailand, etc.

In 2003, the Programme has new plans for human resource development. It established the healthy public policy learning process and health impact assessment office and has a plan to support funding for faculties of graduated school, Chiang Mai University and other universities. HPP-HIA programme has future plans to expand networks through the whole Kingdom. It also coordinates with public policy stakeholders.

Key words: health impact assessment, human resources development

## **COMMUNITY-BASED ACTIONS ON ASSESSING WATER POLLUTION AND HEALTH IMPACT**

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Recent countrywide water-quality assessment reports (2000-2002), classified most Thai rivers falling into moderate to poor qualities. Industrial effluents and extensive farming run-off were often claimed to be major sources of those water pollution impacts. The Thai Government (Department of Pollution Control), with its limited resources, could do best by conducting a snapshot survey twice a year of every river, aimed at analyzing countrywide situation and showing any early warning sign for public use.

This paper attempts to explore the role of community-based actions on water pollution assessment in two Thai outstanding sub-watershed cases, the Nam Phong-NP of the northeast and the Nakorn Nayok-NN at the central part. These NP&NN communities have long been under stress as aquatic biota for their diet continue to decline, and the river waters became inappropriate for daily uses. Further, health impacts, such as skin rashes and spiritual health, were also found very common among those risk groups living nearby the polluted rivers.

The NP&NN community leaders and volunteers have been trained to identify the impact sources, water-quality monitoring techniques and health impact quantification. The communities organized their team to conduct water assessment activities across the sub-watersheds. Stakeholder meetings were then organized thereafter while using the community-based assessment information as the key input. The water pollution corrective measures thus eventually could be achieved, while those stakeholders shared their future plan and activities to be implemented in that locality. The local governments were also acting as the center-point organization to include and support that community-based action, while later it was found that water quality became much improved. Those communities agreed to continue their water assessment activities, so as to safeguard their water environment, livelihood, well-being and health impact.

Key words: capacity building, community-based assessment section, health impact

## **URBAN ISSUES AND ASSESSMENT CAPACITY BUILDING**

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The process of urbanization entails a multitude of issues to be addressed through EIA and SEA. Diversity of urban areas calls for the adjustment of EIA to particular urban settings. Localization of establishments and activities in cities brings up a growing need to balance interests of various subjects bound up in different ways with the locality, which EIA has to reflect. The assessment procedures should express in this sense basic values of urban life, even though these criteria are not explicitly linked with usually observed and analysed environmental issues. This assertion could be supported by a number of examples coming from practice; one of them has been described in the paper. The aptitude of both assessment experts and responsible authorities to identify, fully understand and cope with specific environmental attributes of various types of settlements deserves enhancement. The purpose of the paper is evaluation of these attributes as well as presentation of views regarding stimulation of progress in the area of assessment aimed at urbanization impacts.

Key words: environmental assessment, urbanization, localization, urban sustainability

## **PUBLIC PARTICIPATION IN RENEWABLE ENERGY DEVELOPMENT: HIA'S PUBLIC SCOPING AND PUBLIC REVIEW OF THE TWO CONTROVERSIAL BIOMASS POWER PLANT PROJECTS IN THAILAND**

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Energy projects are one of the main causes of conflict in Thai society. There have been many controversial cases around the country. The common characteristics of these projects are large-scale and mainly utilising fossil fuel. Thus, renewable energy has been considered as an important solution for the conflicts in the energy sector.

In 2001, the government initiated a subsidy program for renewable energy. As a result, 31 projects are underway for the approval, including the Environmental Impact Assessment (EIA). However, several projects are faced with the opposition of the local people. Based on the field studies, the main causes of conflict are related to the problems in public participation.

Public scoping and public review of the EIA are considered crucial steps for meaningful public participation. But according to the existing EIA process in Thailand, these two steps are not open to the public yet.

Therefore, two cases have been chosen and the public scoping report is produced for each case by way of several discussions with local people, both supporters and protesters. The report contains the views of the local people on both benefits and impacts of the project and compares them with the contents of the EIA.

After the acceptance of the local people from both sides, the reports are disseminated to all related actors with the aim to support the public review of the EIA. The consequences to the approval process and the positive impacts on conflict resolution are still to be followed.

Moreover, various policy recommendations have been pointed out in the public scoping report. These will be discussed among all stakeholders to influence the on-going decision-making process and also to contribute to the search for more meaningful public participation in future renewable energy development.

Key words: public participation, renewable energy development, environmental impact assessment, health impact assessment

**THE STRATEGIC ENVIRONMENTAL ASSESSMENT  
ON THE WINTER OLYMPIC GAMES PROGRAMME  
“TURIN 2006.” METHODOLOGY, PRACTICE, PER-**

## SPECTIVES

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In Europe, the recent European Directive (2001/42/CE) promotes the introduction of innovations in decision making. This paper considers the role of SEA process in policy-making, with particular focus on principles, tools and practices in regional planning. In particular, it tries to highlight the role of the SEA process to implement new capabilities in regional planning policy. A brief review of these topics comes from the SEA experiences in implementation on the Winter Olympic Games Programme “Turin 2006,” that are in Italy the first experimentation of the SEA process applied to the extraordinary territorial development programme. In 2001 the multidisciplinary group of the researchers of the Turin Polytechnic worked out the ex-ante “Environmental Assessment Study of the Olympic Games Programme” that, in Italian regional planning context, represents the first practice of the SEA procedure after the recently adopted EU SEA Directive. The aim of this paper is to discuss some methodological aspects to manage the conflicting interests about the use of the territorial resources and to improve the integration of the SEA procedure in the decision-making process relating to environment and local development. In particular, the paper proposes the discussing of the case study with particular focus on the following topics:

1. The SEA procedure in the Italian planning and legislative context
2. The ex-ante “Environmental Assessment Study” (EAS) such as an opportunity to text in the Italian planning practice the SEA procedure
3. The methodology and the tools of the EAS: the multidisciplinary approach
4. The interaction between the results of the EAS and the decision making planning process: the relationship between the sustainability mitigation and compensation goals and the local planning and developing process
5. The effectiveness to improve the institutional capacity and the follow-up on the decision making process and the local sustainable development.

Key words: strategic environmental assessment, sustainability development, regional planning, local development, sustainable tourism, environment reporting

### **INTEGRATED IMPACT ASSESSMENT OF MANAGING PAK MUN HYDROPOWER DAM: THE FUTURE OF THE MUN RIVER AND THE HEALTH OF ITS PEOPLE**

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Pak Mun hydropower dam has been a controversial issue in Thai politics for longer than a decade. The dam, completed in 1994, was built on the Mun River, only 5.5 kms before reaching the Mae Kong River. It inevitably obstructs the natural fish migration from the Mae Kong to the Mun River. Therefore, the fishery resource has been degraded, leading to sharp reduction of income for local fishery households. Local protest against the dam had been continuous. In 2001, local people succeeded in pressuring the Thai government to open the dam's gates for a year in order to recover the river and their ways of living.

A health impact assessment has been set up to provide evidence-based information to support the public decision-making in managing the dam. It was designed in a comprehensive and integrated manner and supported by collaborative studies. The local peoples' determinants of health have been analyzed. The changes in health determinants have been detected and the overall health impacts were summarized.

The study shows that, after opening the dam, fish migrated year round from Mae Kong River into the Mun River. Many local households returned to their river to earn fishery income and secure their livelihoods. The local fishery economy was renewed and the poverty incidence was reduced. Many rapids, a unique natural heritage in the local area, were restored, leading to the emergence of local tourist business. The return of the rapids also allowed the local people to use these holy places for their traditional ceremonies. The benefits for the health of local people are clear for all dimensions. Due to the high reserve margin in the Thai electricity system, the study suggests that the Thai government should keep the dam open for a period of 5 years.

Key words: health impact assessment, integrated impact assessment, hydropower dam

### **POVERTY AND SOCIAL IMPACT ANALYSIS (PSIA) OF PROPOSED LAND REFORM IN ZAMBIA (THE PSIA WAS CONDUCTED AS PART OF THE PREPARATIONS FOR THE 2002 WORLD BANK COUNTRY ECONOMIC MEMORANDUM)**

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Two decades ago, Zambia was one of the most prosperous countries in Sub-Saharan Africa. Today 73% of the population live in poverty and over 70% is food insecure. The government (GRZ) has pursued an adjustment program since 1991, but the structure of the copper dependent economy has changed little and growth has been elusive. The 2002 PRSP and the GRZ commit to development of the agricultural sector as the only foreseeable potential for growth and poverty reduction. Land reform is seen as crucial to encourage investment and better land use. The current system is described as inefficient and inequitable.

More than 60% of the Zambian people live in rural areas, and more than 80% derive their income from agriculture. More than 83 % live in poverty. Since land is the major and often only asset of the rural population, PSIA analyzed the potential impact of the reforms on the welfare of different social groups and the existing power and social structures. The PSIA also examined the institutional and implementation capacity, potential risks to and from the reforms.

Components of PSIA specific research: i) Stakeholders consultations ii) Participatory Poverty Research iii) Study of a village iv) Rural Household Model.

The PSIA was conducted by Steen Lau Jorgensen, Director SDV and Zlatina Loudjeva, Policy Analyst SDV.

### **ASSESSMENT OF THE IMPACT OF HUMAN STRESS ON THE COASTAL RESOURCES IN KERALA, INDIA**

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The human interference and its impact on coastal zones have been recognised world-wide. Twenty per cent of the Indian population live in the coastal belt. The population intensity in the coastal belt in India is comparable to any other country.

