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Environmental Impact Assessment Handbook for Pakistan

for Pakistan

By Thomas B Fischer (editor)

National Impact Assessment Programme

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Author:
Zirgham Nabi Afridi, Javaid Afzal, David Annandale, Hamza Khalid Butt, Santiago Enriquez, Thomas B. Fischer, Rizwan Hameed, Mohammad Irfan Khan, Saima A Khawaja, Miriam Kugele, N J Nabeela, Obaidullah Nadeem, Parvaiz Naim, Reinoud Post, Ahmad Saeed, Ernesto Sánchez-Triana and Bobbi Schijf

Compiled by:
Thomas B. Fischer

Editor:
Thomas B. Fischer and Shadmeena Khanum

Technical Support:
Netherlands Commission for Environmental Assessment (NCEA)

Facilitation:
Ahmad Saeed and Arfa Zaheer Azmat

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Azhar Saeed

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IUCN Pakistan
National Impact Assessment Programme
House No. 2, Street 83
Embassy Road, G-6/4, Islamabad
Tel: +92 (51) 2271027-34
Fax: +92 (51) 2271017
www.niap.pk

Contents

List of Authors

Zirgham Nabi **Afridi**, Manager, Environmental Programmes at Hagler Bailly Pakistan (HBP) based in Islamabad, has a four-year Master of Engineering (MEng) degree in Civil and Environmental Engineering from Imperial College London. His academic specialisation is in the field of hydrology with a focus on bed, bank and shoreline protection; flood management and flood defenses. During his time at HBP, he has conducted environmental impact assessments (EIAs) and undertaken environmental audits for clients in the donor community, private industry, and state sector. The EIAs have covered a range of projects from hospitals to coal-fired power plants and have taken him to Azad Jammu and Kashmir (AJK), Sind and Gilgit-Baltistan in Pakistan and Bamiyan in Afghanistan. Mr Afridi has recently expanded upon his expertise by leading two pilot Strategic Environmental Assessments (SEAs)—the first of their kind in Pakistan. One of the SEAs is of a hydropower development plan in AJK and the other is of a master plan for development of Gilgit city.

Dr Javaid **Afzal** is a Senior Environment Specialist at the World Bank's Islamabad office. His responsibilities include moving the environment development agenda forward with client government agencies. He also task-manages operations in water resources and the environment, and provides environmental safeguards support for the Bank's South Asia Region. Previously, he worked at a leading consulting company in Pakistan. He holds a PhD in water resources management from Cranfield University, UK, and master's and bachelor's degrees in agricultural engineering from the University of Agriculture, Faisalabad, Pakistan. Dr. Afzal has published in a number of peer-reviewed journals on the topics mentioned above.

Dr David **Annandale** is an international environmental policy consultant, focused on SEA, EIA, and environmental safeguards procedures. He is based in Nova Scotia, and has 30 years of experience in assignments for the ADB, World Bank, UNDP, UNEP, IUCN and DANIDA. For thirteen years, he was a tenured academic at Murdoch University in Australia, ending up as Dean of the School of Environmental Science. In Pakistan he is the International Consultant on two SEA pilot projects managed by IUCN: an assessment of the impacts of the hydropower plan in Azad Jammu and Kashmir; and a strategic environmental assessment of the proposed Gilgit city master plan. For three years he has also been the Academic Advisor on the AusAID scholarship programme, where he provides advice for Master's degree awardees prior to their departure for Australia. David has a Bachelor's degree from Murdoch

University in Environmental Science, a Master's degree in Public Administration from the University of Virginia, and a PhD in Business Policy from the University of Western Australia.

Hamza Khalid **Butt** is an environment and sustainability professional who has been a consultant with the National Impact Assessment Programme since June 2013. He holds an MSc in Environmental Technology from Imperial College London and specialises in business and environment. Hamza is also the acting head of sustainability services for the CSR Association of Pakistan and sits on the global corporate governance committee for ACCA Global.

Santiago **Enriquez** is an international consultant with more than fifteen years of experience in the design, implementation, and evaluation of policies relating to the environment, conservation, and climate change. He has developed analytical work for the World Bank, United States Agency for International Development, and the Inter-American Development Bank. From 1998 to 2002, Mr. Enriquez worked at the International Affairs Unit of Mexico's Ministry of Environment and Natural Resources. Mr. Enriquez holds a master's degree in public policy from the Harvard Kennedy School.

Professor Dr Thomas B **Fischer**, PhD, FIEMA, is Head of the Department of Geography and Planning, School of Environmental Sciences, University of Liverpool, UK. His specialist areas revolve around ex-ante impact assessment tools in spatial, transport, energy, waste and other sectoral policy, plan, programme and project decision making, in particular strategic environmental assessment (SEA) and environmental impact assessment (EIA). He has worked in consultancy, public administration and academia for over 23 years and he is one of the most widely published authors on SEA and EIA globally.

Professor Dr Rizwan **Hameed**, PhD, is Professor of City and Regional Planning at the University of Engineering and Technology (UET), Lahore, Pakistan. He gained his PhD at Heriot–Watt University, Edinburgh, UK, in the field of Environmental Planning and Management. He has over 23 years of professional experience as a teacher and researcher. He has also done consultancy assignments for national and international consulting firms on various urban planning and environmental management issues. He is the author of numerous refereed journal articles, book chapters and conference contributions. His research interests relate to environmental assessment, urban planning and housing, sustainable transport, and waste management. He is member of Advanced Studies and Research Board of the UET, and Editor of the *Pakistan Journal of Engineering and Applied Sciences.*

Professor Dr Muhammad Irfan **Khan**, PhD, DIC, MIEMA, is the Head of the Department of Environmental Science, International Islamic University, Islamabad, Pakistan and Convener, National Curriculum Review Committee, Higher Education Commission in Environmental Science. He also chairs the National Mirror Committee on Environmental Management and Sustainability, Pakistan Standard and Quality Control Authority. He was part of the team, which conducted Country Strategic Environmental Assessment - Pakistan for World Bank and developed environmental management framework for

World Bank financed projects of National Highway Authority. He has worked in higher education for over 27 years and provided consultancy to UN organisations, World Bank Group and Asian Development Bank on social and environmental assessment of various projects in Middle East, South and Central Asia. He has published three books and more than 30 research papers in journals.

Saima A **Khawaja** is a practicing lawyer and partner at Progressive Advocates and Legal Consultants. Environmental Law is one of her main areas of interest and she has been involved in analysing and drafting EIA Regulations, Administrative Penalty Rules and Water Conservation Law (for SAARC countries). She has done a number of litigations challenging environmental issues for over fifteen years now. She has also worked in consultancy and academia in the same subject and has given training to the district judiciary.

Miriam **Kugele** has been working as an advisor at the intersection of environment, climate change and development. She is currently Coordinator Climate Change and Sustainable Energy for the International Union for Conservation of Nature, Pakistan. Her work experience includes policy advice on natural resource management and climate change, research including the topics of ecosystem-based adaptation and vulnerability analyses, planning for more sustainable development and project implementation, as well as building capacities of government and civil society.

N J **Nabeela** is a practicing lawyer and partner at Progressive Advocates and Legal Consultants. Her main area of interest is Environmental Law and she has been involved in multiple aspects of the field, such as academia, review of Environmental Laws, Rules and Regulations, and consultancy work for the past eight years. She has been involved in analysing and drafting EIA Regulations, Administrative Penalty Rules and Water Conservation Law (for SAARC countries). She has given Environmental Law training courses to the district judiciary in Pakistan.

Dr Obaidullah **Nadeem**, PhD, is currently working as Associate Professor of City and Regional Planning at the University of Engineering and Technology, Lahore, Pakistan. His doctoral research focussed on Environmental Impact Assessment (EIA) practices in Pakistan. He has got 21 years' experience of teaching, research and consultancy with various national and international organisations. He is co-author of the EIA Curriculum for Higher Education Institutions in Pakistan. He has published numerous research articles on various aspects of EIA and urban planning and management. He is also serving as a member of the Editorial Advisory Board of the Journal of Environmental Assessment Policy and Management and reviewer of the some other international research journals.

