Social Impact Assessment

Guidance Note 11

Tools for Mainstreaming Disaster Risk Reduction *is a series of 14 guidance notes for use by development organisations in adapting programming, project appraisal and evaluation tools to mainstream disaster risk reduction into their development work in hazard-prone countries. The series is also of relevance to stakeholders involved in climate change adaptation.*

This guidance note looks at the use of social impact assessment (SIA) as a tool for assessing disaster risks when planning development projects. It outlines the principal approaches and methods used in SIA and identifies entry points for introducing natural hazard and related disaster risks. The note is intended for use by project planners and managers in multilateral and bilateral development agencies, national and local government departments and non-governmental and private sector organisations. Users will include those managing or doing an SIA, so that they can incorporate disaster risk into their social assessment; but the note can also be used by those assessing disaster risk to understand how the techniques of SIA can assist their assessment and mitigation of risk.

1. Introduction

Natural disaster risk is a potential factor in many development projects. Environmental hazards can affect a project area, with socio-economic consequences for the project's target populations. Development projects can increase or reduce the risk of natural disaster, through their impact on social resilience and the natural environment.

By understanding and anticipating future hazard events, communities, public authorities and development organisations can minimise the risk disasters pose to socio-economic development. Understanding the interactions between projects and environmental hazards is crucial in ensuring the sustainability of development gains.

Social impact assessment can play an important role in this understanding. SIA is the process of analysing, monitoring and managing the social consequences of policies, programmes and projects. These consequences may be positive or negative, intended or unintended, direct or indirect; they may be short-term impacts or long-term changes. As well as helping to explain how a proposed action will change the lives of people in communities, SIA indicates how alternative actions might mitigate harmful changes or implement beneficial ones.

Box 1 What are social impacts?

Social impacts can be characterised and defined in many ways. The following definition is widely understood and used:

"By social impacts we mean the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society."

Source: Interorganizational Committee on Principles and Guidelines for Social Impact Assessment (2003).

SIA originated as a socio-economic component of environmental impact assessment (EIA), although it has since expanded and developed considerably, in developed and developing countries. SIAs can be carried out at different stages in project and policy development, from initial planning to implementation and post-implementation evaluation. In project-level assessment, typical applications include considering the likely impacts of new industrial activities, construction, land use or resource management practices. SIA often forms part of a broader social analysis or assessment (see Box 2), but has a distinct and more specific purpose.

Box 2 Social analysis and social risk

Social analysis

Social assessment and analysis are widely used in economic development and poverty alleviation initiatives to assess if a project or programme is likely to meet its social objectives and to recommend measures that will ensure these objectives are met. This is done by examining social opportunities, constraints and likely impacts; assessing the role of beneficiaries in project design and implementation; and helping the implementer or donor to identify and monitor expected social development outcomes and social risks.

Applications can be at different levels, using different instruments. They might include:

- Macro-social analysis of the socio-cultural, institutional, historical and political context, carried out as inputs into country-level strategies and programming or to support policy formulation and sector strategies.
- Sociological appraisal of the opportunities, constraints and likely impacts, carried out as a part of project appraisal.
- Social assessment, where the views of stakeholders are obtained in order to improve project design and establish participatory processes for implementation and monitoring.

All of these would normally be undertaken at an early stage in project or programme development, although further appraisals or assessments can be carried out at any time if required. The assessment methods used are diverse, ranging from large-scale formal studies to participatory research. Selection of tools and methods depends on context and resources, but normally involves collection of quantitative and qualitative data.

Social risk

Recent recognition of vulnerability as a key factor in poverty has led a number of agencies, including the World Bank and the Asian Development Bank (ADB), to look more closely at social risk and protection as part of the social analysis process. Social risk analysis looks at what might go wrong for the project, the implementing agency/lender and vulnerable groups. The social risks that might be analysed can be categorised in different ways (see, for example, the World Bank and ADB categorisations below) but should include hazards and disasters.