Kerala is the southwestern state of India with a coastline of 560-km. In Kerala the total area available for a population of 25,396,959 is only 38238 sq. km. And if we analyse the human settlement in Kerala it shows that about two-thirds of the popu-

lation of the state is settled in the coastal districts. This is in no way comparable to other state in India. The changing land use pattern has resulted in accelerated destruction of the coastal resources in this region and increased multi-user conflicts. Over-exploitation of the inshore fishery resources have drastically affected the stock of various fish and prawn species. Destruction of the Mangrove forest for various anthropological activities has also affected the biodiversity of the region. The introduction of the Coastal Regulation Zone notification in 1991 and its strict enforcement with a Supreme Court verdict in 1994 has helped to minimise the destruction in the restricted zones. This has led to a drastic change in the property rights regime in the coastal zones. This regulation though has caused social unrest and economic slowdown has helped to a greater extend in generating awareness to protect natural resources.

The paper analyses the various interacting activities, which have a long lasting effect on the coastal environment and its sustainability. Coastal Zone in Kerala is overexploited beyond its carrying capacity. Coastal villages have a very high population density between 677 and 2159 persons per Sq. Km. This shows the pressure that human settlement is causing on the coastal ecosystem in general and its natural resources in particular. It is estimated that the estuaries and back waters which once occupied an area of 2426 sq. km. have now shrunk to 652 sq. km. in the past 150 years. This sort of unscientific alteration of the ecosystem has a tremendous impact not only on the biodiversity of the area but also on the socio-economic condition of the population. The destruction of mangroves for various human activities has affected the flora and fauna of the region. Kerala waters are facing excess fishing pressure. It is estimated that Kerala has 8000 non-mechanised, 14050 motorised and 6155 mechanised vessels in excess than the required numbers for harvesting the stock at sustainable level. Due to lack of sewage and domestic waste treatment facilities the coastal waters are contaminated. With the recently introduced decentralised planning programme for local level administration in Kerala and with more powers and resources transferred from the top to the grass root level villages, things are expected to change. A holistic approach for integrated planning for protection of coastal environment is required with active participation of local people.

Key words: human stress, coastal natural resources, environmental protection

#### **WORKSHOP FOR COLLABORATION OF DIFFERENT GENERATIONS IN PLANNING PROCESS: CASE STUDY IN YAKUSHIMA SUSTAINABLE ISLAND PROJECT**

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Sustainable society should be built from community-based points of view. It is necessary to involve citizens for implementation of environmental planning. In particular, taking into consideration future generations' views in this process could make plans feasible in the long term. This study focused on the workshop approach as one method that allows collaboration between adults and children.

Experimental workshops were conducted in Yakushima Island, a world nature heritage in Japan. Meetings were held twice during the workshop. In the first meeting, participants perceived the relationship between the nature and their life

through nature games. In the second, economic and social problems were discussed by each group.

So that the effect of the collaboration of different generations could be determined, workshops were divided into three groups: only children, only adults, and composite. The evaluation of the composite effect was analyzed from the contents of discussion and an attitude survey of participants. As a result, children who belonged with the composite group put forward much more constructive opinions such as solutions to problems. Furthermore, collaboration has favorable influences on the children's senses related to trade-off between development and environment. Thus, a collaborative workshop is one effective way to build capacity while enabling young generations to participate in the planning process.

Key words: sustainable society, workshop, citizen participation, world heritage, Yakushima Island

#### **GIS APPLICATION FOR SUPPORTING CITIZEN PARTICIPATION MEETINGS -CASE STUDY IN YAKUSHIMA SUSTAINABLE ISLAND PROJECT**

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It is necessary to have good support when conducting communications in the citizen participation process. It is especially important to give some useful information about regional environment and the economy in this process. GIS should be helpful as an information and communication technology (ICT). It gives a virtual image of the area in the regional environmental planning process, as the size of the area is far beyond human scale. In this study, a prototype of a GIS applied communication system was developed in the Yakushima Sustainable Island Project.

Key words: sustainable society, GIS, citizen participation, communication technology, world heritage, Yakushima Island

#### **CREATION OF NEW ENVIRONMENTAL GUIDELINE OF THE JAPAN BANK FOR INTERNATIONAL CO-OPERATION**

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The Japan Bank for International Cooperation (JBIC) is one of the biggest banks for international cooperation in the world, as two financial organizations were combined in 1999. Currently, the amount of annual financing is about seventeen billion US dollars, more than that of the World Bank. This means that ac-

tions of JBIC are influential worldwide. Thus, the Japanese Diet is required to make a good environmental guideline.

The new guideline is fairly high-level for sustainable development, through requiring good practice of EIA. The author committed to develop the guideline as an expert on EIA. The scope of the impacts of the guideline includes not only the natural environment, but also social aspects. The guideline requires public consultation twice in the scoping stage and draft impact report stage, the same as required by World Bank.

Why has it become such a guideline? The reason should be found in the process of making the guideline. Every major stakeholder was collected to the committee for making it. The core members were academic people, NGOs, governmental people and those from JBIC. Committee meetings were opened to the public and minutes appeared on the web site. Opinions were always collected and put into the committee. After the committee report was made, JBIC developed the draft of the guideline. It contained not only the committee meetings but also several public consultation forums. Public comments were collected. This kind of very transparent process made it possible to achieve the high level of the guideline.

Key words: EIA, environmental guideline, sustainable development, public involvement, JBIC

#### **PRACTICAL EXPERIENCES OF SUSTAINABILITY IMPACT ASSESSMENTS OF TRADE**

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The European Commission awarded the SIA of the negotiations of the trade agreement between the European Community and the Countries of the Cooperation Council for the Arab States of the Gulf (GCC) to a consortium led by PricewaterhouseCoopers in Belgium.

The study started mid January 2003 and the final report is scheduled for October this year. The presentation will focus on the methods used to conduct this SIA in relation to both the technicalities and the public involvement aspects. The quantification of the economic impacts will also be addressed.

The audience will be informed about the way the stakeholders dialogue is organized, the role of experts, the expectation levels, the scope of the SIA and difficulties encountered. SIA issues specific for the EU and the Gulf States will be highlighted.

Project website: <http://www.sia-gcc.org>

EC DG Trade website: [http://europa.eu.int/comm/trade/sia/index\\_en.htm](http://europa.eu.int/comm/trade/sia/index_en.htm)

Key words: SIA, trade negotiations, stakeholders dialogue

#### **CONTRIBUTION DU RÉSEAU GABONAIS DES PROFESSIONNELS EN EVALUATION ENVIRONNEMENTALE (RGPEE) À L'ÉTUDE SUR L'ÉTAT DES LIEUX ET DES BESOINS EN MATIÈRE D'ÉVALUATION ENVIRONNEMENTALE (EE) AU GABON**

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L'absence d'une stratégie nationale en EE au Gabon a amené le RGPEE à initier une étude sur l'état des lieux et des besoins en EE. La méthodologie a consisté en une enquête, à base des questionnaires préétablis, auprès des institutions et personnes ressources oeuvrant en environnement.

Au plan réglementaire, les codes législatifs en vigueur en environnement et le décret réglementant les EE sont les textes juridiques de référence auxquels se conforment toutes les institutions.

Au secteur public, la Direction Générale de l'Environnement est responsable de l'EE au niveau national. D'autres administrations, à cause de leurs attributions, interviennent incidemment en EE.

Au privé, les intervenants sont principalement les entreprises étrangères, du secteur primaire et secondaire, aux capitaux financiers importants.

Le RGPEE est l'unique structure qui assure la défense des intérêts de la société civile dans le domaine de l'EE. Par ailleurs les besoins en EE au Gabon sont respectivement d'ordre structurels et organisationnels. En effet, le cadre juridique et institutionnel est peu opérationnel : la procédure nationale d'EE et la structure chargée de leur validation sont inexistantes. De plus le renforcement de capacités à tous les niveaux et le développement des études sur la participation publique constituent des besoins ressentis par tous les acteurs en EE.

Au niveau organisationnel, au déficit d'informations et de sensibilisations, s'ajoute un conflit de compétence entre administrations et de l'incompétitivité des bureaux d'études et de laboratoires locaux. Enfin, sur la base de tous ces diagnostics, le RGPEE a formulé sa stratégie en EE.

Mots clés: évaluation environnementale, besoins, état des lieux, stratégie

#### **PROPOSITION D'INDICATEURS ENVIRONNEMENTAUX POUR LE SUIVI ENVIRONNEMENTAL DES PROJETS EN CÔTE D'IVOIRE**

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Le suivi environnemental est une opération à caractère scientifique servant à mesurer les impacts réels dus à la réalisation d'un projet et à évaluer la performance des mesures correctives proposées. Elle nécessite l'acquisition de données sur le terrain. A ce titre, il constitue une étape essentielle du processus d'Etude d'Impact Environnemental (EIE). Le constat est qu'aujourd'hui en Côte d'Ivoire, le suivi environnemental n'est pas présenté selon les règles de l'art. En effet, de nombreux rapports d'EIE ne mettent pas en évidence les indicateurs environnementaux pertinents permettant de suivre l'évolution des milieux après la réalisation des projets.

C'est pourquoi, dans le but d'aider les promoteurs de projet, il est proposé une série d'indicateurs environnementaux applicables à différents domaines d'activités. Ces indicateurs ont été choisis de manière consensuelle par des spécialistes impliqués dans la gestion de l'environnement.

Sur cette base, les indicateurs relatifs aux composantes physiques (air, eau, sol), biologiques (forêt, diversité biologique) et humaines de l'environnement (santé) sont proposés.

Mots-clés: étude d'Impact environnemental, indicateurs environnementaux, suivi environnemental, zone côtière

## **PROPOSITION D'UNE METHODE PARTICIPATIVE POUR L'EVALUATION ENVIRONNEMENTALE DES PROJETS: CAS DU PROGRAMME CADRE DE GESTION DES AIRES PROTEGEES (PCGAP) DE LA CÔTE D'IVOIRE**

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L'évaluation environnementale des grands programmes est généralement une tâche considérable au regard de leur complexité et de leurs enjeux environnementaux. En effet, ces programmes renferment plusieurs composantes qui sont en fait des projets. La faisabilité technique de ces projets et leurs impacts environnementaux doivent être analysés de manière sérieuse tout au long du processus pour obtenir d'une part un gain de temps et d'autre part un rapport d'évaluation environnementale de qualité relativement irréprochable.