Dr Parvaiz **Naim**, PhD, has taught environmental subjects at seven universities in three continents. He led EIA Teams for mega projects, conducted EIA/SEA training workshops at home and abroad, and contributed to several books and publications including the UNEP EIA Training Resource Manual and OECD's Applying Strategic Environment Assessment: Good Practice Guidance for Development Cooperation. Presently he works with the KfW Development Bank.

Reinoud **Post** was educated in tropical agriculture in Deventer and environmental sciences in Enschedé. In his professional career he served long term assignments as agronomist in Cameroon, the Democratic Republic of São Tomé and Principe and Burkina Faso. Mid-1993, he joined the Netherlands Commission for Environmental Assessment, assisting governments of developing countries in Latin America, Asia and Africa improving their EIA systems.

Ahmad **Saeed** is currently employed with IUCN Pakistan as Project Manager National Impact Assessment Programme and Principal Expert Global Change. He has Masters in Environmental Engineering from the University of Oklahoma, USA. He has over twenty years of diverse experience in environmental management with a specific focus on impact assessment. He has been involved in various environmental policy and governance related initiatives both in Pakistan and abroad. For the last four years, he has been managing NIAP which is a joint initiative of the Government of Pakistan and IUCN Pakistan and is being implemented in all administrative regions of Pakistan. He has extensive experience in managing urban issues such as solid waste and air quality and has worked as third party monitor for safeguards compliance in Pakistan and Lao PDR.

Dr Ernesto **Sánchez-Triana**, PhD, is Lead Environmental Specialist for the World Bank's Latin America and Caribbean Region. Prior to joining the Bank, he was a professor at the National University of Colombia and served as Director of Environmental Policy at Colombia's National Department of Planning. From 2006 to 2012, he worked for the Bank's South Asia Region, leading numerous operations including analytical work on "Policy Options for Air Quality Management in Pakistan". Dr. Sánchez-Triana holds MS and PhD degrees from Stanford University and has authored numerous publications on environmental economics, energy efficiency, environmental policy, poverty and social impact assessment, and green growth.

Dr Bobbi **Schijf**, PhD is a technical secretary at the Netherlands Commission for Environmental Assessment. In her professional career, Bobbi Schijf has been singularly focused on the topic of impact assessment. She graduated with a Masters in Environmental Science from the University of Utrecht in 1997, with a comparative study on the impact assessment systems of the Netherlands and New Zealand. After this, she went on to do a PhD at the University of Otago, on the use of impact assessment information in decision-making. For the last decade she has been working with countries in Eastern Europe and Asia to improve their EIA and SEA practice.

1 Introduction to Handbook

By Thomas B. Fischer

This Handbook is one of the outcomes of the National Impact Assessment Programme (NIAP), which has been jointly implemented by the Government of Pakistan and the International Union for Conservation of Nature (IUCN - http://niap.pk/). NIAP has aimed to contribute to sustainable development in Pakistan through strengthening the environmental impact assessment (EIA) process, and through introducing strategic environmental assessment (SEA) in national development planning. The Programme had four implementation partners: the Pakistan Environmental Protection Agency (Pak EPA), the Environment Wing of the Ministry of Climate Change (previously Ministry of Environment), the Planning Commission of Pakistan and IUCN Pakistan. Additionally, the Netherlands Commission for Environmental Assessment (NCEA) had an advisory role in the Programme, providing technical backstopping. The total duration of the Programme was four and a half years and it had been running from November 2009 to May 2014.

The necessity of the Handbook was established on the basis of a total of seven NIAP workshops on EIA teaching in higher education institutions in Pakistan that were conducted between 2011 and 2013. A total of over 150 individuals were involved in these workshops, representing over 30 higher education institutions, the Higher Education Commission, Federal and provincial EPAs, as well as various other private and public sector organisations, institutions and companies. Workshops 1 to 4 aimed at establishing a basic overview of EIA teaching activities. This included identifying those institutions that currently teach EIA and establishing their teaching methods and techniques. Workshops 5 and 6 involved empirical data collection exercises within a targeted NIAP assignment on the 'Development of EIA curricula for tertiary level academic and public administrations'. This assignment had the following five objectives to:

1. Identify strengths and weaknesses of existing EIA curricula being taught at tertiary level institutions in Pakistan;
2. Support the development of EIA curricula for these institutions, taking international research and best practices into account;
3. Identify the feasibility of including SEA in the curriculum;
4. Prepare an action plan for implementation of different curricula; and
5. Advise on a comprehensive one week EIA training curriculum for public administration institutions.

The results of these various exercises are described in a NIAP Report 'Development of an EIA Curriculum for Tertiary Level Institutions in Pakistan - Baseline, Development Needs, Curriculum Outline and Suggestions for Further Action' which can be accessed via http://niap.pk/docs/Knowledge%20Repository/Reports/ReportEIAeducationPakistanFischer.pdf. The 'Suggestions for Further Action' also included responding to a perceived need for improved teaching and study materials on EIA in Pakistan. This Handbook together with another NIAP document, the 'Environmental Impact Assessment (EIA) Curriculum for Higher Education Institutions in Pakistan' (*http://www.niap.pk/docs/Knowledge%20Repository/Reports/Draft%20EIA%20Curriculum%20for%20Tertiary%20Level%20Institutions%20in%20Pakistan.pdf*) is a direct response to those needs.

This Handbook consists of thirteen chapters, representing the work of seventeen authors. Chapters range from the basics of EIA in Pakistan *e.g.* history, legislation, guidelines), over the role of NIAP in improving the instrument to issues of climate change, case studies, SEA and an outlook on the path ahead.

In the subsequent Chapter 2, Parvaiz Naim reflects on the history and development of EIA in Pakistan. He highlights the fact that the origins of environmental protection, and thus EIA, in the country go back to the Penal Code of 1860. EIA first became a legal requirement on the basis of the 1983 Pakistan Environmental Protection Ordinance and was subsequently provided with a clear procedural framework in the 1997 Environmental Protection Act. Naim describes some of the attempted attacks on the instrument that were done with the intention to weaken it for making international investment easier. In this context, he underlines the important role the media and interational organisations have and are playing in Pakistan for keeping EIA on the agenda and enhancing its effectiveness. Finally, he stresses the important role the National Impact Assessment Programme (NIAP) has been playing for the further development of both, EIA and SEA in the country.

In Chapter 3, Saima Khawaja and N J Nabeela provide for a critique of the legal requirements and guidelines of Pakistani EIA. This critique is driven by a continuing ineffective implementation. In this context, it is of particular importance that EIA is usually not initiated at the planning, but rather at the construction stage. Furthermore, quality review and monitoring is said to be not satisfactory, in particular because of insufficient staffing numbers at the relevant environmental authorities. Furtermore, public participation is said to be restricted to the EIA review stage and finally, the system strongly relies on self-monitoring which means that both, monitoring itself, as well as enforcement tend to be weak.

In Chapter 4, Thomas B Fischer, Ahmad Saeed, Bobbi Schijf and Irfan Khan look at the results of the NIAP mission on the 'development of EIA curricula for tertiary level academic and public administrations'. They state that of those 74 institutions offering tertiary level degree programmes in Pakistan in 2012/2013, 33 were found to teach EIA in various undergraduate and postgraduate courses. While many strengths were identified, there were also certain shortcomings in current teaching, including in

particular decision making theory and practice and involvement in real life EIA practice cases. Those teaching EIA in Pakistan are particularly keen to see further and enhanced capcity-building and knowledge exchange opportunities with other national and international institutions.

In Chapter 5, Bobbi Schijf and Reinoud Post present the results of the first NIAP EIA mapping exercise of Pakistani legislation and practice, which was conducted in 2010 (a second exercise was completed in early 2014). Overall, they found many positive aspects, underlining the great potential of EIA in this country. In particular, a comprehensive and mature legislative framework was found to be in place, which was flanked by professional environmental agencies. Democratic accountability was well developed and decision processes were of a public nature. With regard to challenges, Schijf and Post found that that EIAs were of variable quality and that effective participation was often limited. Furthermore, EIA monitoring and follow-up was often deficient.