Categorisations of social risk

World Bank	Asian Development Bank
Vulnerability: increased exposure or susceptibility, especially of the vulnerable and poor, to endemic risks or external shocks (the analysis should explore how to manage such risks)	*Life cycle:* risks to the individual, such as illness, injury, disability, old age
Country risks: conflict and violence, political instability, ethnic and religious tension. These are beyond the control of project managers but must be considered during a project appraisal	*Social risks:* crime, violence, civil strife, war, lack of rights
Political economy risks: those that might affect the project's intended beneficiaries as an indirect result of the project (e.g., capture of benefits, opposition to or distortion of the project by influential stakeholders and elites)	*Economic risks:* unemployment and other labour market risks, economic transition and restructuring, harvest failure
Institutional risks: including poor governance, limited technical and administrative capacity, and design complexity	*Environmental risks:* including natural catastrophes and disasters
Exogenous risks: e.g., terms of trade, regional conflict, effects of climate	*Development-induced risks:* involuntary displacement, loss of common property, loss of support networks, homelessness, marginalisation

Whatever the framework used, social risk analysis will need to examine hazard-related vulnerability, to which a variety of tools and methods can be applied (**see Guidance Note 9**). In practice, it tends to be a broad-brush and relatively rapid assessment best suited to programme- or country-level initiatives where relevant data sets are more likely to be available.

In all cases, the analysis must lead to a corresponding risk management strategy in the project plan. The World Bank, for example, recommends a conventional probability-impact matrix to identify risks that justify modifications to the plan, followed by further planning using tools such as scenario analysis to raise the risk threshold of the target population.

Sources: ADB (2001); Lohani, B. et al. *Environmental Impact Assessment for Developing Countries in Asia. Volume I – Overview*. Manila: Asian Development Bank, 1997. Available at: http://www.adb.org/Documents/Books/Environment_Impact; World Bank (2003); World Bank. *A User's Guide to Poverty and Social Impact Analysis*. Washington, DC: World Bank, Poverty Reduction Group and Social Development Department, 2003. Available at: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPSIA/0,,contentMDK:20454976~menuPK:1107972~pagePK:148956~piPK:216618~theSitePK:490130,00.html

To predict the probable impact of a particular development or policy change on a given community, SIA draws on the past behaviour of other individuals and communities affected by similar developments. It is therefore rooted in comparative analysis.

SIA is not a single method but a collection of tools and approaches. A wide range of social science methods can be used in carrying out SIA and a variety of data-gathering techniques is employed, depending on purpose and context. Most of the evidence is primary data from the affected area (e.g., survey research, informant interviews, oral histories, participatory group exercises). Other, secondary, sources that can be used include census data, geographical data (including maps), national and local government statistics, documentation from non-governmental organisations (NGOs) and community-based organisations, local histories, newspaper reports and, where available, previous social science research. A good SIA should provide qualitative and quantitative indicators of social impacts that can be understood by decision-makers and citizens alike.

2. SIA as a tool for assessing hazard and disaster risk

As a conceptual model, SIA is equipped to take hazard and related disaster risk into account, whether these are external factors affecting a project or conditions created or magnified by the project itself.

In general, SIA can be understood as a framework for evaluation of all impacts on humans and on all the ways in which people and communities interact with their socio-cultural, economic and environmental surroundings.

By providing an understanding of the community and its social processes, SIA makes it possible to:

- identify the direct and indirect social consequences of risks (i.e., the social impacts which could arise from a hazard event); and
- develop appropriate and effective mitigation mechanisms to hazards which harness community resources and recognise community reactions to events.

SIA theory accepts that social, economic and biophysical impacts are interconnected and that change in any one of these domains will lead to changes in the others. Seen in this way, SIA has clear linkages to EIA (**see Guidance Note 7**) and other forms of ex-ante impact assessment, as well as with vulnerability and sustainable livelihoods analysis (**see Guidance Notes 9 and 10**). Guidance on SIA makes it clear that good practice in project design and implementation is risk-averse.