Face à cette situation, la mise en place, assez tôt, d'un processus participatif, impliquant des experts provenant de différents domaines d'activités dans un groupe de travail de type permanent est très utile dans l'élaboration des rapports. Ces experts ont la tâche d'évaluer, au plan environnemental, les différentes composantes du programme de manière continue avant l'élaboration du rapport final.

Cette approche a été utilisée dans l'évaluation environnementale du Programme Cadre de Gestion des Aires Protégées (PCGAP) de la Côte d'Ivoire. Ces experts étaient regroupés dans un Noyau Pluridisciplinaire de Travail qui a permis d'améliorer la qualité du rapport d'EIE tout au long de son élaboration en se basant sur toutes les études thématiques des différents consultants.

Toutefois, la mise en œuvre d'un tel procédé reste délicate en raison de problèmes divers qu'il faut surmonter, entre autres, la motivation réelle des membres du NPT pour susciter leur entière adhésion. Toutes les situations de nature à porter atteinte à la bonne marche du processus sont présentées dans le présent rapport.

Mots clés: EIE, méthode participative, noyau pluridisciplinaire de travail

## **LA LUTTE CONTRE LA DÉSERTIFICATION AU NORD MALI**

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Le Mali couvre une superficie de plus de 1,2 millions de Km<sup>2</sup>, sans accès à la mer, défini par les 10° et 25° Nord en latitude d'une part, les 3° Est et 12° Ouest en longitude d'autre part. Il est essentiel, pour comprendre la problématique malienne de développement, de signaler que la moitié du territoire national (soit 632.000 Km<sup>2</sup>) se situe en zone saharienne, où les précipitations n'atteignent pas 200 mm.

Les principaux problèmes environnementaux de la région sont:

- la fragilité de l'écosystème caractérisé par des sols dunaires, un climat aride et la faiblesse des crues du fleuve Niger
- les pratiques néfastes d'exploitation des ressources naturelles
- le déficit pluviométrique
- l'ensablement des cours d'eau, des agglomérations et des terres de culture
- la dégradation des formations ligneuses et des pâturages
- la mauvaise gestion des ressources agro-sylvo-pastorales
- les problèmes fonciers

Pour minimiser les effets pervers des problèmes environnementaux, l'Etat malien a créé une structure dénommée « Programme d'Appui à la lutte contre la Désertification ». L'objectif global du programme est de contribuer à la lutte contre la désertification dans une perspective de développement, par la protection et la mise en valeur raisonnée et durable des ressources naturelles des régions nord du Mali.

Le Programme a pour objectif spécifique la lutte contre l'ensablement. Pour atteindre cet objectif, le Programme a initié les actions suivantes:

- Elaboration du schéma directeur de lutte contre l'ensablement de la région de la boucle du Niger
- Elaboration des schémas directeurs d'approvisionnement en bois énergie (SDA) des régions concernées
- Gestion des plantations, des massifs forestiers et boisements naturels
- Valorisation des produits ligneux
- Les populations rurales des zones concernées, dont le cadre de vie, les infrastructures socio-économiques et le potentiel de production sont menacés par la désertification sont les acteurs et bénéficiaires principaux des actions de lutte contre l'ensablement et l'exploitation irrationnelle des ressources ligneuses.

Une équipe de suivi environnemental dont la (DNACPN) est membre est chargée d'évaluer l'impact du Programme au niveau des groupes cibles.

Mots clés: désertification, ensablement, écosystème, ressources naturelles, exploitation irrationnelle

### **L'IMPACT DES CONFLITS ARMÉS SUR LE PARC NATIONAL DE KAHUZI BIEGA (PNKB) À L'EST DE LA RDC CONGO**

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Les projets de guerres ont ouvert, dans la considération d'impacts, un portail de malheurs hautement tragiques sur le PNKB dans toutes les dimensions naturelles: les substrats sol, la flore, la faune, l'eau, atmosphère... Il en est de même des relations pacifiques de gorilles du PNKB avec l'humanité dans le cadre du tourisme, des recherches scientifiques, des diverses activités socio-économiques des autochtones.

Le sol a été transformé en terrain agricoles et en carrières minières. La transformation outrée du PNKB en terrain d'extractions minières (coltan, or, cassitérites,...) et de plantations et fermes est une menace à la survie des gorilles, la survie de la déforestation qui réduit la qualité et la quantité de nourritures des animaux du parc, la pollution hydrique et atmosphérique, l'ouverture de fossé dans le parc, la braconnage de bambous, production de braises et bois de chauffage à partir de la flore du PNKB est un danger effectif à la vie des gorilles.

En fixant un regard objectif sur l'impact de deux guerres en RDC Congo sur la vie des gorilles en particulier et de toutes les ressources naturelles du pays en général, on parlerait des guerres d'écocide, de pillages: 800 gorilles et 3600 éléphants massacrés dans les basses altitudes, 300 éléphants et 128 gorilles dans les hautes altitudes et autres animaux en plus de la flore et du sol.

Mots clés: guerre, impacts, ressources naturelles

### **IMPACTS ENVIRONNEMENTAUX ET LUTTE CONTRE LA DÉSSERTIFICATION DU RECHARGEMENT DE LA ROUTE AGADEZ-ZINDER**

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Le Niger a une superficie de 1.287.000km<sup>2</sup> dont les 90% sont désertiques. Le rechargement de la route Agadez- Zinder en plein désert du Sahara impliquera des actions de lutte contre la désertification. La zone est désertique avec quelques touffes arbustives, un relief peu accidenté et comprend de grandes falaises, lieu touristique par excellence.

On retrouve au Niger quelques traces de pluie par an. La température maximale est de 45°C et minimale de 5°C, on y trouve des sols sableux et une rareté d'eau. Le pays est peu peuplé, et comprend de petites formations arbustives ainsi qu'une faune variée, quelques cultures maraichères dans les cuvettes, un élevage extensif, une zone peu scolarisée

Impact du projet de route sur l'Environnement:

- Peu d'influence sur le climat, le sol et les cultures
- Grande consommation d'eau du chantier
- Augmentation des poussières dans l'air
- Utilisation du bois de chauffe anormale
- Perturbation des animaux et de la faune
- Possibilité d'embauche

En ce qui a trait aux mesures d'atténuation et de limitation des impacts, on retrouve une re- dynamisation du tourisme, des actions de sensibilisation contre le braconnage, un aménagement des bases-vie et l'équipement des forages qui seront laissés aux populations. Des plantations d'arbres et une fixation des dunes sont aussi réalisées.

En conclusion, Jadis destructeurs de l'environnement, les projets routiers contribuent à la lutte contre la désertification et le développement des terroirs.

Mots clés: impacts environnementaux, projet de route, désertification, mesures d'atténuation



## **PARTICIPATION DU PUBLIC DANS LES PROCESSUS D'ÉVALUATION ENVIRONNEMENTALE DANS CERTAINS PAYS DE L'UEMOA**

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Le chantier du développement des capacités est vaste, ouvert et multiforme. Certains aspects relèvent des prérogatives de la volonté des pays et d'autres sont du ressort de la Communauté internationale. Si LA Communauté internationale appuie en particulier les pays les moins avancés à travers plusieurs initiatives dans le développement des ressources humaines, encore faut-il que les pays développent des cadres juridique et institutionnel approprié favorisant l'effectivité de l'évaluation environnementale (EE) et de la participation des acteurs concernés.

Plusieurs cadres nationaux de l'EE en vigueur actuellement dans les pays sont-ils de nature à promouvoir une participation efficiente du public en matière d'EE dans un contexte de développement durable?

La réponse à cette question n'est pas aisée. La présente communication fait donc le point des contenus des cadres juridique et institutionnel de l'EE en matière de participation du public dans quelques pays de l'UEMOA dans le cadre des projets nationaux et transnationaux ou sous-régionaux comme dans le cadre du NEPAD. Elle apprécie la portée et les limites actuelles de la consécration de la participation du public par les cadres nationaux de l'EE et analyse les difficultés qui jalonnent encore la participation du public dans les pays concernés.

La réflexion s'inspire des travaux menés à ce jour, notamment ceux du 3<sup>ème</sup> colloque des spécialistes francophones en évaluation d'impacts et des instruments juridiques de portée mondiale ou régionale entre autres, et notamment de la Convention d'Espoo et de la Convention d'Aarhus, sans oublier les recommandations du Sommet Mondial du Développement Durable (SMDD).

L'objectif est de combler les lacunes constatées pour mieux promouvoir la participation car il apparaît évident que des efforts substantiels restent à faire dans ce domaine.

Mots clés: cadre nationaux-participation du public, évaluation environnementale, cadre juridique, projets nationaux et transnationaux

## **LA PRESENCE DES MILLIERS DES REFUGIES, DES COMBATTANTS DANS LA REGION DES GRANDS-LACS ET LES CONSEQUENCES SUR L'ENVIRONNEMENT**

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Avec la guerre du Rwanda et du Burundi en 1994 et 1995 qui a entraîné le départ massif des réfugiés Rwandais et Burundais (en milliers) en territoire Congolais (à l'Est) ville de Bukavu, Uvira et Goma. Cette présence a entraîné la destruction des forêts environnantes autour des camps de réfugiés et des villages voisins à la recherche des bois des chauffes pour la préparation de la nourriture, cette destruction à été compensée par le UNCHR a travers des projets de reboisement. Jusqu'en octobre 1996, avec la guerre dite de libération à l'Est de la RDC, ces camps des réfugiés ont été démantelés, par l'armée Rwandaise le APR en coalition avec l'armée de KABILA, et l'armée Ougandaise ce qui a entraîné le disperserment des réfugiés dans les hauts et moyens plateaux au Sud-Kivu et dans le Parc National de KAHUZI-BIEGA et Virunga au Nord-kivu.