In Chapter 6, Ernesto Sánchez-Triana, Santiago Enriquez and Javaid Afzal look at the role of international organisations and development banks (IODBs) in Pakistan's EIA development and current practices. IODBs have played a key role not just in the development of EIA but also in raising an interest in SEA in the country. In this context, the World Bank, the Asian Development Bank and the Netherlands EIA Commission are said to have played a particularly important role. Their involvement has raised the quality of EIAs on the basis of international best practice guidelines and numerous capacity-building activities. The authors stress the success of policy level SEA in Pakistan, which they say has had significantly greater influence on decision making than EIA.

Chapter 7 by Obaidullah Nadeem and Rizwan Hameed deals with the key issue of public participation in EIA in Pakistan. They state that while public hearings are held for every project which includes EIA, their effectiveness and influence on actual decisions is questionnable. Public concerns are recorded, but frequently there is a lack of transparency with regard to how decisions are finally formulated. A particular problem is that public participation comes too late, *i.e.* not during the planning stages, but often only when construction has already begun. Furthermore, even if conditions are formulated in connection with environmental approvals, proponents try to avoid their implementation. Finally, Nadeem and Hameed suggest that in order to make public participation more effective, the public needs to be involved as early as possible and monitoring and follow-up arrangements need to be strengthened.

In Chapter 8, Miriam Kugele elaborates on climate proofing (*i.e.* mainstreaming of climate change in policy, plan, programme and project making processes) and SEA/EIA. In this context, two main aspects are covered, namely mitigation and adaptation, and the important role of SEA for addressing those in addition to EIA. Pakistan is seen as one of the most vulnerable countries to climate change effects and therefore, the effective inclusion in EIA (and SEA) is of particular importance. Kugele introduces a 'how to' mainstream climate change in policy, plan programme and project making through SEA and EIA matrix, based on a number of related assessment questions, goals and

processes. She concludes by formulating challenges and opportunities for climate change proofing and EIA in Pakistan.

In Chapter 9, Obaidullah Nadeem reflects on the Lahore experience with regard to EIA in Pakistani transport infrastructure planning. In this context, first he gives an overview of how transport infrastructure planning is done in the country and how EIA fits in. Using the Bus Rapid Transit System (BRTS) as an example, he summarises the various elements contributing to EIA in the country. Here, he focuses on sources and techniques of baseline data collection, the identification and assessment of impacts, stakeholders' consultation, consideration of alternatives, mitigation, decision-making and conditions of approval, the drafting of an environmental management plan and monitoring / follow-up. Nadeem concludes by pinpointing weaknesses of the EIA process and provides some recommendations on how to make the instrument more effective in the future.

In Chapter 10, a case study is introduced and described by Parvaiz Naim, namely the Ghazi-Barotha Hydropower Project, where EIA was conducted as part of a feasibility study by the Pakistan Water and Power Development Auhority. Key project planning events and issues are described and the overall success of the EIA is underlined. The EIA for this project, which was supported by the World Bank, has been widely perceived as effectve in influencing decision-making. Furthermore, EIA is said to have played a key role, resulting in a minimisation of relocation needs, fostering of an effective resettlement plan, ensuring environmental releases, facilitating surface and groundwater flow across the power channel, giving people easy access in crossing the power channel and reclaiming eroded areas for agriculture. Naim concludes that this case is a prime example of an EIA which was effective in minimising negative effects and enhancing the overall benefits of a project.

In Chapter 11, David Annandale and Zirgham Nabi Afridi introduce a NIAP funded Pakistani SEA case study for hydropower development in Azad Jammu and Kashmir. The main purpose of this study was to assess the cumulative impacts of about 60 hydropower projects, for which no overall development plan was in place. A seven-step method was developed, resulting in the ranking of the proposed hydropwer projects (HPPs) according to their overall cumulative impact potential. The authors establish a number of lessons learned from the project and conclude that the approach introduced here may be the basis for other cumulative assessment SEAs.

In Chapter 12, Parvaiz Naim elaborates on how SEA may be introduced in Pakistan. He starts by underlining that Pakistan is well poised to use the instrument effectively, based on a number of reasons. In particular, there are some well developed institutions, specialising in planning and also having expertise in various environmental issues. Furthermore, over three decades of experience with project EIA are said to provide for a solid basis for the development of SEA. The Government of Pakistan's development vision itself ('Vision 2025') has introduced a range of measures for achieving sustainable and inclusive higher growth and Naim suggest that this may greatly benefit from SEA, for example, the proposed large water reservoirs and new cities. The author concludes that there is great potential for this strategic decision support instrument which may results in many benefits for the people of Pakistan.

In chapter 13, finally, Hamza Khalid Butt, Ahmad Saeed and Bobbi Schijf provide an outlook for the future development of EIA in Pakistan. Starting with a historical overview, they go on to outline key chracteristics of the current EIA system. They then reflect on the challenges and opportunities posed by the 18th Amendment to the Constitution of Pakistan, *i.e.* the devolution of environmental, and also higher education, matters to the provincial level. They argue that there is great potential to develop EIA further and list a number of aspects they consider important in this context. SEA is seen as playing a key role in helping to realise this potential, supporting a more environmentally sustianable development of Pakistan.

2 EIA in Pakistan: An Overview - Evolution and Extent of Current Practice

By Parvaiz Naim

Pakistan's efforts to protect the environment by using Environmental Impact Assessment in project planning can be said to be based on the Penal Code of 1860 which considered fouling of water and air as punishable offences. Promulgation of an Ordinance in 1983 followed by the Pakistan Environmental Protection Act, 1977, made EIA a legal requirement. For enabling the project proponents in designing EIAs, the Pakistan Environment Protection Agency (Pak-EPA) first developed an elaborate form, and later completed guidelines and regulations. In the interim, the World Bank's Operational Directives filled the gaps. Presently, EIAs are conducted for all large developmental projects, albeit with varying attention to public participation and Environmental Management Plans. Devolution of environmental matters to the provinces has caused uncertainty about the Environmental Act and the role of Pak-EPA. Nonetheless, the efforts of Netherlands supported National Impact Assessment Programme (NIAP), and the watchdog role of the civil society and media ensure survival of EIA in Pakistan.

2.1 EIA Roots in Pakistan

Lord Macaulay would never have anticipated how his masterpiece would affect the lives of well over a billion people. Now, one and a half centuries on, his Penal Code of 1860 continues to be used in much of South Asia, covering all types of crimes, including those against the environment. Shortly after its creation in 1947, Pakistan adopted this Code, and modified it over the years as needed. In addition, separate legislation was promulgated for addressing environmental issues from forest cutting to noise.

It was the cumulative effect of all factors plus a growing international concern for the environment that Pakistan drafted a comprehensive law on the environment in the mid-1970s. Nonetheless, it could not make it to the agenda of the Parliament for years. As a last resort, the bureaucracy pushed this through with a Presidential Order, thus giving birth to the Pakistan Environmental Protection Ordinance, 1983. This Ordinance made Environment Impact Assessment (EIA) a requirement for any proposed project with possible adverse impacts on the environment. EIA thus became part of the project planning process, and it was made mandatory from July 1, 1994, to seek prior approval of the relevant Environmental Protection Agency (PEPO, 1983).

2.2 The Operational Directive Era

Like any new initiative, the Environmental Ordinance needed to be operationalised with suitable rules and guidelines. Here, the newly formed Pakistan Environmental Protection Agency was struggling on two fronts; first to save the existence of the Agency by having the Presidential Ordinance endorsed by Pakistan's Parliament; and secondly to prepare the necessary rules and guidelines for pollution control, and EIA.

One major achievement of the Pakistan EPA was the development of a 16-page "Proforma for Environmental Impact Assessment" (Pak-EPA, 1990). This was essentially an outline for an EIA Report that helped in presenting the findings in a cohesive manner. During this period, the donor agencies generally relied on World Bank Guidelines for Environmental Assessment - the Operational Directives. EIAs during that period remained confined to large developmental projects funded by bilateral and multilateral donors. Some of the earliest such EIAs were done in energy sector projects, like Ghazi Barotha Hydropower Project (PHC, 1991), and the oil and gas fields of Dhodak (BMG, 1991) and Qadirpur (BMG, 1992). Very few local consultants with qualifications acquired abroad worked on these assignments along with foreign experts.

In the early 1990s, the Pakistan Environmental Protection Council became very active, but much of its focus was on chasing after public and private institutions in planting a certain number of trees. The Pakistan EPA continued its work on setting environmental standards like the National Environmental Quality Standards. Special committees were formed for such purposes with representation from the concerned Government institutions, academia and the Federation of Pakistan Chambers of Commerce and Industries (SRO, 1993).