However, while hazards and risk are important features of the SIA process, SIA is not specifically a risk assessment but a means of understanding and measuring human responses to situations that may be risky or threatening. Therefore, SIA is not commonly used *by itself* as a method of analysing hazard risks generated by a project or external to it. It is more common for a formal risk analysis or a health impact assessment (see Box 3) to be undertaken, either to complement the SIA or within a broader EIA of which the SIA is part.

Box 3 Health impact assessment

Health impact assessment (HIA) is a multidisciplinary process, viewing a range of evidence within a structured framework through a variety of procedures and methods. Ideally, it should be integrated with EIA and SIA early in the planning cycle. It can be applied to both occupational health risk (within the project) and community health impact (in the project area or other areas that might be affected by it).

Health is understood in broad terms, encompassing social, economic, cultural and psychological well-being and the ability to adapt to the stresses of daily life. HIA therefore considers the underlying determinants of health (e.g., employment and working conditions, physical environments, health services, education and coping skills), using checklists of these as indicators of changes in health risks. Guidance recommends investigating a wide range of health factors related to project interventions: hazardous agents, environmental factors, exposure and effects on physical health, health-care services and social well-being. Health inequality is a central issue and identification of the most vulnerable groups is very important.

Individual HIAs vary greatly in their scope and approach, from formal quantitative surveys using health data to small-scale participatory exercises. Compared to some other project appraisal methodologies, HIA is relatively recent and its potential as a tool for assessing disaster risk or vulnerability has not been fully explored.

Sources: N&YPO. *An Overview of Health Impact Assessment.* Northern & Yorkshire Public Health Observatory, 2001; Health Canada. *Canadian Handbook on Health Impact Assessment.* Ottawa, Canada: Ministry of Health, 1999. Available at: www.hiagateway.org.uk/media/hiadocs/15_canadian_handbook_partone.pdf; Steinemann, A. 'Rethinking human health impact assessment', *Environmental Impact Assessment Review,* 2000, 20: 627–645; Taylor, L., Gowman, N. and Quigley, R. *Influencing the decision-making process through health impact assessment.* London: Health Development Agency, 2003. Available at: http://www.hiagateway.org.uk/media/hiadocs/Decision_Making_HIA.pdf; Taylor, L., Gowman, N. and Quigley, R. *Addressing inequalities through health impact assessment.* London: Health Development Agency, 2003. Available at: http://www.hiagateway.org.uk/media/hiadocs/Addressing_Inequalities_HIA.pdf

Ideally, SIA, EIA and HIA are combined through an interdisciplinary approach (see Box 4). Where they are not, information on social and environmental impacts should be brought together into a coherent impact statement, which ensures that disaster risk is taken into account from both social and environmental perspectives (see Box 5).

Box 4 Integrated environmental and social impact assessment

The African Development Bank's Integrated Environmental and Social Impact Assessment (IESIA) guidelines are designed to highlight major issues and potential impacts that should be taken into account during the preparation and assessment phases of the Bank's projects. The guidelines cover nine development sub-sectors: irrigation, fisheries, forestry, livestock and rangeland management, crop production, water supply, roads and railways, hydropower, and dams and reservoirs. Six cross-cutting themes are considered: poverty, environment, population, gender, participation and health outcomes.

The integrated thematic framework enables planners to identify and respond to a range of hazards. For example, in the case of forestry projects, potential hazard impacts identified by the guidelines include:

- *Environmental:* degradation of air quality (by dust and vehicle emissions during construction and in transporting timber; by fire during site preparation), contamination of water supplies (by hazardous materials and spills), watercourse and water-flow obstruction (and associated flood risk), soil erosion and contamination, landslides (resulting from soil instability caused by road cuts on slopes).
- *Population (natural resources and land management):* increased risk of fire in arid areas, risk of forest fires due to presence of workers and machinery.
- *Health outcomes:* communicable diseases, pesticide poisoning, decrease in wild food sources leading to food insecurity and malnutrition, injuries during construction, psychosocial disorders associated with rapid resettlement and social change.