Parmi ces réfugiés, il y a les combattants Interahamwe et ex-FAR (Force armée rwandais du feu président Habiarimana), le FDD (Force pour la Défense de la Démocratie du Burundi), FNL (Force Nationale de Libération du Burundi), les combattants, MAI-MAI du République Démocratique du Congo qui sèment l'insécurité à partir des maquis où ils campent.

Le gouvernement du Burundi, du Rwanda, et mouvement rebelle du RCD (contre le gouvernement de Kinshasa le RDC), n'existent pas à brûler des milliers d'hectares des forêts ou faunes et flores sont décimés chaque année pour essayer de déloger ces combattants. (MAI-MAI, FDD, FNL, INTERAHAMWE, EX-FAR). forêt de Kibira au Burundi, forêt de Nyungwe au Rwanda, et nombreuses forêts au Congo Démocratique.

Mots-clés: réfugiés, guerre, impacts, environnement

### **IMPACTS ENVIRONNEMENTAUX DE LA GUERRE EN CÔTE D'IVOIRE: QUEL AVENIR POUR LES PARCS NATIONAUX ET RESERVES DES ZONES ASSIEGÉES?**

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La situation de guerre que connaît la Côte d'Ivoire constitue une menace réelle pour les parcs nationaux et réserves situés dans les zones assiégées. Ces sites biologiques sont représentatifs des différents écosystèmes du territoire. Il s'agit du système forestier dense avec le parc national de Taï, des formations de la zone de savane avec les parcs nationaux de la Comoé et la réserve de faune d'Abokouamékro, des différents types de transition soudano-sahélien avec le parc national de la Marahoué et montagnard avec la réserve intégrale du mont Nimba, les parcs nationaux des monts Péko et Sangbé.

Avant la guerre, ces aires protégées étaient gravement menacées par les activités anthropiques destructrices comme les feux de brousse, les cultures extensives (agriculture traditionnelle sur brûlis), le braconnage, l'orpaillage, les pollutions aquatiques et enfin par les programmes de développement touristique, minier, routier et énergétique. La situation est devenue encore pire en raison de la suppression des patrouilles de surveillance, de la famine qui sévit dans les zones assiégées et des mouvements incontrôlés de populations.

Fort de tout ce qui précède, les parcs susmentionnés risquent de disparaître à terme en l'absence de certaines espèces animales assurant l'évolution des massifs forestiers. De même, les

cours d'eau qui traversent ces aires protégées et qui assurent l'alimentation en eau de la faune, devenues polluées, constitueront des cloaques dangereux pour la survie des animaux.

Le présent rapport tente de mettre en évidence l'évolution probable des aires protégées concernées suite aux conséquences délétères de la guerre.

Mots clés: aires protégées, guerre, parcs nationaux, réserves

### **LUTTE CONTRE UN RAVAGEUR DU NIEBE (*CALLOSBRUCHUS MACULATUS*) PAR UTILISATION DE BIO-PESTICIDES**

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La conservation des denrées alimentaires rencontre beaucoup de problèmes dans les pays en voie de développement, en particulier chez les paysans. Les insectes, principaux ravageurs des denrées, attaquent les cultures depuis le champ et cela s'accroît au niveau des systèmes de stockage.

C'est pourquoi, l'utilisation de bio pesticides dans la conservation des denrées alimentaires constitue une recherche de solution dans la résolution des problèmes liés à la protection post-récolte en Côte d'Ivoire. Ces insecticides naturels peuvent représenter, pour les populations, une solution plus adaptée par rapport aux insecticides de synthèse dont le coût est élevé pour les paysans à faible pouvoir d'achat, en plus de leurs impacts négatifs sur l'homme et son environnement.

Nos travaux réalisés sur la lutte contre les déprédateurs des denrées alimentaires stockées ont montré que certains pesticides naturels (*Ocimum canum*, *O. gratissimum*, *Mentha sp.*) pouvaient réduire la durée de vie, la fécondité et le taux d'émergence de la bruche du niébé (*Callosobruchus maculatus*), responsable de la destruction du haricot niébé (*Vigna unguiculata*).

Le présent document est une contribution à la lutte contre l'insécurité alimentaire par la promotion de systèmes de conservation à moindre coût pour les pays en développement.

Mots clés: *Callosobruchus maculatus*, déprédateur, denrées alimentaires, *Mentha sp.*, pesticides naturels, *Vigna unguiculata*, *Ocimum sp*

### **LA FORMATION-ACTION COMME APPROCHE PÉDAGOGIQUE ADAPTÉE AU RENFORCEMENT DES CAPACITÉS EN ÉVALUATION ENVIRONNEMENTALE DANS LES PAYS AFRICAINS: EXPÉRIENCE DU CENTRE DE FORMATION CONTINUE (CEFOC/EIERSHER) DE OUAGADOUGOU**

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Le Centre de Formation Continue (CEFOC), créé par le Groupe des Ecoles inter-Etats EIER/ETSHER (Ecole Inter-Etats d'Ingénieurs de l'Équipement Rural/ Ecole Inter-Etats des Techniciens Supérieurs de l'Hydraulique et de l'Équipement Rural) de Ouagadougou, a entre autres missions, l'analyse des besoins, la conception et la réalisation des formations adaptées dans les domaines de développement rural et de l'environnement en Afrique.

L'approche pédagogique utilisée par le CEFOC dans les formations en étude d'impact qu'il conduit chaque année a toujours privilégié la pratique à travers la présentation des études de cas réels et la réalisation des travaux de terrain sur des projets concrets dans un souci de l'opérationnalité des formés.

Parallèlement à cette démarche, le CEFOC a initié depuis trois ans une nouvelle approche : la formation-action, notamment dans le cadre des formations à la carte. Cette approche consiste à former des bureaux d'études et consultants africains en situation réelle de réalisation d'une étude d'impact.

Cette communication présente l'expérience vécue de la formation des bureaux d'études camerounais en étude d'impact simplifiée des projets d'entretien routier dans le cadre du Programme d'Entretien Routier (PERFED II), financé par le Fond Européen de Développement. Les réflexions portent sur le montage pédagogique, la réalisation de la formation et les enseignements à en dégager.

En outre, les perspectives de son développement sont discutées notamment dans le cadre d'un partenariat entre le CEFOC et la Cellule de Formation Professionnelle à l'Ingénierie, une sorte de bureau d'étude appartenant au même Groupe des Ecoles EIER/ETSHER.

Mots clés: renforcement de capacité, formation-action, EIE, pédagogie

### **NEPAD: RENAISSANCE DE L'AFRIQUE OU NOUVEAU RISQUE ÉCOLOGIQUE?**

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Né de la volonté des dirigeants africains, le Nepad (Nouveau Partenariat pour le Développement de l'Afrique) est l'occasion idoine pour l'Afrique d'assurer sa croissance et renforcer la lutte contre la pauvreté; cette détermination est d'autant plus grande: Que la pauvreté et le retard de l'Afrique contrastent vivement avec la prospérité du monde développé.

Que l'Afrique se sent de plus en plus marginalisée par rapport au processus de mondialisation et que la majorité de ses peuples sont des exclus sociaux.

Il s'agit donc d'une prise de conscience de la part des africains, de redéfinir leur partenariat avec le monde développé, et de participer activement à l'économie et à la vie politique mondiale, afin d'éviter de s'exclure davantage d'une planète en cours de mondialisation. Pourtant le NEPAD n'est pas le premier programme développé au profit de la renaissance du continent noir. Ceux qui l'ont précédé ont tous connu des

échecs cuisants dont le dernier en date est le Plan d'Action de Lagos. Qu'est-ce qui fait donc la spécificité du NEPAD? Quelles conditions cadres, l'Afrique doit-elle réunir pour le succès de ce nouveau programme? Comment le NEPAD prend-t-il en compte la dimension environnementale de peur que ce nouveau partenariat ne se solde pas par un génocide écologique ?

Mots clés: NEPAD, pauvreté, marginalisation, Plan d'Action de Lagos, renaissance de l'Afrique, génocide écologique

### **APPROCHE SUR L'ÉVALUATION DU PLAN DE GESTION ENVIRONNEMENTALE DU PROJET - CAS DES PROJETS D'AQUACULTURE DE CREVETTES À MADAGASCAR**

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Selon la Directive Générale, le dossier d'étude d'impact environnemental du promoteur doit comprendre un Plan de Gestion Environnementale du Projet ou PGEP. Ce dernier, conforme au chapitre 1 article 2 du décret MECIE, constitue le cahier de charges du promoteur. Il décrit les programmes de suivi et de surveillance environnementaux à mettre en œuvre.

Le programme de *suivi* consiste à suivre l'évolution de certaines composantes biophysique et humain du milieu affectées par la réalisation du projet et à vérifier l'efficacité des mesures environnementales adoptées.

Le programme de *surveillance* (modalités et cadre organisationnel) consiste à s'assurer que le promoteur respecte ses engagements de prise en compte de l'environnement et des mesures d'insertion y afférentes.

Le PGEP doit définir les activités et les moyens prévus en conséquence.

#### **Cas de la crevetteculture à Madagascar**

Le promoteur recueillera les informations de base relatives à l'environnement de son projet et poursuivra les mesures pour la préservation et le suivi environnemental du milieu. Le suivi environnemental concerne:

- l'état de santé des cultures
- le traitement des eaux usées du complexe ferme-usine et des déchets solides
- les sous produits de l'exploitation
- le traitement des boues de curage
- les sources d'énergie
- le milieu récepteur
- l'état de la végétation et de la biodiversité
- le plan d'aménagement forestier
- le plan social

L'interprétation des résultats doit être menée en tenant comme référence les normes proposés dans le « code de conduite ».

A titre d'exemple, les paramètres de suivi des eaux usées des bassins de grossissement sont : pH, salinité, MES, oxygène dissous, phosphore, azote ammoniacal total, N-nitrite, N-nitrate, DBO5, DCO, population bactérienne et phytoplanctons. En cas de dépassement de la valeur limite prescrite dans le « code de conduite », le promoteur doit décrire dans son rapport de surveillance les causes du dépassement, les impacts probables, les mesures environnementales et les dispositions.