In general, many governments in Pakistan tried to soften the stance on EIA. Apparently this was part of the effort to lure foreign investment. A stark example is the Power Policy 1994 that blatantly allowed the setting up of power generation projects using any type of fuel, any technology, and gave a *carte blanche* for setting up power plants anywhere in Pakistan. In May 2014, this policy was still in place.

Ironically, this policy came on the heels of Pakistan's emergence as the leader of the developing countries (G-77) at the Earth Summit in Rio de Janeiro, 1992. There, Pakistan had proudly presented the National Conservation Strategy (IUCN, 1992), and signed important international environmental treaties like the United Nation Conventions on Climate Change and Biological Diversity. Most importantly, Pakistan signed the all encompassing Agenda 21, and the Rio Declaration. By doing so, Pakistan agreed to integrate environmental consideration in decision-making "at all levels and in all ministries", and explicitly agreed that EIA would be used as a 'National Instrument' for all proposed activities that are likely to have significant adverse impact on the environment, and that this process would be regulated by a 'Competent National Authority'(UNCED, 1992).

As a follow up to Agenda 21, IUCN engaged with the media in developing a better and clearer understanding of environmental issues, especially the significance of EIA for development projects. A series of awareness-raising workshops were organised under

the IUCN Environmental Communication Programme in different cities involving EIA experts and media personalities. The dynamic young journalists who participated in these programmes not only understood the messages being conveyed, but became strong advocates of EIA, as was amply reflected in their news coverage, especially for the local English newspapers.

While the Power Policy of 1994 came under fire from environmentalists, it nonetheless did lure in scores of investors who wanted to set up power generating units of all kinds in whatever locality they thought was convenient. For example, one company came in to set up an 800MW Barge-Mounted assemblage of old diesel generators right in the middle of a mangrove forest. Another wanted to set up a huge 5,280MW coal-fired power complex at the coast, upwind of Karachi City.

Dealing with such powerful investors was no small task, but the IUCN investment in journalists paid off. The media effectively picked up the issue and played an active role by widely disseminating expert opinions and raising a strong voice explicitly requiring the government to make use of EIA. The local English news media led this campaign. At least three of the proposed power projects had to roll up their plans and leave. These included the two above-mentioned plants and another one proposed to be located on Manora Island off the Karachi Coast.

A startling event unfolded when the then Prime Minister Benazir Bhutto performed a Ground Breaking Ceremony for the Lakhra Coal-Fired Thermal Power Station. Just a day after the ceremony was covered by the media with the usual fanfare, came a strong-worded letter expressing surprise why the Prime Minister performed the Ground Breaking for a Project for which no EIA was conducted and approved. This letter was written by the then Director General Sindh EPA Mehtab Akbar Rashdi to the Prime Minister's Office. Somehow the media got hold of the letter and made quite an issue out of it. The Prime Minister Secretariat had to issue a Press Release stating that the Prime Minister was not properly briefed on the status of the project, and that the Prime Minister in fact regretted the oversight.

While such events were heartwarming for the environmentalists, they also raised alarms for clever investors. These understood that they could no longer avoid having an EIA done for their proposed projects. They now focused their attention on finding short cuts to simply obtaining a No Objection Certificate from the concerned EPAs.

As a 'standard' practice, the Project Proponents first purchased or leased land, placed order for the machinery so that they could benefit from the incentives promised in the Policy for speedily setting up plants. At the same time, the Project Proponents selectively arranged EIA Consultants who guranteed in advance of obtaining No Objection Certificates from EPAs (Nadeem and Hameed, 2006). The EPAs, on the other hand, were still in the infancy stage, mostly staffed with young inexperienced people for EIA Scrutiny. There was an urgent need there for capacity-building.

With regard to capacity-building of local institutions, the most persistent efforts were made by IUCN. A major challenge was trying to persuade senior management of

relevant government departments in allowing their staff to participate in EIA Training Workshops. From there onwards, the participating staff was never found lacking interest in learning about this project planning tool. From 1996 onwards, IUCN's training workshops used the UNEP EIA Training Resource Manual (UNEP, 1996)

In the meantime, the Pakistani Government was eventually able to honor the long pending draft, and promulgated the much awaited Pakistan Environmental Protection Act in 1997. This Act in a way legitimized the existence of the Pakistan Environmental Protection Agency and the Provincial EPAs. Donor support increased, and the Pakistan EPA was able to develop detailed EIA Guidelines (Pak-EPA, 1997), and Regulations (Pak-EPA, 2000). The Schedule-II of the Regulations specified the types of Projects that required EIA.

2.3 Post-PEPA Developments

Appearance of EIA Guidelines and Regulations (see above) caused a new surge of interest in the EIA 'Business'. Small-scale EIA Consulting groups began to approach the business community, each claiming that if given the consultancy assignment, the consultant would ensure the issuance of EPA Clearance for the proposed project. In that wake, some clever approaches were used to either mask the real picture, fudge *data*, share only selective information with stakeholders, or sugar-coat *data* in such a way that a rosy picture of a proposed project was painted. In some cases, even coercive techniques were applied on the local communities in persuading them not to raise any objections on a proposed project. News about such approaches appeared, for example, in the local press for cement factories proposed in Districts of Haripur and Soon Valley.

The feudal hold in many communities often caused suppression of voices that some of the under-privileged wanted to raise. If the dominating family in an area wanted a project, no one could dare oppose it openly (Nadeem and Fischer, 2011). On top of that, some prominent consultants were lured away from their professional responsibilities. They chose to convert the public consultation process into a theatrical event staged for earning applause for their performance rather than an opportunity for an honest debate on the merits and demerits of the proposed project (Nadeem and Hameed, 2010).

In some cases, the Consultants propped up a minor issue as a major one, wrote detailed comments, and then gave some apparently strict recommendations to be followed for addressing the problem. At the same time, the consultants downplayed some really important issues and avoided making any strong recommendations. One such example was an EIA conducted for a proposed caustic soda factory where used mercury cells were to be installed. The resulting EIA Report gave an overall flavour of deep passion shown for the environment rather than focusing on the potential problems of the technology.

The key problem here was with the EIA checking process (Post and Schijf, 2011). In the concerned EPAs, the task of scrutinizing EIA Reports was given to mid-career or even junior officials. Most of them had no personal experience of conducting EIA, had little knowledge of the location of the proposed project, and invariably, had no access to

baseline data, especially technical information that could be used to verify any statements or claims made in the EIA reports.

In addition, rarely was there any effort for examining the performance of any given project in light of the EIA Recommendation, especially monitoring the implementation of the Environmental Management Plan (Nadeem and Hameed, 2010). The entire EIA process thus became confined to early assessment of the likely impacts, and of course, obtaining the No Objection Certificate from the concerned EPA for executing the project.

The emergence of this situation could well be due to the earlier approach used in raising Environmental Awareness. For quite some time, when an expert was asked how to save the environment, the most frequently given answer was 'save the trees', and 'do the EIA'. Somehow, the idea of integrating environmental considerations into what gets done could not take root. For example, when an ex-minister of Environment was asked about the environmental implications of the manifesto of his political party, he took pride in saying that he would add a separate chapter on the Environment in his Party Manifesto (Pak Observer, 2013). Surely such opinion leaders had not absorbed the idea that a given action could be planned in a way to not only avoid harmful impacts, but in fact to enhance its secondary and tertiary benefits for the community.

In the shadow of these ground realities, the academic community in Pakistan appeared unable to impart the knowledge and skill needed to conduct quality EIAs. The main reason was the absence of 'approved' text books. Different teachers used the publications of their choice. Some even assumed that EIA meant examining the environmental condition of an existing project. Students of one particular university were found engaged in conducting EIA of Tarbela Dam in the late 1990s. The Dam had been built in the 1970s. In a recent survey, Pakistani universities were found to be using predominantly the British and American books for teaching EIA, without any effort to adapting those country-specific guidelines to Pakistani conditions (Fischer, 2012).