The guidelines also take external factors and project-related hazards into account. In the case of forestry, these include the following external hazards: fire, insect epidemics and tree diseases, and wider social instability. Hazards associated with the project itself might include: pesticides misuse, fire, work accidents and increased exposure to animal disease reservoirs.

Source: AfDB. *Integrated Environmental and Social Impact Assessment Guidelines.* Tunis: African Development Bank, 2003. Available at: http://www.afdb.org/pls/portal.docs/PAGE/ADB_ADMIN_PG/DOCUMENTS/ENVIRONMENTALANDSOCIALASSESSMENTS/IESIA.PDF

Box 5 Linking EIA, hazards and SIA

The Nam Theun 2 hydroelectric project in Laos, due to be completed in 2009, will create a reservoir with a surface area of 450 square kilometres and generate more than 1,000 megawatts of electricity. The Asian Development Bank has been one of the international development agencies supporting project design. In 2004 a series of reports on the project's environmental and social impacts were prepared to meet ADB's EIA requirements.

The EIA components of the study looked at the project's impacts on the physical environment (changes in hydrology including flood risk, water quality, erosion and sedimentation, climate and groundwater), biological environment (aquatic and terrestrial habitats, species diversity, protected areas and endangered species) and impacts associated with resettlement sites (natural habitats, soil erosion and degradation, over-exploitation of wildlife and aquatic resources, water quality, waste management, risk of landslides, flooding and waterlogging, and increased population from new economic opportunities).

The starting point for the SIA elements of the study was an investigation of the social characteristics of the project area: the size and location of populations, ethnicity, livelihoods and income, infrastructure, education and public health, and cultural sites. However, the focus of the SIA was on the consequences of resettlement, since the most significant social impacts arose from this.

The SIA addressed a wide range of social impacts, some of which were related, directly or indirectly, to the environmental issues identified in the EIA studies. It covered relocation, loss of lands and livelihoods, social stress arising from displacement and resettlement, access to natural resources and competition for these (including potential for conflict), price increases, marginalisation of ethnic groups, capacity of local authorities, changes in water quality and flow that might lead to an increase or decrease in water-borne diseases, health impacts (including sexually transmitted and other communicable diseases, drug use and alcoholism, poor sanitation, human trafficking), access to schools, markets and health facilities, irrigation potential and nutrition. In one location, flooding and riverbank erosion were identified as potential problems with socio-economic consequences. The risk to people from movement of wild elephants through areas marked for resettlement was also noted by one of the studies.

The SIA also considered possible livelihood disruption and health and safety impacts from the construction process. In the case of health and safety, these included traffic accidents, contamination of drinking water, sexually transmitted and communicable diseases, food availability in markets and trafficking.

Specific mitigation strategies were developed in each of these areas, for both the construction and operational phases of the project. Information on the project's cumulative environmental and social impacts, together with economic projections, was combined with information on other predicted developments to generate impact scenarios over 5- and 20-year planning periods.

Source: ADB. *Summary Environmental and Social Impact Assessment: Nam Theun 2 Hydroelectric Project in the Lao People's Democratic Republic*. Manila: Asian Development Bank, 2004. Available at: http://www.adb.org/Documents/Environment/LAO/lao-nam-theun2.pdf

Manuals and guidelines emphasise the importance of examining social equity or distribution of impacts across different groups. Assessments are expected to devote particular attention to impacts on vulnerable social groups. Here it would be also useful to recognise the linkages between socio-economic vulnerability and environmental hazards (**see Guidance Note 9**).

SIA is typically applied to the consequences of planned interventions. The techniques might also be used to consider the social impacts of other types of event such as disasters, climate change, demographic change and epidemics.

3. Integrating hazard and disaster risk into the SIA process

A conventional SIA process comprises the following ten steps,[1] which are set out below with comments about how hazards and related disaster risks can be incorporated into the process.

Step 1. Develop public involvement programme

The first step is to develop an effective plan to involve the public. This requires identifying and working with all potentially affected groups. It should explicitly include those who might be exposed to greater (or lesser) hazard risk as a result of the project. Stakeholder engagement is vital to SIA and should take place throughout the assessment. This should involve genuine participation in the process, not merely consultation.