Mots-clés: évaluation, plan de gestion environnementale, aquaculture, crevettes, Madagascar

## **EVALUATION ENVIRONNEMENTALE DE CONFLITS ARMÉS: CAS DE LA RÉPUBLIQUE DÉMOCRATIQUE DU CONGO**

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Depuis le 02 août 1998, la République Démocratique du Congo est victime d'actes d'agression et d'occupation de la partie Nord-Est de son territoire par les troupes étrangères alliées aux forces rebelles de la République Démocratique du Congo. De ce fait, les Congolais ont manifesté leur opposition par des résistances non armées et armées.

Pour affaiblir cette résistance, les occupants ont mis en place de stratégies de destruction des espèces humaines, animales, végétales et écosystèmes. Ces contextes de violences généralisées entraînent et continuent à entraîner plusieurs conséquences aux pays.

L'Evaluation environnementale en cas des conflits armés est souvent axée sur plusieurs domaines entre autre, le droit, l'économie, le social, la culture, les ressources naturelles, l'environnement... Parmi les impacts des conflits sur l'économie et le social, nous épingleons dans notre pays les violations, les massacres, les arrestations, fermetures d'usines, disparitions d'entreprises, débrouilladismes, chômages.

Les impacts sur l'environnement sont entre autres : menaces et déséquilibre de la biodiversité, destruction des écosystèmes, parcs, braconnages, l'exode incontrôlé, érosions. Quant aux impacts de la guerre sur les personnes vulnérables, nous citerons le viol, harcèlement sexuel, assassinat, viol exercé sur les femmes Congolaises avec mobil la transmission du VIH /SIDA, mutilation des femmes enceintes, enterrement des femmes vivantes, massacres des enfants, spoliation des biens de vieillards.

Il existe aussi les impacts de la guerre sur les ressources tel est le cas de pillage des minerais, des bois d'œuvre, des exploitations forestières produits agropastoraux, faune et flore en détruisant le réserve.

Il n'existe pas au Congo la recherche sur l'évaluation environnementale des camps des réfugiés. De ce fait, le besoin de la reconstruction du Congo s'avère indispensable.

Mots-clés: agression, impact, environnement et, pillage, massacre, déséquilibre de la biodiversité, braconnage

## **ROLE DES ONG EN ÉVALUATION D'IMPACTS EN BULGARIE**

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Les évaluations d'impacts peuvent-elles être un bon outil pour utiliser rationnellement les écosystèmes naturels en Bulgarie? Quelle place occupent les ONG dans l'évaluation des projets et programmes dans le respect des principes du développement durable en Bulgarie? Comment ces ONG en Bulgarie intègrent-elles les aspects environnementaux dans leurs activités?

L'écroulement du régime socialiste en Bulgarie a provoqué non seulement une catastrophe dans la manière de vivre du peuple bulgare mais également a entraîné une dégradation spectaculaire de l'environnement. En effet, les écosystèmes naturels en Bulgarie connaissent une très forte dégradation et posent le problème de leur capacité de support pour les populations qui en dépendent pour leur survie.

La Bulgarie et les pouvoirs publics ont pris conscience de la gravité de la situation et visent à travers une politique de développement plus respectueuse de l'environnement à faire accepter et respecter les évaluations d'impact avant toute mise en œuvre de projet. Mais il est tellement nécessaire de nous rendre compte de ce que nous tous, sommes prêts à perdre en qualité de vie au nom de ce développement et ce que nous consentons à perdre en développement au nom de la protection de l'environnement.

Etant un pays balkanique, nous réclamons aujourd'hui une forte volonté d'adhésion à l'Union européenne. Pour obtenir « le ticket d'entrée » dans cette union il est primordial d'identifier les grands dommages causés à l'environnement en Bulgarie mais surtout de respecter les normes édictées en évaluations environnementales par les directives de l'UE pour faire partie de la grande famille européenne. Pour cela, l'État peut compter sur les ONG qui ont des relations avec les partenaires au développement pour atteindre cet objectif national.

Mots-clés: Évaluations environnementales, Bulgarie, ONG, développement durable, écosystèmes naturels, capacité de support, politique de développement, Union Européenne

### **EVALUATION ENVIRONNEMENTALE ET RENFORCEMENT DES CAPACITES DES COMMUNAUTES LOCALES DANS LE CAS DE L'EXPLOITATION DE LA MINE D'OR DE SADIOLA, MALI**

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En 1994, la mine d'or de Sadiola a fait l'objet d'une évaluation environnementale détaillée comme partie intégrante de l'étude générale de faisabilité du projet minier.

En se basant sur les données géologiques et socioéconomiques disponibles à cette époque, avant la construction de la mine, l'évaluation environnementale avait conclu que l'exploitation du gisement ne nécessiterait aucun déplacement de villages.

Cependant, les forages exploratoires et les travaux géologiques qui ont suivi, ont confirmé que le gisement était plus profond et occupait une surface plus grande que celle originellement prévue. Une exploitation de ces réserves supplémentaires entraînerait un agrandissement de la carrière et nécessiterait du coup le déplacement de deux villages situés autour de la mine.

En vue d'assurer le déplacement et la réinstallation de ces populations sur de nouveaux sites, l'évaluation environnementale complémentaire qui a été réalisée plus tard, a proposé certaines mesures d'atténuation et de compensation pour répondre aux problèmes spécifiques suivants:

- Le renforcement des capacités et le développement des populations déplacées
- L'initiation et la promotion d'activités génératrices de revenus
- La création d'un Fonds de Développement local
- La gestion de l'environnement et la préservation des ressources naturelles

Après une présentation du processus de déplacement et de réinstallation des populations, conformément aux directives de la Banque Mondiale, notre communication traitera des mécanismes mis en place par la société minière pour assurer le renforcement des capacités et le développement des communautés locales

Mots clés: évaluation d'impacts, politique environnementale, mesures d'atténuation, déplacement involontaire des populations, mine d'or de Sadiola, plan de fermeture de la mine, fonds de développement de Sadiola, consultation publique, activités génératrices de revenus, comité consultatif, surintendant de l'environnement

### **LES IMPACTS SOCIAUX DE LA PANDEMIE DU VIH/ SIDA AU CAMEROUN**

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L'infection au VIH/SIDA apparaît comme un grand sujet de préoccupation actuelle pour le Cameroun. Elle constitue en effet, une menace pour le développement socio-économique du pays en raison de son extension rapide : la séro-prévalence est passée de 0,5% en 1987, à 7,2% en 1998, dans la population générale. La situation est même plus grave dans certains groupes dits à haut risque tels que les militaires (15% de séro-prévalence) et les prostituées (25 à 45% selon les enquêtes). Alors qu'à ses débuts, le SIDA n'occupait qu'une place marginale dans les statistiques de santé publique (25 cas déclarés en 1985), son évolution a été depuis lors fulgurante, passant de 0,5% en 1985 à 1,5% en 1991, 4,9% en 1997, 7,73% en 1999 pour atteindre la barre des 11% en décembre 2000. Ainsi la prévalence de l'infection à HIV au Cameroun a été multipliée

par 14 en l'espace de 13 ans, faisant craindre qu'aujourd'hui, qu'en l'état actuel de l'évolution de la maladie, une personne sur 14 dans la population sexuellement active au Cameroun ne soit infectée. La présente communication sans exclure les aspects médicaux de la pandémie, va s'appesantir essentiellement sur les impacts sociaux du VIH/SIDA au Cameroun.

Mots clés: VIH/SIDA, pandémie, séro-prévalence, évolution fulgurante, haut risque, impacts sociaux, Cameroun

## **ETUDE DE L'ACCESSIBILITÉ ET DE L'IMPLANTATION DU PORT DE SAINT-LOUIS: EFFETS SUR LA BIODIVERSITÉ**

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La position de Saint-Louis au débouché du fleuve Sénégal en avait fait un point d'escales maritimes et fluviales important la première moitié du XX<sup>ème</sup> siècle comme porte d'entrée-sortie pour acheminer le trafic commercial vers les régions intérieures bordant le fleuve mais aussi vers le Mali et la Mauritanie. Cependant, de fortes contraintes naturelles (débit du fleuve, dérive littorale élevée, barre d'embouchure, ...) rendent l'accès maritime de plus en plus difficile à Saint-Louis pour les bateaux.

Les autorités sénégalaises ont décidé d'étudier la faisabilité d'un port maritime à Saint-Louis. L'étude a connu plusieurs étapes, l'analyse des solutions techniques, la formulation de propositions et scénarios d'aménagement et leur évaluation économique et environnementale.

Les principes de l'analyse multicritère ont permis de retenir une option d'aménagement qui est en train de faire l'objet d'une étude environnementale approfondie (échéance mai 2003).

Le contexte environnemental de l'aire d'influence du projet reste marqué par l'existence de :

- deux aires protégées (
- Parc National de la Langue de Barbarie -2 000 ha-objet d'une demande de classement en zone RAMSAR; la
- Réserve Spéciale de Faune de Gueumbeul -720 ha- : inscrite sur la liste des zones humides d'importance internationale au titre de la convention de RAMSAR
- la présence de l'embouchure du fleuve Sénégal, en pleine dévire
- d'écosystèmes de mangrove (les seules encore présentes dans la partie nord du pays)

L'objet de cette communication est de présenter :

- La méthodologie utilisée
- les différents enjeux environnementaux en présence
- les résultats de l'évaluation : particulièrement les impacts sur la biodiversité

Mots clés: transit, érosion, dérive, littoral, sédimentation, accumulation, aménagement, embouchure, aire protégée, biodiversité, biotope, variante, impacts

## **MISE EN ŒUVRE DES CONVENTIONS INTERNATIONALES ENVIRONNEMENTALES: IMPACTS SUR LA GESTION DES RESSOURCES NATURELLES (FORESTIÈRES) EN MAURITANIE**

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L'environnement mauritanien, à travers ses écosystèmes fragiles, conditionne l'existence et le bien être de l'homme et le développement socio-économique et culturel du pays. A ce titre, la dimension économique de l'environnement commence à être bien comprise par tous les acteurs et partenaires de développement. Cette prise de conscience se manifeste de plus en plus à tous les niveaux depuis la Conférence des Nations Unies sur l'environnement et le développement (CNUED) qui s'est tenue en juin 1992 à Rio de Janeiro.