2.4 The Netherlands Support

For improving the situation, perhaps the most persistent donor was the Netherlands Government. For many years, the Netherlands' support helped many people from Pakistan to attend the conferences organised by the International Association for Impact Assessment (IAIA). In addition, the Netherlands' funding enabled IUCN to launch a Regional Environment Assessment Programme for South Asia. This Programme succeeded in creating institutional bases in five countries, Bangladesh, India, Nepal, Pakistan, and Sri Lanka. Called the *Environmental Assessment Associations*, these institutions provided a platform to Impact Assessment professionals in exchanging views for promoting an effective use of EIA in project planning. Meetings, seminars, training programmes and conferences were organised at national and South Asian levels, and a new sense of professional distinction was given to the EIA Practitioners. Technical advice for all these activities was provided by the Netherlands Commission for Environment Assessment. Unfortunately, the donor funding exhausted before these Associations could become self-sustaining.

The EIA situation began to show mixed trends. In Khyber Pakhtunkhwa (earlier called

NWFP) and Punjab, EIA processing by the respective EPAs was generally good. This, however, was not so common for EIA Reports submitted to the EPAs in other provinces.

It must have been a re-examination of at least some of the success stories from the Regional EA Programme that encouraged the Netherlands' Government in supporting a big programme focused on Pakistan. This happened because Pakistan presented a strong case, riding on four strong institutional pillars in the country; The Planning Commission of Pakistan, The Environment Wing of the Ministry of Climate Change, The Pakistan Environmental Protection Agency and IUCN.

Called the National Impact Assessment Programme (NIAP), it picked up some of the threads from the previous Regional EA Programme, and added the new dimension of introducing Strategic Environment Assessment in the formulation of Policies, Plans and Programmes[1].

2.5 Devolution of Environmental Matters to Provinces and Outlook

Just when NIAP was about to take off the ground, it received a strong jolt by the dissolution of the Ministry of Environment in 2010. This dissolution came as an aftermath of the 18th Amendment in Pakistan's Constitution which devolved the subject of Environment to the Provinces.

A chaotic situation prevailed for quite a while as the Pakistan EPA drifted, rudderless, with its staff hoping to land in a suitable ministry. For a while it was attached to the Islamabad Capital Development Division. Then it went to the Ministry of Disaster Management. This ministry was renamed in 2013 as the Ministry of Climate Change. Until there is more clarity on the institutional functions and relations, the Pakistan Environmental Protection Act 1977 continues to prevail. Under this Act, The Pakistan EPA continues to have a coordinating and course setting role for the Provincial EPAs. What will happen after that depends largely on the degree of success achieved by NIAP in its efforts to streamline procedures and strengthen institutions.

Over the years, civil society in Pakistan has undisputedly accepted EIA as the tool for safeguarding the environment in planning any developmental project. Now, all developmental agencies of the government faithfully arrange EIA for their proposed large developmental projects as an integral part of the planning process. Similarly, the proponents of all large projects in the private sector that come under Schedule-II of the Pak-EPA Regulations arrange EIA Reports for EPA approval. It is not uncommon to hear the need for proper EIA echoed if an environmental concern related to any proposed project catches the attention of the civil society organisations or the media. This public realisation is a big achievement of the struggle that the civil society and the media embarked on since the appearance of Rachel Carson's Silent Spring or, perhaps, Lord Macaulay's Penal Code. Today, in spite of the clouds of uncertainty surrounding the Environmental Protection Act and the institutions designated for its implementation, the EIA is most certainly here to stay!

1 NB: Details of NIAP mandate and activities are covered in another chapter.

3 EIA: Legal Requirements and Guidelines – A Critique

By Saima A. Khawaja and NJ Nabeela

EIA was introduced in Pakistan under the environmental law in 1997, and more detailed regulations have been put in place since then. However, effective implementation remains an issue. There are multiple gaps in the law, e.g. the process of EIA is not initiated at the planning stage but much later at the construction stage. The Regulations provide a list of projects, which require IEE/EIA, but this list is incomplete and needs to be technically reviewed. Furthermore, the institutional structure is also very weak, with a limited number of personnel available to review and monitor EIAs with no adequate job qualification. Public participation is only restricted to reviewing of an EIA, with no public participation happening at screening, scoping or monitoring stages. The law relies strongly on self-monitoring and there is no adequate structure for regular monitoring, hence monitoring and enforcement are both weak.

3.1 Background

As a follow-up of the Stockholm Declaration of 1972, Pakistan established the Ministry of Environment (MoE) in 1975. It proposed and drafted the first consolidated Federal Environmental Law, *i.e.* the Pakistan Environment Protection Ordinance, in 1983 (the "1983 Ordinance"), which was applicable to all provinces of Pakistan. Environmental Assessment was introduced in Pakistan as a legal requirement for the first time in 1983 through this Ordinance. Section 8 of the 1983 Ordinance required from every proponent of a project that was likely to adversely affect the environment to file a detailed environment impact statement, with support of the environmental protection agency at the time of planning the project. However, the Ordinance did not define or explain the process of an environment impact assessment.

The reporting requirements under § 8 of the 1983 Ordinance were applicable to such industrial activities, discharges of air pollutants and waste, public waters and on such persons and areas as may be prescribed through regulations to be made under the 1983 Ordinance. Section 12 of the 1983 Ordinance also stipulated fines and imprisonment for non-compliance. However, there were no rules or regulations made under the 1983 Ordinance (Ministry of Environment, LG and RD). In 1997, the Federal Environmental Protection Agency, which had been formed under the 1983 Ordinance, in

consultation with other key stakeholders prepared a comprehensive package of procedures and guidelines for environmental assessment, which included general and sectoral guidelines (**See**: Box-5, below). It was intended that these guidelines may be read as a whole and reliance be placed on both, the general guidelines and sectoral guidelines for compliance (Ministry of Environment). Along with these Federal Guidelines that are applicable to all the provinces, Khyber Pakhtunkhwa (KP) and Balochistan subsequently developed supplementary guidelines for other sectors (**See**: Box-5, below). The 1983 Ordinance was never strictly adhered to and the concept of screening through environmental assessment was never practiced at any level by the authorities until 1994 (Nadeem and Hameed 2006, Shah 2013).

In 1997, the Pakistan Environmental Protection Act (the "Federal Act") replaced the 1983 Ordinance. Once again, it was a Federal law, applicable in all provinces. In its §s 2 (xi) and (xxiv), the Federal Act defined for the first time the concepts of "Environmental Impact Assessment" ("EIA") and "Initial Environmental Examination" ("IEE"). It also provided a stepwise process of conducting IEEs and EIAs, which was lacking in the 1983 Ordinance and through § 12 of the Federal Act, the concept of public hearing was made an essential part of the reviewing process. In 2000, the Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations ("Regulations 2000") were notified for providing detailed steps for the review process and project inspection and monitoring of IEE and EIA as provided by the Federal Act.

In 2010, through the 18th Amendment to the Constitution of the Islamic Republic of Pakistan, 1973, environment became a purely provincial subject, empowering each province to make its own law. In 2012, Punjab adopted the Federal Act with minor amendments, calling it The Punjab Environmental Protection Act, 1997 (the "Punjab Act"). In early 2013, Balochistan also framed its own law—The Balochistan Environmental Protection Act, 2012 (the "Balochistan Act"). The Balochistan Act, while primarily built upon the Federal Act, had some substantial additions and improvements in it over and above the Federal Act. As per the information given by the respective EPA, KP is in the process of framing its own law and the Federal Act continues to be applicable to this province in the interim. Sindh promulgated the Sindh Environment Protection Act in March 2014. In addition to the Acts, at present all the provinces are following the Regulations 2000 and the existing Federal Guidelines.

3.2 Scope of an EIA

Definition of EIA:

Box 3.1 below states the definitions of EIA and IEE given under the Federal Act. The Punjab and Balochistan Acts have adopted the same definitions.

Box 3.1: Section 2 (xi) and (xxiv) respectively of the Pakistan Environment Protection Act, 1997

Environmental Impact Assessment means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed.

Initial environmental examination means a preliminary environmental review of the reasonably foreseeable qualitative and quantitative impacts on the environment of a proposed project to determine whether it is likely to cause an adverse environmental effect for requiring preparation of an environmental impact assessment.