Step 2. Describe proposed action and alternatives

The proposed action or policy change (and alternative approaches, if appropriate) is described in enough detail to begin to identify the data requirements for an SIA and design the framework for assessment. Potentially key types of social impact, including those related to disasters, should be identified and plans made to obtain relevant data (see Section 4 for further discussion). This step is equivalent to the screening stage in an EIA (**see Guidance Note 7**).

Step 3. Describe relevant human environment and zones of influence

Relevant data on the geographical and human environments related to the project are collected and reviewed through a baseline study or community profile. This study could cover relationships between people and their bio-physical environment (e.g., ecological setting, aspects of the environment seen as resources or problems, patterns of resource use) and culture, attitudes and social–psychological conditions (e.g., risk perception, psychological coping). Hazards and vulnerability should be factored into the baseline analysis.

Step 4. Identify probable impacts (scoping)

This stage seeks to identify the full range of possible social impacts (including those perceived by affected groups). Early, comprehensive and systematic screening can identify potential hazards and associated risks that might affect the project and communities at any stage in the project cycle, as well as the impact the project itself might have on disaster risk. It is important that the views of all affected people, including those vulnerable to hazards, are taken into account.

Step 5. Investigate probable impacts

Investigation of the social impacts identified during scoping is the most important component of the SIA. A range of methods, including modelling and scenarios, can be deployed to investigate probable future impacts. Hazardous events (as external factors or consequences of the project) and their risk or uncertainty should be included in trend and scenario analysis. As part of the latter, scenarios should be developed of the social consequences of exposure to the hazards identified (e.g., using fault- or event-tree procedures).[2] Records of previous experiences (including disaster events) provide valuable data for this process.

Step 6. Determine probable response

The responses of all affected groups to the impacts are assessed, in terms of attitude and actions. This should include responses to changes in social vulnerability as a consequence of the project and to a disaster event with an impact on the project. Differential vulnerability between social groups should be recognised.

Step 7. Estimate secondary and cumulative impacts

Secondary (indirect) and cumulative project impacts are assessed, although it is almost impossible to identify all dimensions of social impacts because of the way in which one change leads to others. Future patterns of vulnerability, both as long-term results of the project and due to other factors (e.g., climate change), should be considered in this stage.

Step 8. Recommend changes or alternatives

The consequences of changes to the plan or alternative interventions are assessed as in step 5 (though usually on a more modest scale) and the same key issues should be considered.

1 Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (2003). The ten steps are logically sequential but may often overlap in practice.

2 Fault-tree procedures begin with an event and use reverse analysis to determine the events and factors that might lead to it. Event-tree procedures work forwards from an event, problem or failure to determine if a major event could result.

Step 9. Mitigation, remediation and enhancement plan

A plan is developed for mitigating adverse impacts, by not taking or modifying an action, minimising its impacts through design and operational changes, or compensating for its impact by providing alternative facilities, resources or opportunities. This might include risk mitigation strategies. Impact avoidance should be the first priority, impact reduction or minimisation undertaken if avoidance is not possible, and offsetting or compensation for adverse impact used only when no other options are available.

Step 10. Develop and implement monitoring programme

A monitoring programme is developed to track project or programme development and compare actual impacts with projected ones.

4. Assessing hazard-related impacts and risks

Social impact variables

Environmental hazards and related risks can be considered explicitly within the framework of 'social impact variables' to be assessed during the SIA. Table 1 is based on a commonly used conceptual framework which divides social impacts into *general* categories (there are many specific variables within these categories). Alongside this are indications of where some key hazard and risk issues can be located within the categorisation.

Note that all categorisations of social impact variables can be questioned in terms of their conceptualisation and completeness. Several alternative frameworks are available.[3] Assessors should never take a framework off the shelf to be used as a checklist, but should draw on what is available to develop their own indicator frameworks for each occasion. They need to be open-minded in doing this, because social impacts and their significance are situation-specific. Local stakeholder involvement in this task is essential.