Pour mettre en œuvre les recommandations de ce sommet planétaire qui a regroupé une bonne partie des décideurs de la planète, la Mauritanie, à l'instar de plusieurs pays du monde a ratifié et s'est attelée à mettre en œuvre les conventions internationales environnementales, -outils juridiques internationaux contraignants. N'ayant jusqu'ici que très peu développé une politique en matière de gestion des ressources naturelles adaptée, les conventions constituent l'ossature de la politique mauritanienne en matière d'environnement (brun et vert). Le Gouvernement mauritanien, en décidant d'asseoir une stratégie environnementale fortement liée avec celle de la lutte contre la pauvreté qui constitue le cadre pour le développement socio-économique du pays fait un choix sans précédent d'affirmer une relation étroite entre écologie et économie.

L'objectif du présent travail est de faire un bilan analytique de la mise en œuvre des outils juridiques internationaux contraignants, sur la gestion des ressources naturelles dans le pays et ses répercussions transfrontalières avec d'autres pays de la sous-région (Mali, Sénégal) et (Maroc, Algérie). Compte tenu de l'apport de ces outils juridiques contraignants sur le changement des conditions cadres (politique, institutionnel, juridique, participation, coopération/parteneriat), il sera particulièrement fait attention à ces aspects au niveau du bilan analytique. Ces aspects seront analysés dans le sens de l'implication de la société civile, des ONGs, agences de coopération, administration, etc. au niveau de l'élaboration et de la mise en œuvre de la politique sur la gestion des ressources naturelles, -forestières- et de l'environnement en Mauritanie.

Mots clés: gestion, ressources naturelles, foresterie, participation, coopération, économie, écologie, Mauritanie, CNUED, conventions internationales environnementales, impact, développement

## **ETUDE D'IMPACT SUR L'ENVIRONNEMENT DU PROJET DE TRAITEMENT DES EAUX USEES DE LA CITE INDUSTRIELLE DE KAMSAR**

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La cité minière de la Compagnie des bauxites de Guinée (CBG) se trouve à 270km de la capitale (Conakry) sur la rive gauche de l'estuaire du Rio Numez à quelques dix sept kilomètres de l'océan Atlantique.

La CBG est une société constituée d'un partenariat de l'Etat Guinéen (45%) et de six (6) sociétés productrices d'aluminium. elle exploite un gisement de bauxite qui se trouve à Sangarédi, une localité dans le Nord-Est de la Préfecture de Boké, à 140 km de Kamsar. La cité de Kamsar est dotée de toutes les infrastructures d'assainissement (réseau de collecte des eaux pluviales et des eaux usées etc...). Avec l'élargissement de la cité par de nouvelles constructions et l'augmentation de la population à 16000 habitants, cela a du coup entraîné une forte pression sur le réseau des eaux usées le rendant encore plus précaire. Au regard de cette pression et dans le souci d'améliorer les conditions de vie de la population et de la protection de l'environnement, la CBG a fait effectuer une étude diagnostique du réseau de collecte des eaux usées et une étude de faisabilité sur le traitement des eaux usées et sur leur réutilisation à des fins industrielles.

Ce diagnostic a conduit à la formulation d'un programme d'assainissement comprenant la réhabilitation du réseau de collecte des eaux usées existant et la mise en place d'une station de traitement des eaux usées, avec la possibilité d'une réutilisation des eaux traitées.

Plusieurs alternatives de traitement ont été explorées et analysées avant le choix de la filière de traitement avec filtres intermittents à Recirculation (FIR), que la présente étude d'impact analyse pour en déterminer les impacts positifs et, éventuellement négatifs.

Après analyse de la nature et du degré des impacts, la filière retenue pour le traitement des eaux usées domestiques de la cité de Kamsar avec une installation septique avec filtres intermittents à recirculation et traitement tertiaire est une bonne filière à condition que les ouvrages prévus soient réalisés tel que conçus en tenant compte des études géotechniques menées sur les différents sites de construction.

L'examen de cette filière retenue montre que ce projet aura plus d'impacts positifs que négatifs sur l'environnement du site.

Mots clés: CBG, Préfecture de Boké, eaux usées, FIR, Kamsar, assainissement, impacts positifs et négatifs

## **DÉVELOPPEMENT DURABLE ET ÉQUITÉ SPATIALE: APPLICATIONS DANS LE CADRE DES PROJETS AUTOROUTIERS**

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Le développement durable fait référence à l'équité. Équité dans le temps envers les générations futures, équité aussi dans l'espace à l'échelle globale. Cette dimension planétaire de

l'équité est peut-être moins immédiatement perceptible pour la Société des Autoroutes du Sud de la France que pour une entreprise internationale, puisque son activité s'inscrit sur une partie seulement du territoire national. Envisager l'équité dans l'espace à plus grande échelle paraît cependant porteur : Pourquoi l'infrastructure emprunte-t-elle ce corridor plutôt qu'un autre? Pourquoi favorise-t-elle une communauté ou nuit-elle à une communauté plutôt qu'à une autre?

Le principe d'équité envisagé sous cet angle pose la question de la concentration des aménagements ou leur diffusion. On a peut-être tendance à considérer un peu instinctivement que les infrastructures doivent être concentrées dans certains corridors pour minimiser les impacts : l'autoroute, avec le TGV et la haute tension électrique, en Europe par exemple. Sur le plan spatial, on passe ainsi du linéaire (l'emprise autoroutière) à l'aréal (l'emprise de toutes les infrastructures et les délaissés entre chacune des emprises). Cela impose une réflexion importante sur les seuils, en rapport avec la perméabilité ou la transparence des infrastructures. Cette analyse intègre évidemment la question des échelles d'appréhension des phénomènes spatiaux.

Le second axe de la réflexion concerne une forme de troc spatial entre les espaces à protéger et d'autres que l'on pourrait « sacrifier » sans que le dommage social ne soit irrémédiable : développement durable?

« Agir local et penser global », la formule est intéressante mais doit-elle dispenser de penser local ? L'ordre des enjeux peut en effet s'inverser lorsque l'on passe d'une échelle à l'autre ; il s'agit donc de formaliser ces transferts en intégrant les points de vue des populations riveraines et non riveraines des aménagements. Nous proposons une réflexion sur cette thématique en rapport avec la structuration/déstructuration des territoires par les aménagements linéaires : à l'échelle du corridor autoroutier, c'est la structuration du territoire qui justifie l'opération (utilité publique), à l'échelle de la commune, la coupure du finage est pourtant destructurante. Comment la somme des déstructurations à grande échelle peut-elle produire la structuration à petite échelle ? Quelle arithmétique permettrait de formaliser cette relation?

Mots-clés: développement durable, équité spatiale, niveau d'échelle, global-local, linéaire-aréal, structurant-déstructurant, concentration-diffusion

## **SECURING A HOLISTIC APPROACH TO THE ENVIRONMENT WITHIN EIA REGULATIONS: A MISSION IMPOSSIBLE?**

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This paper focuses on the holistic approach to the environment within EIA. Whether EIA can be described as holistic will be assessed, based on an analysis of the environmental concept which is used by the authorities in their EIA processes – such as the broadness of environmental conditions, the managing of cumulative aspects, the potential environmental effects and the environmental sustainability.

The broad environmental concept is important to maintain a holistic approach in EIA cases. Partly it secures the changes and the design of the project to get a broader aim and partly it

obtains a more comprehensive regulation of each individual project. Certainly, benefits exist in connection to the broad environmental concept; however, in practice it is difficult to manage.

On the basis of a comprehensive evaluation of the output from EIA in Denmark, the paper explains how the broad environmental concept is managed within the entire EIA process. An important observation is that the environmental concept is narrowed considerably and continuously throughout the implementation process. It can be concluded that the EIA processes do not mirror the broad environmental concept, and this may cause that the traditional environmental concept is used mainly in the actual regulation of the EIA projects.

Based on empirical findings, the paper finally presents the authorities' difficulties for managing and regulating the broad environmental concept. For instance, this means the thinking in grooves, the lack of a knowledge base and the insecurity concerning regulating the more 'soft' environmental aspects. Furthermore, in order to obtain the value of EIA regulations in relation to the broad environmental concept, it is necessary to integrate the environmental sustainability, the cumulative and the aesthetic and cultural aspects into the overall planning.

#### **ARE SCREENING PROCESSES AN EFFECTIVE INSTRUMENT AND WHAT ARE THE ENVIRONMENTAL BENEFITS?**

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Screening processes were implemented in Denmark in 1999 according to EU legislation, that is, before then the screening procedure was in practice non-existent. During the last couple of years the counties in Denmark have conducted approximately 2000 screening decisions for project categories listed in Annex II. Around 3% of the decisions lead to an EIA-process according to article 5 and 10 in the EIA-directive. The Ministry of the Environment has recently asked Aalborg University to conduct an evaluation on the experiences with EIA in Denmark.

Among other aspects, the evaluation focused on the screening process. The evaluation includes a document study on 96 screening decisions combined with interviews with the developer and consultant for each project. By these investigations we are able to analyse the following topics for screening decisions: the environmental focus, to what extent is the process in compliance with EU legislation, are changes implemented in order to avoid an EIA-process and the environmental impacts related to the modification of the projects.

In this paper we will analyse the amount of changes and also how radical the changes are when generated by a screening process. Through the investigations we have been able to identify how many projects were changed due to the existence of the EIA-regulation. It has also been possible to determine whether the changes were implemented before or after the application was submitted to the authorities. What kind of environmental considerations do the changes reflect and are they in line with EIA's holistic environmental approach will also be discussed.