The definition of EIA under the Federal Act provides for the different components/heads of an EIA (scoping), but does not actually explain the purpose of this exercise. It fails to explain when and where the tool is required and what role it is desired to play. Without being clear on the purpose of the tool, it is difficult to prepare a meaningful EIA. On the other hand, the definition of IEE does state where these tools are actually applicable. The definition states that an IEE is undertaken prior to a project to assess if any adverse environment effects might result because of the project and in that case an EIA may be required.

The Department of Environment, UK (1989) defined EIA in a comprehensive manner as *"a technique and a process by which information about environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority in forming the judgment on whether the development should proceed"*. This definition distinctly describes the purpose of EIA, stating that it is a tool to assist the planning authority to decide on whether a development should be undertaken or not. The definition of EIA in Pakistan does not provide where and who will use the resulting report.

Projects Requiring an EIA (Screening)

Section 12 of the Federal and Punjab Acts and § 15 of the Balochistan Act require filing of an EIA for projects that are likely to cause adverse environmental effects. The term "adverse environmental effect" means impairment of, or damage to, the environment and includes: (a) impairment of, or damage to, human health and safety or to biodiversity or property; (b) pollution; and (c) any adverse environmental effect as may be specified in the regulations (§ 2 (i)). Primarily, the statutes require Rules/Regulations to provide for lists of projects requiring an IEE/EIA. As per the requirement of the Statutes, the Regulations 2000 (Regulation 3 and 4, Schedule I and II) list categories of projects requiring either IEE or EIA, which are given below (**See:**Box 3.2).

However, the Balochistan Act has included a few categories of projects within the Act that require an EIA/IEE along with a list under the Regulations 2000. It states that no concession for any developmental activities shall be awarded to any developer without the approval of EPA. Licenses for mining, quarrying and crushing are not be granted without an IEE or an EIA, whichever may be applicable. Section 15 of the Balochistan Act requires approvals from the Balochistan EPA prior to setting up of cellular base transceiver stations (BTS) as well as specific approvals from the relevant building authorities prior to any construction or operation.

Box 3.2: The Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations, 2000, Schedule Iand II

Schedule I Requiring IEE- Regulation 3	Schedule II Requiring EIA-Regulation 4
A. Agriculture, Livestock and Fisheries Poultry, livestock, stud and fish farms with total cost more than Rs.10 million. Projects involving repacking, formulation or warehousing of agricultural products	___
B. Energy Hydroelectric power generation less than 50 MW. Thermal power generation less than 200 KW. Transmission lines less than 11 KV, and large distribution projects. Oil and gas transmission systems. Oil and gas extraction projects, including exploration, production, gathering systems, separation and storage. Waste-to-energy generation projects.	**A. Energy** Hydroelectric power generation over 50 MW. Thermal power generation over 200 MW. Transmission lines (11 KV and above) and grid stations. Nuclear power plants. Petroleum refineries.
C. Manufacturing and processing Ceramics and glass units with total cost more than Rs.50 million. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost less than Rs.100 million. Man-made fibres and resin projects with total cost less than Rs.100 million. Manufacturing of apparel, including dyeing and printing, with total cost more than Rs.25 million. Wood products with total cost more than Rs.25 million	**B. Manufacturing and processing** Cement plants. Chemicals projects. Fertilizer plants. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost of Rs.100 million and above. Industrial estates (including export processing zones). Man-made fibres and resin projects with total cost of Rs.100 million and above. Pesticides (manufacture or formulation). Petrochemicals complexes. Synthetic resins, plastics and man-made fibres, paper and paperboard, paper pulping, plastic products, textiles (except apparel), printing and publishing, paints and dyes, oils and fats and vegetable ghee projects, with total cost more than Rs.10 million. Tanning and leather finishing projects.
D. Mining and mineral processing Commercial extraction of sand, gravel, lime-stone, clay, sulphur and other minerals not included in Schedule II with total cost less than Rs.100 million. Crushing, grinding and separation processes. Smelting plants with total cost less than Rs.50 million.	**C. Mining and mineral processing** Mining and processing of coal, gold, copper, sulphur and precious stones. Mining and processing of major non-ferrous metals, iron and steel rolling. Smelting plants with total cost of Rs.50 million and above.

E. Transport Federal or Provincial highways (except maintenance, rebuilding or reconstruction of existing metalled roads) with total cost less than Rs.50 million. Ports and harbour development for ships less than 500 gross tons.	**D. Transport** Airports. Federal or Provincial highways or major roads (except maintenance, rebuilding or reconstruction of existing roads) with total cost of Rs.50 million and above. Ports and harbour development for ships of 500 gross tons and above. Railway works.
F. Water management, dams, irrigation and flood protection Dams and reservoirs with storage volume less than 50 million cubic meters of surface area less than 8 square kilometres. Irrigation and drainage projects serving less than 15,000 hectares. Small-scale irrigation systems with total cost less than Rs.50 million.	**E. Water management, dams, irrigation and flood protection** Dams and reservoirs with storage volume of 50 million cubic meters and above or surface area of 8 square kilometres and above. Irrigation and drainage projects serving 15,000 hectares and above.
G. Water supply and treatment Water supply schemes and treatment plants with total cost less than Rs.25 million.	**F. Water supply and treatment** Water supply schemes and treatment plants with total cost of Rs.25 million and above.
H. Waste disposal Waste disposal facility for domestic or industrial wastes, with annual capacity of less than 10,000 cubic meters.	**G. Waste Disposal** Waste disposal and/or storage of hazardous or toxic wastes (including landfill sites, incineration of hospital toxic waste). Waste disposal facilities for domestic or industrial wastes, with annual capacity of more than 10,000 cubic meters .
I. Urban development and tourism Housing schemes; Public facilities with significant off-site impacts (*e.g.* hospital wastes). Urban development projects.	**H. Urban development and tourism** Land use studies and urban plans (large cities) Large-scale tourism development projects with total cost of more than Rs.50 million.
_____	**I. Environmentally Sensitive Areas** All projects situated in env. sensitive areas.
J. Other projects Any other project for which filing of an IEE is required by the Federal Agency under sub-regulation (2) of Regulation 5.	**J. Other projects** Any other project for which filing of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5. Any other project likely to cause an adverse environmental effect.

Furthermore, the relevant agency may direct an applicant to file an IEE/EIA even if it does not fall under either of the schedules, where it considers that a project is adversely affecting the environment, on the written recommendations of Environmental Assessment Advisory Committee constituted under the law (Regulation 5). In addition, the courts have held that construction of a multi-storied residential building did not require EIA (PLD 2007 Kar 498) while conversion of land from residential to commercial did require an EIA (2010 YLR 2624 Kar).

The present categorisation needs a thorough technical review. Problems include missing project types, projects in the wrong category and an incorrect threshold between IEE and EIA. For example, renewable energy (solar, wind, etc.), large buildings, and hospitals are not included in any list. Some projects in Schedule I (IEE) can at times have significant impacts because of their size or other reasons and therefore need reviewing for re-classification. Expert views of an Environment and Energy Consultant (Mr. Hidayat Hassan of Hagler Bailley (Pvt.) Ltd.; personal communication) suggest that, for example, cross-country oil and gas pipelines can have significant impacts but are covered by an IEE whereas, they should be covered by an EIA. Similarly, coal-fired power plants even if smaller than 200 MW merit an EIA. This Expert also pointed out that for some types of projects the total project cost is used to determine the size of the EIA. With inflation, the thresholds have changed and in many cases the existing division is meaningless. For example, highways with total cost of Rs. 50 million or less require an IEE. No highway, however small, can be constructed in Rs. 50 million. Modifications to existing projects are often undertaken. The regulations and guidelines do not provide any directions on how to handle environmental assessment of these types of projects. Sometimes, projects change during the course of implementation. Again, the regulations and guidelines are silent on change management.

Moreover, the law is silent with regard to cumulative or clustered growth, *i.e.* setting up of a number of industrial units in close proximity. The law only envisages an EIA of each unit, but does not analyse or calculate the cumulative effect, which could be disastrous in certain cases. The Lahore Tribunal in the Lahore Canal Road case pointed out this issue and observed that the EIA presented was not sufficient and instead of an EIA being prepared for small portions of the road, it should have been done for the entire canal road to provide the correct impact (2008 CLD 1185). This issue is extremely critical in Pakistan as there are no ambient standards for air, water, etc. The Ministry of Environment through the Federal Environmental Protection Agency has laid down the "National Environmental Quality Standards", but these can only be truly effective if ambient standards are in place to check the growth of pollution in an area—something which is lacking in the standards at the moment.