Table 1 Linking hazards and disaster risk to key social impact variables

Category of social impact	*Relevant hazard/disaster issues*
Population change: changes in number, density, distribution and composition	How such changes affect different groups' exposure and vulnerability to hazards
Community and institutional structures: including size, structure and level of organisation of local government and changes in attitudes, values, local government and employment	Capacities of such structures to manage hazard and disaster risks in the project area or associated with the project development; impact of hazards on employment opportunities and equity, and hence on livelihood resilience
Political and social resources: distribution of power and alterations in power, interested and affected parties, leadership capacity	Impact of such factors on capacity of community and institutional structures (above) and in magnifying or reducing vulnerability of marginalised groups
Community and family changes: factors that influence daily life including attitudes, values, perceptions, social relationships and networks[4]	Social capital and other capacities to manage risk; perceptions of risk, health and safety
Community resources: patterns of land use, community services, tax base	Natural resource and land use; availability and quality of relevant services and facilities (e.g., health, police, fire, sanitation)
Social justice: equity, human rights, participation	Social justice issues as factors in vulnerability

Sources: Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (2003); Burdge, R.J. 'The practice of social impact assessment – background', *Impact Assessment and Project Appraisal,* 2003, 21(2): 84–8.

3 See, for example, Vanclay, F., 'Conceptualising social impacts', *Environmental Impact Assessment Review*, 2002, 22: 183–211.

4 This category is also said to include disruption to daily living and movement during project implementation. Here, relevant hazard-related issues include pollution, increased risk of traffic accidents, obstruction of transport routes (and hence of evacuation routes), and damage to water supplies or irrigation systems.

The key issues are likely to change during the lifetime of the project and the SIA should identify this. For example, local perceptions of risk and safety may be prominent issues during the planning phase, hazard exposure resulting from relocation of communities (or arrival of new groups such as migrant workers) during the construction or implementation phase, and changes in vulnerability resulting from loss of social capital or shifts in local power structures once the project has been completed and its impact is being felt.

Direct and indirect impacts

Consideration should be given to indirect, long-term or cumulative impacts involving interactions between communities and the environment. For example, movement or growth of local populations may lead in the short term to reduced livelihood opportunities and as a result of this, over a longer period of time, to excessive pressure on natural resources or unsustainable environmental management practices, which in their turn may result in environmental degradation and associated hazard risk. (Increases in population size and density are by themselves likely to increase the risk from existing hazards unless existing protective measures and emergency services are reinforced.) A secondary impact of mitigation measures may be changes in the relationships between social groups. For example, construction of a dam or reservoir to control downstream flooding might lead to tensions between different water users such as farmers, recreational users such as fishermen or water-sports enthusiasts and those who make their living transporting goods and people by water.

However, widening the scope of the assessment in such ways does have practical implications in terms of capacity, resources and data access. The more immediate and direct impacts are likely to be easier to identify and assess. Moreover, the SIA should focus on the most important social impacts. SIA teams should also be clear from the start about the areas and communities under investigation.

Box 6 Assessing natural hazards' impact on communities and projects

A large-scale oil and gas drilling and production project on the Arabian Peninsula required extensive assessment of environmental/ecological aspects and their consequences for communities. This assessment was done through integrated EIA, SIA and HIA (community health) studies.

Key issues relating to project impact included: loss and degradation of traditional grazing grounds (most of the local population were nomadic pastoralists), impact on groundwater resources (the project was highly water intensive and could adversely affect other users; it would also dispose of considerable quantities of produced water with implications for hydrogeology and groundwater quality), consumption of raw materials and construction of infrastructure.

Many of the anticipated social impacts of these conditions were similar to those experienced by other kinds of industrial development. For example, the potential for construction work to cause disruption to infrastructure and natural resources, damage to household and community assets such as land, houses, livestock shelters and roads, and issues of community safety arising from the large number of contractors, the scale of road movements and community inexperience of such large-scale developments.