On the basis of our evaluation we will discuss the efficiency of screening processes as a regulatory instrument. Are screening processes a cost-effective instrument? To what extent are there environmental benefits for this huge number of projects covered by the screening regulation? Does the screening regulation secure that all projects with a significant impact are identified?

#### **MUNICIPAL SUPPORT PROGRAMME IN SERBIA: DEMAND-DRIVEN CAPACITY DEVELOPMENT IN A TRANSITIONAL SETTING**

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In a transitional setting, the tangle of problems facing municipal managers is often so intractable just because their various aspects - physical, legal, social, economic, political and attitudinal - are closely intertwined; the solution to any one problem depends on progress in the others. Lack of relevant management capacity is evidently a key problem, but municipal authorities are so absorbed by troubleshooting that they hardly have time for capacity development.

This is the situation encountered by the Swiss Agency for Development Cooperation (SDC) when it decided, in 2000, to support municipal development in Serbia. It was apparent that recovery and transformation would involve incremental processes that were too complex - and too dependent on an unpredictable context - to be mapped out in advance. They needed to be "internally" driven by the municipal stakeholders themselves. The Municipal Support Programme was therefore designed to provide supporting services and inputs on a demand-driven basis. Four types of support address policy making and planning, technical assistance, funding, and institutional development to channel project experiences into a coherent process of capacity building.

Preconditions for demand-driven programming were seen to include mutual trust, informed demand, and a transparent selection process that allocates programme resources on a "progress sensitive" basis. The programme needs a pool of relevant expertise, and both the "suppliers" and the "users" of support need mechanisms for assessing the impact of achieved and planned activities on a "real time" basis. Under these conditions, a flexible "market place" for services could replace traditional project planning.

The results to date are promising. At the outset, 70 percent of support requests were for hardware-oriented investments, the rest for software related to capacity building. One year into the programme, this relationship has reversed.

Key words: municipal management, capacity building, project design, countries in transition

#### **SOCIAL IMPACT ASSESSMENT OF LARGE-SCALE DISPLACEMENT IN MUMBAI URBAN TRANSPORT PROJECT**

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The Indian Railways and Government of Maharashtra is currently implementing a large urban transport project with the assistance of the World Bank in Mumbai (India). The main objective of this project is to develop an efficient and sustainable urban transport system to facilitate urban growth and improve the quality of life in Mumbai. In addition to strengthening the transport infrastructure, this project also involves the resettlement of about 20,000 displaced families who are mostly squatters and encroachers residing along the railway tracks, right of way of proposed road widening corridors and road over bridges. The resettlement of affected families will have significant benefits in the form of secured houses with title and improved access to basic amenities to the affected persons. The relocation of affected persons from the safety zone of railway tracks will also have a positive impact in the form of increased speed and frequency of the local trains benefiting the 6 million commuters. The on-going resettlement of project affected families has been supported through a mechanism of partnership between local NGOs, state government and project affected persons to prepare the communities to adopt to the new environment of living in multi-storied apartments. This paper will attempt to describe the process adopted in assessing the social impacts associated with displacement and resettlement.

Key words: urban transport, resettlement, affected persons, partnership, social impact

#### **COMMUNITY PARTICIPATION IN ENVIRONMENTAL INFORMATION MANAGEMENT: EXPLORING DECISION-SUPPORT PROCEDURES FOR IMPACT ASSESSMENT PREPAREDNESS**

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The principles of sustainable development bring new pressures on the public to act as stewards of the environment. Amongst other things, public stewardship requires effective public participation in environmental decision-making. Environmental impact assessment (EIA) provides one of the few structured and legally mandated vehicles for environmental decision-making and is generally structured to encourage public participation. However, EIA is often project specific and public participation is often reactive, that is, emerging only from the stimulus of a project proposal that may pose a threat to a community. The effectiveness of public participation can be limited by, amongst other things, the degree of preparedness of citizens, who may find they need suddenly to become familiar with complex issues.

This paper argues that impact assessment preparedness must be developed and that new tools of environmental analysis and geographic information management can facilitate building that preparedness. The report describes an experiment in Montreal, Canada, in developing impact assessment preparedness and, particularly, in making new information technology available in forms appropriate to public participation. The purpose of the research is to find ways for the public to shift from reactive participation in IA to anticipatory participation. The process explored in this report includes building a multi-sectoral, collaborative environmental information management project team, building local environmental information resources, using collaborative geographic information systems, and developing a dynamic and accessible community-based information resource.

The steps described are: establishing a project team; defining

the goals and scope for the team; characterizing the public; defining data needs and resources for a situation analysis; defining environmental decision-making structures, developing analysis and communication tools; and, finding means to ensure ongoing decision support.

#### **EIE DES STATIONS-SERVICES ET DÉPÔTS D'HYDROCARBURES COMME DÉMARCHE PROSPECTIVE EN VUE D'UNE AMÉLIORATION CONTINUE**

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Avec la libéralisation des secteurs pétrolier et gazier au Bénin et la prolifération des stations-services et dépôts d'hydrocarbures, les pratiques d'EIE par rapport à ces types de projets et d'installation ont subi des modifications très positives. Les études relatives à ce secteur sont désormais plus affinées à travers des différenciations dans les types d'études selon qu'il s'agit d'une station-service (étude simplifiée) ou un dépôt d'hydrocarbures (étude approfondie). De même, des éléments nouveaux obligatoires sont intégrés : le recours à une surface plus grande ne représentant aucune entrave pour la circulation, la mise en place de règles de sécurité pour le voisinage et le personnel, la description de la structure des parois des fosses à cuves, la présentation de sa politique de protection de l'environnement et de ses bases juridiques, les solutions envisageables pour la meilleure variante choisie.

Cette nouvelle démarche opposable à tout promoteur de projet de ces types est une aide (comme une démarche prospective) à poser, déjà et en début de processus, les jalons d'une mise en place imminente d'un système de management de l'environnement (SME) à travers l'obligation de dévoiler sa politique environnementale, son programme de prévention de pollution, l'assurance qualité, la documentation, notamment, sur les activités de contrôle et des équipements de mesures, la santé et sécurité, etc. Ces bonnes pratiques, rendues possibles par un renforcement de capacités des bureaux d'études et des promoteurs à travers des formations et une présence aux séances de validation des rapports d'EIE, soutiennent toutes actions entreprises au Bénin et permettent aux entreprises de s'engager dans l'amélioration continue.

Mots-clés: EIE, SME, politique environnementale, programme de prévention, assurance qualité, relations avec le public, renforcement de capacités, amélioration continue

#### **COMPLEXITE DE L'EVALUATION DES IMPACTS DES BARRAGES HYDROELECTRIQUES SUR LA DYNAMIQUE DE LA MANGROVE EN MILIEU RIZICOLE ET SALICOLE : CAS DE L'ESTUAIRE DU KONKOURÉ**

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Depuis 1992, le Delta du Konkouré est reconnu comme une zone humide selon la convention de RAMSAR. En effet, ce milieu est constitué de forêts de mangrove et de vasières qui offrent des zones de nidification et des nourriceries à des espèces d'oiseaux peu communes et rares. Il constitue l'une des principales frayères pour plusieurs espèces de poisson du plateau continental guinéen. Situé au nord de Conakry, il est fortement convoité pour ses ressources halieutiques et forestières, ses plaines rizicoles et son potentiel en sel. Les effets exercés par les activités d'exploitation de ces ressources, notamment la riziculture, la saliculture et la coupe de bois, entraînent une forte dégradation de son écosystème, mettant en danger sa diversité biologique, la qualité de ses habitats naturels et le rôle écologique particulièrement important de sa forêt de mangrove.

Depuis 1999, le fleuve Konkouré abrite le barrage hydroélectrique de Garafiri. Selon les résultats du suivi mené par l'IRD dans le cadre de l'étude des impacts du barrage de Garafiri, le fonctionnement de cet aménagement a des impacts significatifs sur le milieu naturel et les activités socio-économiques du delta. L'évaluation de ces impacts, en particulier sur la dégradation du couvert végétal, revêt une importance en matière de conservation des zones humides et d'exploitation durable de leurs ressources.

Cette étude qui s'inscrit dans ce cadre, présente une analyse des systèmes d'exploitation des ressources et un essai d'évaluation de leurs impacts sur la forêt de mangrove. Sa réalisation a mis en évidence la complexité de l'identification d'indicateurs de suivi pertinents et de l'évaluation des impacts réels d'un barrage dans un milieu rizicole et/ou salicole, du fait de son caractère cumulatif.

Les résultats ont montré, la prédominance des impacts des systèmes d'exploitation traditionnelle du riz et du sel sur la mangrove par rapport aux effets du barrage Garafiri. Cependant, les extensions de surfaces rizicoles et les abandons de sites salicoles, liés indirectement au fonctionnement du barrage de Garafiri, constituent de nouveaux facteurs de modification de la dynamique de la mangrove dans l'estuaire. Les interactions entre les activités d'exploitation des ressources font que des pertes de revenus liées à la baisse du rendement de la pêche et de la saliculture entraîneraient l'augmentation des pressions sur la forêt à travers l'intensification de la coupe de bois et de la riziculture.

En somme, bien que des modifications écologiques introduites par le fonctionnement du barrage Garafiri aient eu des conséquences sur l'écosystème du delta du Konkouré, la dissociation de ces effets de ceux induits par les activités d'exploitation des ressources s'est avérée complexe. La vulgarisation des nouvelles techniques alternatives d'exploitation du sel, l'amélioration des méthodes traditionnelles de culture de riz, l'information et la sensibilisation des populations sur les nouvelles modifications écologiques, constituent des mesures d'atténuation dont la mise en place semble nécessaire pour freiner le recul de la mangrove et dégradations en cours.