Preparation of an EIA and IEE

The statutes (§ 12 of Federal and Punjab Act and § 15 of the Balochistan Act) stipulate that no proponent of a project shall commence any construction or operation unless it has filed with the relevant agency an IEE and in case a project is likely to cause an adverse environmental effect, an EIA. The requirement is both, for public as well as private proponent's projects.

The present definition of "Project" is:

Box 3.3: Section 2 (xxxv) of Federal Act and Punjab Act and Section 2 (ss) of Balochistan Act.

"….any activity, plan, scheme, proposal or undertaking involving any change in the environment and includes– (a) construction by use of buildings or other works; (b) construction or use of roads or other transport systems; (c) construction or operation of factories or other installations: (d) mineral prospecting, mining, quarrying, stone-crushing, drilling and the like:(e) any change of land use or water use; and (f) alteration, expansion, repair, decommissioning or abandonment of existing buildings or other works, roads or other transport systems, factories or other installations."

Although the definition of "project" includes plans and schemes, one very serious problem with the law is the timing of the carrying out an IEE/EIA. Under the Federal (§ 12) as well as Provincial laws (§ 12 of Punjab Act, § 15 of Balochistan Act) the proponent of a project is required to submit the environmental assessment reports only very late in the scheme of things, *i.e.* prior to commencing of construction or operation of a project and not at the planning stage. Furthermore, the courts have mostly taken a very lenient stance even at the stage of construction and construction is rarely stopped (2006 SCMR 1202); usually it is allowed to continue (2008 SCMR 468 and 2009 CLD 682 Kar.) while also requiring the proponent to submit the EIA.

The law does not provide any criteria, benchmarks or standards for how or who is qualified to prepare IEEs and EIAs and what should be the required content for IEE and EIA reports. However, the definition of EIA does list certain components that are required in an EIA. Furthermore, Regulations 2000 (Regulation 6) state that "*The Federal Agency may issue guidelines for preparation of an IEE or an EIA…",* However, the Regulations 2000 dilute the enforceability of the guidelines by providing "*Where guidelines have been issued ….an IEE or EIA shall be prepared, to the extent practicable, in accordance therewith and the proponent shall justify in the IEE or EIA any departure there from."* Hence, the proponent has the discretion to depart from the guidelines.

The Federal Government prepared guidelines for the Preparation and Review of Environmental Reports in 1997. The scope of these guidelines is confined to those aspects of environmental report preparation that are general in nature and for the sector specific guidelines, the federal and provincial governments prepared many sectoral guidelines (details are given below in Box3.5).

The guidelines for the Preparation and Review of Environmental Reports provide details of the contents that are to be included in IEE/EIA reports (Box 3.4) as well as the drafting style of the report. The guidelines require the proponents to prepare a "non-technical executive summary" of the report, realizing that this is the part of the report that most people will read. However, they fail to define who is competent to prepare the IEE/EIA. For this very reason, even though the guidelines are quite comprehensive, the end result might not be very effective due to the incompetency of the person making the report (Faisal, 2006). Examination of most of the EIAs (EIA of remodelling of Canal Bank Road (Dharampura underpass to Canal View Bridge) (2007); EIA of Bus Rapid Transit System

in Lahore along Ferozepur Road (2012)) clearly establishes that the exercise is taken as a mere formality, and the purpose for taking up this exercise is not achieved (Faisal, 2006). For example, considering all alternatives at the planning stage is one of the core requirements provided in the guidelines. However, alternatives considered in almost all the EIAs are meaningless, taking a narrow view (Faisal, 2006) and without considering the purpose of the project and its objectives (§ 4) "alternatives" in EIA of remodelling of Canal Bank Road (Dharampura underpass to Canal View Bridge) (2007); § 3.4 "project alternatives' in EIA of Bus Rapid Transit System in Lahore along Ferozepur Road (2012). The issue persists and becomes more serious due to weaknesses at the monitoring stage (discussed below).

Box 3.4: Contents of the EIA report

Description of the project - type and objectives; location; cost and magnitude; schedule for implementation; rest and recreation plans; government approvals.
Alternatives considered - demand alternatives; activity alternatives; location alternatives; process alternatives; input alternatives.
Description of the environment - physical and ecological resources; human and economic development; quality of life values.
Potential environment impacts - baseline data collection to understand impacts on-biophysical impacts; social impacts; health impacts; economic impacts and impact analyses and predictions.
Mitigating measures - purpose of mitigation measures; ways of achieving mitigation.
Environment Management Plan (EMP) - schedule for implementing mitigation measures; list of persons responsible for mitigation; monitoring programme; reporting and reviewing procedure; training needs.
Conclusion - IEE report must also include a conclusion whether environmental impacts exist requiring an EIA.
Non-technical executive summary - title and location of the proposal; name of the proponent; name of organisation preparing the environment report; brief outline of the proposal; major impacts; mitigation measures; proposed monitoring.
Appendices - glossary; abbreviations; TORs; summary of management of environmental study process including public involvement and list of persons and agencies consulted; sources of data and information; details of members carrying out the study.

Apart from the general guidelines for preparing IEE/EIA reports, the Federal Government, KP and Balochistan have also developed sectoral guidelines for preparing EIA reports (**See**:Box 3.5). Sectoral guidelines by the Federal Government are applicable to all provinces. These guidelines lay down sector wise requirements for preparing environment assessment reports.

Box 3.5: List of sectoral guidelines

Federal Guidelines

Environmentally Sensitive and Critical Areas
Major Thermal Power Stations
Major Chemical and Manufacturing Plants
Housing States and New Town Development
Industrial States
Major Roads
Sewage Schemes

Oil and Gas Exploration and Production
Wind Power Projects
Using Tyre Derived Fuel (TDF) in cement industry
Using Refuse Derived Fuel (RDF) in cement industry
KP Guidelines
Brick kiln units
Construction/expansion of bus terminals
Carpet manufacturing units
Canal cleaning
Flour mills
Forest harvesting operations
Forest road construction
Housing schemes
Marble units
Petrol and CNG stations
Poultry farms
Rural schools and basic health units
Sanitation schemes
Sound plantation
Stone crushing units
Tourist facilities in ecologically sensitive areas
Tube-well construction for agriculture
Urban areas road construction
Water courses construction and lining
Water reservoirs in arid zones
Water supply schemes
Solid waste management
Balochistan Guidelines
Dairy farms and slaughter houses

Preparation of an EIA is entirely at the proponents' discretion with some recommendations through the various guidelines stated above. However, there is leverage provided under the Regulations 2000 to bypass some of the guideline requirements. The Regulations 2000 (Regulation 6) only state that where guidelines have been issued, an IEE or EIA shall be prepared, to the extent practicable in accordance to those guidelines (Nadeem and Hameed 2006), *i.e.* the proponent can in fact bypass these requirements.

As stated above, lack of clarity on how EIA and IEE are to be prepared is a major lacuna in the law. The law does not specify who has to prepare the EIA or IEE, how it is to be prepared, within what timelines it is to be prepared and who the necessary stakeholders are in its preparation process. There is no public participation at this stage for framing of issues to be dealt with in the EIA. Furthermore, operating merely through non-binding guidelines is inefficient and is unlikely to achieve much. A practical analysis of the situation reaffirms this presumption that practically EIAs do not follow the parameters provided in various guidelines.

What is also missing from the law is any punishment or penalty for non-compliance with these guidelines. It is impossible to ensure compliance with rules/regulations/guidelines for the failure to meet which the law does not provide a penalty for.

Process of an EIA

Box 3.5-A: Stepwise EIA process

Under the present laws the process of environmental assessment starts with the proponent filing either an IEE or EIA as the case may be, before construction or operation of a project (§ 12 of the Federal and Punjab Act and § 15 of the Balochistan Act). In case of an IEE the relevant agency after reviewing/screening of the report shall decide on whether any further investigation is required in the form of EIA.

In case an EIA is required, the proponent is directed to submit the same before construction of the project. On receiving the EIA, the government agency scrutinises the documents and satisfaction of completeness of documents (Regulation 9).