The assessment also considered potential impacts (or lack thereof) in relation to natural environmental factors that affected the project area at the time – in particular a long-running drought in the area. Among the assessment tools used were stakeholder consultation (formal and informal interviews, focus groups and community meetings) and land use modelling through time (related to rainfall and its relation to ephemeral grass densities). It was found that the drought was likely to cause significant differences in social baseline conditions over time because the project site and its surroundings were in a prime grazing area to which many herders would move only after significant rainfall and consequent growth of energy-rich ephemeral grasses. Migratory communities could be directly and indirectly affected by the development as it progressed, but the numbers affected at any one time would be influenced by unpredictable rainfall patterns: this would make contingency resettlement plans necessary.

Methodological lessons learned from this experience were: the value of looking at baseline changes through time (especially cyclical variations) and the critical nature of the stakeholder engagement process in explaining local livelihood strategies.

Source: information supplied by Charles Martin Borkowski, environmental and social management consultant.

Risk perception

SIA explicitly acknowledges the importance of the social construction of reality and hence the value of investigating people's perception of risks as part of an assessment. Here risk is not seen as an objective fact but as a subjective experience felt by everyone and felt differently by different people. People's attitudes towards risk and behavioural responses to it are important indicators of their likely reaction to a project and in some situations will make it necessary to modify project design (see Box 7).

Box 7 Capturing flood risk perceptions through SIA

SIA formed part of an environmental assessment carried out in 1998 to select options for overcoming siltation of waterways and consequent waterlogging in the Khulna-Jessore region of south-west Bangladesh. The aims of the assessment were to evaluate the environmental and social consequences of four water management options and recommend one that would ensure an environmentally sustainable and socially viable solution to the drainage problem.

The SIA involved rapid rural appraisal and related participatory methods in 60 locations, and made extensive use of local perceptions of likely socio-economic changes – positive and negative – resulting from the different project options. These included the potential damage to property and crops from flooding, and health impacts (especially water-borne diseases). The assessment recommended an option that would solve water congestion problems and provide potential for improvements in social and economic well-being. The government of Bangladesh and the Asian Development Bank, which was funding the project, accepted this recommendation.

Source: Momtaz, S. 'The practice of social impact assessment in a developing country: the case of environmental and social impact assessment of Khulna-Jessore Drainage Rehabilitation Project in Bangladesh', *Impact Assessment and Project Appraisal,* 2003, 21(2): 125–32.

5. Critical factors for success

The following factors may be important in making sure that social impacts associated with natural hazards are addressed through the SIA process:

- SIA should be linked to the rest of the appraisal process, especially to EIA and associated risk assessments, and the results of these different assessments related to each other in a comprehensive and coherent analysis of project impacts.
- Whilst a holistic view is essential, hazard and related risk issues should be kept in proportion, both with regard to their intrinsic significance and in relation to other social impacts (see Box 8).
- Impact assessment must feed back into project design, leading where necessary to development of avoidance or mitigation strategies.
- Communities' perceptions are important indicators of hazards and associated risks, and of their likely responses to project interventions.
- Affected communities should be fully involved in the assessment, not just as providers of information (i.e., public consultation), where their extensive knowledge of local hazards and risk management strategies will be valuable, but in negotiations with other stakeholders about avoidance or mitigation options.
- Positive benefits of projects in terms of reducing risk should be acknowledged.
- Findings should be communicated to decision-makers and acted upon by them – SIA is a tool to help make decisions.

Box 8 Assessing the significance of natural hazards in SIA

An SIA carried out in 2002 as part of a major gas pipeline project in China sought the views of more than 10,000 people in communities in areas to be affected by the project. In the survey, the communities identified drought and sandstorms as the most severe environmental problems facing them. These were unlikely to have a significant impact on the project or to be affected by it. Therefore the SIA did not propose any natural hazard mitigation options other than protecting some sections of the pipeline on uncultivated land from wind and water erosion. But in response to community concerns regarding threats to local infrastructure during construction, the SIA advocated putting systems in place to repair any damage to irrigation systems, paddy dykes and local roads.