Mots clés: Delta du Konkouré, zone humide, aménagements hydroélectriques, indicateurs de suivi, riziculture, saliculture, modifications écologiques, recul de la mangrove, impacts cumulatifs

## DE OUËSSÈ À PARAKOU: DEUX FORMES DE PARTICIPATION DU PUBLIC À LA PRISE DE DÉCISION

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Le législateur béninois a fait de la participation publique un des principes de gestion fondateurs de notre patrimoine juridique en matière de protection de l'environnement. Ce caractère innovateur de la loi béninoise met l'accent sur la transparence et l'information. Il oblige ainsi tout promoteur à rendre public son rapport d'EIE par le recours à la tenue d'une audience publique pour assurer l'expression des spécificités socioculturelles.

L'audience publique de Ouèssè a porté sur un projet de Site d'enfouissement Technique et révélé des aspects comme les craintes (inquiétudes par rapport à la possibilité pour les enfants de grandir en bonne santé, à la perte des terres à l'arrivée du projet et :ou perte de la valeur des terres) et le manque d'informations des populations sur le contenu du projet et de ses implications, le statut foncier, etc. La valeur de l'audience publique a été de faire ressortir tous les enjeux socioculturels et culturels qui n'avaient pas été pris en compte lors de la réalisation de l'EIE pour une amélioration du projet et permettre sa réalisation.

Exposées au soufre et à ses conséquences depuis de longues années, une étude d'impacts sur l'environnement (EIE) a été commanditée par l'Agence Béninoise pour l'Environnement (ABE). Une série de démarches de restitution du contenu du rapport ont été faites pour informer toutes les parties prenantes au dossier des affections observées chez les populations dues au soufre, le coût du dédommagement et les mesures urgentes à prendre pour endiguer la pollution. L'organisation (OCBN) qui expose le soufre a pu mesurer les préjudices causés aux populations, qui par dépit, se sont mobilisées pour défendre leur droit à un environnement sain devant un tribunal.

Mots-clés: participation publique, transparence, information, enjeux socioculturels, droit à un environnement sain

## RENFORCEMENT DES CAPACITÉS EN ÉVALUATION ENVIRONNEMENTALE EN AFRIQUE FRANCOPHONE DE L'OUËST ET CENTRALE: BESOINS, DIFFÉRENTES APPROCHES ET POSSIBILITÉS DE RÉPONSES

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Avec l'achèvement de la mise en place des législations et la réglementation en matière d'évaluation environnementale dans la plupart des pays de l'Afrique de l'Ouest et Centrale, l'obligation d'effectuer une étude d'impact avant la mise en œuvre des projets d'une certaine importance se fait de plus en plus pressant pour les promoteurs. Or ces derniers, dans la plupart

des cas, sont obligés pour répondre à cette obligation, de faire recours aux bureaux d'étude étranger qui leur coûtent chers, parce qu'il manque localement des cadres et consultants formés pour pouvoir mener efficacement une telle étude. De même, certaines études d'impact effectuées dans ces pays, ayant pourtant été validées par l'administration en charge de l'environnement, sont souvent d'une piètre qualité et ne peuvent pas permettre une mise en œuvre des mesures permettant de protéger et gérer l'environnement. Ceci parce qu'il manque au niveau des administrations en charge de l'environnement des cadres formés pour l'analyse des rapports d'EIE. Les besoins en renforcement de capacités en évaluation environnementale pour ces pays restent donc une préoccupation importante.

Les questions que nous nous sommes posées dans cette réflexion ont été : quels sont les types de formations dont ont besoin ces pays pour prendre en compte les préoccupations environnementales dans les projets? Quelles sont les différentes formations offertes dans le domaine par les institutions de formation ou d'encadrement en matière de renforcement de capacité de ces pays ? Les formations offertes répondent-elles aux besoins d'évaluation environnementale de ces pays ? Quelles sont les possibilités actuelles de réponses par ces pays aux besoins ? Quelles sont les stratégies pour pouvoir répondre à ces besoins à court et moyen terme ? Pour répondre à ces questions une étude a été menée dans cinq pays à savoir Le Burkina Faso, La Côte d'Ivoire, le Mali, le Sénégal et le Cameroun. C'est le résultat de cette étude que nous rapportons dans cette communication.

Mots-clés: administration, bureau d'étude, cadres, consultants, évaluation environnementale, renforcement de capacité

#### **EVALUATION ENVIRONNEMENTALE STRATÉGIQUE DU PLAN D'AMÉNAGEMENT FORESTIER DE LA BAIE DE SANGARÉYA : DIAGNOSTIC DE L'EXPLOITATION DES RESSOURCES NATURELLES**

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Pendant longtemps, les écosystèmes de mangrove en zone côtière ont été laissés pour compte des politiques de développement, des textes de lois et des réalisations planifiées qui prennent en considération la protection de son environnement. Les interventions humaines y ont consisté principalement au prélèvement des ressources forestières et halieutiques, à la création de vastes polders et à d'autres aménagements souvent non adaptés et ayant des conséquences surtout négatives sur l'équilibre naturel du milieu.

En Guinée, depuis la mise en place du Code forestier en 1989 et du Schéma Directeur d'Aménagement de la Mangrove (SDAM) en 1991, des mesures concrètes de protection et d'exploitation durable des ressources de la mangrove ont été progressivement mises en place, dont plan d'aménagement forestier pour la baie de Sangaréya.

La Baie de Sangaréya, comprise entre des villes de Conakry, Dubréka et Boffa, contient des massifs forestiers de palétuviers soumis à de nombreuses pressions, dont la coupe abusive de bois, l'extension des rizières et aires d'exploitation de sel. Le plan d'aménagement forestier, mis en place en 1992, par le projet Mangrove de Dubréka, visait la conciliation entre la promotion des activités économiques et sociales et la préservation de l'équilibre de l'écosystème. Son contenu porte sur:

- la connaissance du milieu et des systèmes d'exploitation des ressources
- les principales contraintes et les principes de l'aménagement proposé
- le plan d'aménagement proprement dit et de gestion de la baie

L'analyse critique des études précédentes et les résultats des enquêtes de terrain, ont montré une couverture suffisante de la zone en matière de d'information et de sensibilisation du public. Cependant, le manque de pluridisciplinarité des études préalables et de diagnostic complet sur l'état des ressources n'a pas favorisé la prise en compte des principes de gestion intégrée, car l'approche utilisée était centrée sur l'exploitation forestière. Le partage de responsabilité et des avantages liés au système de gestion instauré entre les exploitants forestiers et la population résidente pose d'énormes difficultés aujourd'hui. Le diagnostic environnemental qui en découle montre une forte tendance à la dégradation de l'environnement de la baie. Le fort taux de recul de la forêt de mangrove ne s'explique pas seulement par la coupe abusive du bois ; les pratiques de culture de riz, d'extraction de sel et de fumage de poisson constituent aussi d'importantes sources pressions anthropiques.

De ce fait, le développement et la vulgarisation de techniques améliorées de riziculture, de saliculture et de fumage de poisson doivent être au centre du plan d'aménagement. Du fait des modifications écologiques en cours dans la baie, l'actualisation des connaissances sur le fonctionnement du milieu, l'amélioration de la gestion des données et la responsabilisation des populations locales dans la gestion des ressources forestières s'avèrent nécessaires. Ces corrections pourraient permettre de s'orienter vers la gestion intégrée et participative de la baie.

Mots clés : baie de Sangaréya, écosystème de mangrove, palétuviers, ressources, système d'exploitation traditionnelle, Taux de recul, dégradation, gestion intégrée, participation du public, exploitation durable

#### **EVALUATION DES RISQUES POUR LA SANTÉ HUMAINE DUS À LA PRÉSENCE DES PETITS BARRAGES EN AFRIQUE DE L'OUEST: CAS DU BARRAGE DE YITENGA AU BURKINA FASO**

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Le Burkina Faso est un pays Soudano-Sahélien et enclavé qui se caractérise par un climat rigoureux. La population et l'ensemble des activités socio-économiques sont soumises à une insuffisance d'eau sur une période variant de six (06) à neuf (09) mois par année selon les régions. Pour faire face à ce problème, l'Etat du Burkina Faso a construit plus de 2000 barrages et retenues d'eau. Ces barrages, qui contribuent largement au développement de l'agriculture et de l'élevage, ont également, dans certains cas, pour finalité, l'alimentation en eau potable, la création et la protection des écosystèmes aquatiques rares dans cette région et la production d'électricité. Cependant, la non maîtrise de la gestion des ouvrages et des écosystèmes nouveaux créés par la mise en place des barrages, ainsi que celle des activités anthropiques dans le bassin versant sont,

dans la plupart des cas, à l'origine de graves conséquences pour l'environnement et la santé des populations.

Les études ont été menées sur Yitenga, petit barrage d'environ 2 500 000 m<sup>3</sup> d'eau à l'étiage, pour contribuer à l'atténuation des risques des maladies pour les êtres humains vivant ou travaillant dans l'écosystème du barrage. Les analyses des risques potentiels sont effectuées et présentées pour plusieurs types d'exposition. Les risques sont évalués pour trois groupes de personnes (résidents, agriculteurs et pêcheurs) qui habitent ou non dans la zone d'étude qui fait l'objet de l'évaluation. L'évaluation des risques a été effectuée à l'aide de la méthode à quatre étapes établie par le "National Research Council" de la "US National Academy of Sciences" et utilisée couramment à savoir : la détermination des dangers, l'évaluation de la contamination ou de la toxicité, l'évaluation du degré d'exposition et la caractérisation des risques. Les résultats des études effectuées ont permis de constater au niveau des populations de la zone d'étude que la variabilité de l'incidence des effets sur la santé pour certaines pathologies (diarrhées diverses, schistosomiase urinaire, affections ophtalmologiques et de la peau etc.) pourrait être liée à l'existence et aux conditions de gestion ou d'exploitation du plan d'eau. Les stratégies pour la réduction de ces risques doivent être étudiées.

Mots-clés: barrages, Burkina Faso, écosystème du barrage, évaluation de risques, santé humaine

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