Source: UNDP. *Social Impact Assessment Survey of the China West–East Gas Pipeline Project.* Beijing: United Nations Development Programme China Country Office, 2002. Available at: http://www.undp.org.cn/downloads/otherlocal/sia-pipeline-en.pdf

Box 9 Hazard and disaster terminology

It is widely acknowledged within the disaster community that hazard and disaster terminology are used inconsistently across the sector, reflecting the involvement of practitioners and researchers from a wide range of disciplines. Key terms are used as follows for the purpose of this guidance note series:

A *natural hazard* is a geophysical, atmospheric or hydrological event (e.g., earthquake, landslide, tsunami, windstorm, wave or surge, flood or drought) that has the potential to cause harm or loss.

Vulnerability is the potential to suffer harm or loss, related to the capacity to anticipate a hazard, cope with it, resist it and recover from its impact. Both vulnerability and its antithesis, *resilience*, are determined by physical, environmental, social, economic, political, cultural and institutional factors.

A *disaster* is the occurrence of an extreme hazard event that impacts on vulnerable communities causing substantial damage, disruption and possible casualties, and leaving the affected communities unable to function normally without outside assistance.

Disaster risk is a function of the characteristics and frequency of hazards experienced in a specified location, the nature of the elements at risk and their inherent degree of vulnerability or resilience.[5]

Mitigation is any structural (physical) and non-structural (e.g., land use planning, public education) measure undertaken to minimise the adverse impact of potential natural hazard events.

Preparedness is activities and measures taken before hazard events occur to forecast and warn against them, evacuate people and property when they threaten and ensure effective response (e.g., stockpiling food supplies).

Relief, rehabilitation and *reconstruction* are any measures undertaken in the aftermath of a disaster to, respectively, save lives and address immediate humanitarian needs; restore normal activities; and restore physical infrastructure and services.

Climate change is a statistically significant change in measurements of either the mean state or the variability of the climate for a place or region over an extended period of time, either directly or indirectly due to the impact of human activity on the composition of the global atmosphere or due to natural variability.

5 The term 'disaster risk' is used in place of the more accurate term 'hazard risk' in this series of guidance notes because 'disaster risk' is the term favoured by the disaster reduction community.

Further reading

Social impact assessment

Basic approach and principles

Interorganizational Committee on Guidelines and Principles for Social Impact Assessment. 'Principles and guidelines for social impact assessment in the USA', *Impact Assessment and Project Appraisal,* 2003, 21(3): 231–250.

UNEP. *Environmental Impact Assessment Training Resource Manual.* Topic 13 'Social Impact Assessment'. Geneva: United Nations Environment Programme, 2002. 2nd edition. Available at: http://www.unep.ch/etu/publications/EIAMan_2edition_toc.htm

Vanclay, F. 'Social Impact Assessment: International Principles', *Impact Assessment and Project Appraisal*, 2003, 21(1): 5–11.

International Association for Impact Assessment website: http://www.iaia.org

Detailed methodological guidance and discussion

Becker, H.A. *Social impact assessment: method and experience in Europe, North America and the developing world.* London: UCL Press, 1997.

Becker, H.A. and Vanclay, F. (eds). *The International Handbook of Social Impact Assessment.* Cheltenham, UK: Edward Elgar, 2003.

Burdge, R.J. et al. *The Concepts, Process and Methods of Social Impact Assessment.* Middleton, USA: Social Ecology Press, 2004.

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Social analysis

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This guidance note was written by John Twigg. The author would like to thank the following for their invaluable advice and comments: Charles Martin Borkowski (environmental and social management consultant), James Lette (BBC Consulting Planners), Nicholas Linacre (International Food Policy Research Institute), Frank Vanclay (University of Tasmania), the project's Advisory Group and the ProVention Consortium Secretariat. Financial support from the Canadian International Development Agency (CIDA), the United Kingdom's Department for International Development (DFID), the Royal Ministry of Foreign Affairs, Norway and the Swedish International Development Cooperation Agency (Sida) is gratefully acknowledged. The opinions expressed are those of the author and do not necessarily represent the views of the reviewers or funding bodies.

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