The government agency then gives notice of the public hearing (Regulation 10). At this stage the report may also be sent to the honourary advisory committee if constituted (Regulation 10). Once comments from both, the public hearing and advisory committee are received, the government agency will review the report in the light of the comments and make its final decision (Regulation 10).

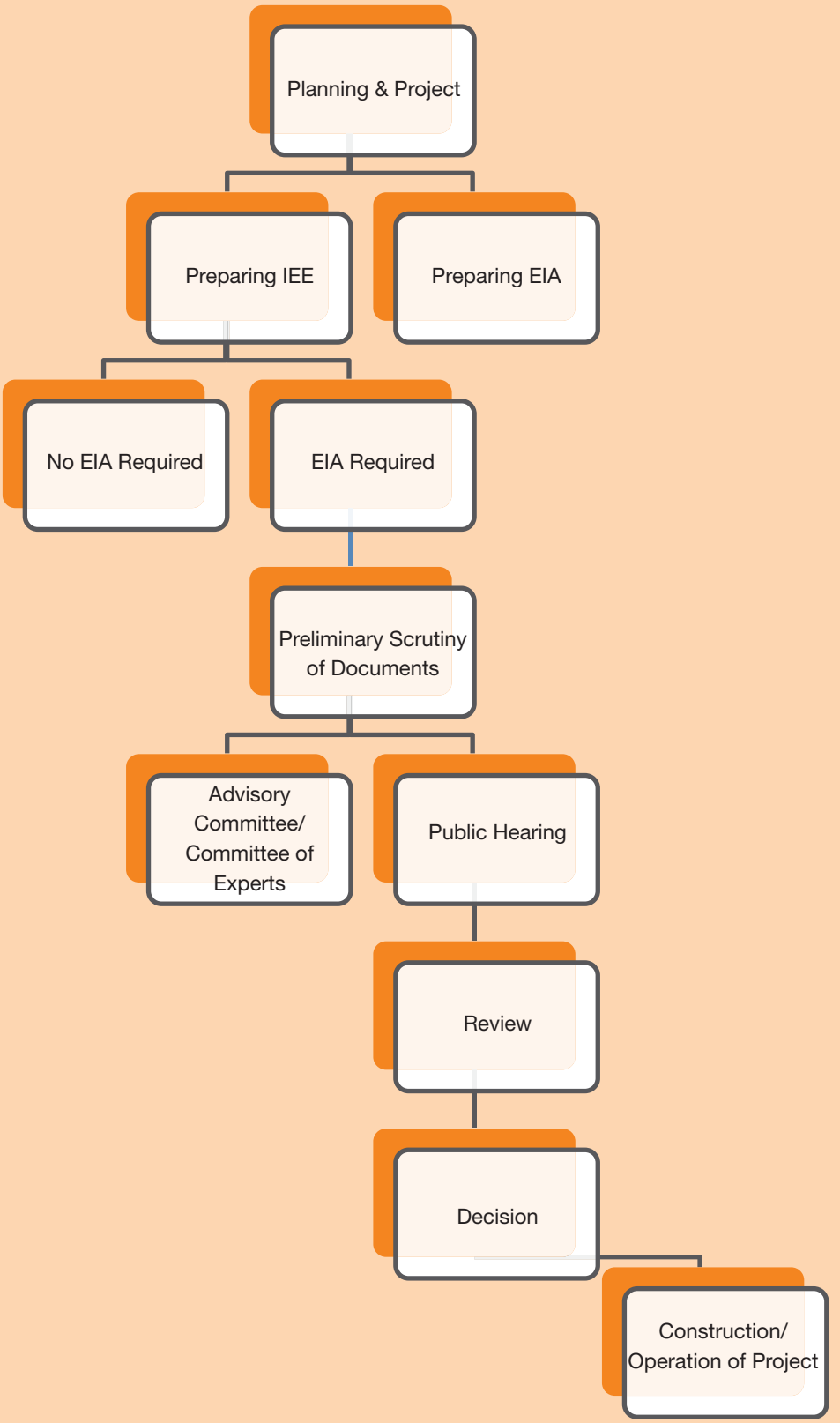
In case of accepting the EIA and allowing construction, specific conditions enumerated in the Environmental Master Plan approved under the EIA needs to be taken into account. Otherwise, commencement of the project could be rejected (Regulations 13 and 14). Where the reviewing body fails to give its decision within a period of four months the EIA will be "deemed to be approved" (Regulation 15).

3.3 Administrative Institutional Structure

Review and Approval Authority for IEE/EIA

As per law, the relevant body that is to review the EIA is the Government Agency (GA). The GA in turn is defined as the division, department, attached department, bureau, section, commission, board office or the unit of the federal or provincial government; a development or local authority or a company controlled or established by government; Provincial Environmental Agency or any other body (§ 2 (xvii)). In practice before devolution of the environment to provinces, Provincial EPAs were entrusted to review EIAs for projects in provinces and projects shared by more than one province or in federal areas were reviewed by the federal EPA. The Balochistan Act has made substantial amendments in this structure and has further devolved the power at district/regional level and now there can be district agencies along with a provincial EPA (§ 8). The Director General (DG) (Deputy Director in case of Balochistan) (§ 8) of EPA, appointed by the relevant Federal or Provincial Government, heads the EPAs and all powers, including reviewing of IEE/EIAs vest with the DG/ Deputy Director appointed. The DG/Deputy Director has the power to delegate his powers to other personnel within the EPA on a case-to-case basis. In practice, each province has its own structure that is examining the IEE/EIAs submitted to the EPA. For example, as per the information received from the Punjab EPA, in Punjab there is a Director for EIA along with a Deputy Director and two Assistant Directors who are assigned to review the reports.

Figure 3.1: EIA process in Pakistan



The Law only envisages the post of DG/Deputy Director and all other appointments are to be made on the basis of need and for enforcement and implementation of the law. This is a serious institutional gap in the law as it fails to provide a substantial institutional structure. The DG/Deputy Director is the sole authority empowered to handle all environmental issues stipulated under the law, including the review of IEEs/EIAs. The law neither specifies the qualifications of the DG/Deputy Director empowered to review technical matters (Faisal), nor does it provide for any tenure of the DG. It only envisages hiring of additional administrative, technical and legal staff on the recommendation of the relevant government and even for such hiring, no parameters are provided (§s 5 and 8 of statutes). Staff at the EPAs do not appear to be tenured either, since there is no process for the hiring of staff.

If we look at the example of the province of Punjab, which is the most populous province, housing 55% of the total population of the country on a land area of 205,344 km^2, there are only 4 persons reviewing IEEs/EIAs as mentioned above and even these four are not exclusively dealing with IEEs/EIAs. As per the information received from the Punjab EPA, they are also responsible for other matters. There is no job description for any employee creating lack of clarity regarding each job, which leads to inefficiencies. The data provided by the Punjab EPA shows that a large number of IEEs and EIAs are filed each year and looking at this number, one can safely assume that it is impossible to critically analyse all the necessary documents by the existing staff of four (**See**:Box 6)**.** In spite of being the most populous province leading to a large number of projects requiring EIAs, Punjab has kept the power centralized as compared to Balochistan where the provincial law has devolved the powers to the regional/district levels (§ 8 of Balochistan Act). Furthermore the data below show that, in the past 5 years, less than 1% of EIAs were rejected, also establishing the same contention *i.e.* the review process is a mere formality.

Box 3.6: EIAs/IEEs submitted each year before Punjab Environmental Agency

Sr. #	Year (01 January to 31 December)	EIAs	Approved	Rejected	IEEs	Approved	Rejected
1	2012 (till Sept.)	106	29	—	730	348	—
2	2011	94	61	01	842	590	02
3	2010	73	51	—	565	437	15
4	2009	63	50	02	189	163	—
5	2008	78	62	—	176	147	01

The information gathered for other provinces show similar problems. The number of EIAs is very small when compared to the size and development programmes taking place in each province. As is the case in Punjab, there are very few EIAs that are being rejected, establishing that EIA review is a mere formality and critical review and scrutiny is missing.

3.4 Committees

The Regulations 2000 envisage various committees that the reviewing body may consult while reviewing an IEE or EIA (Regulation 11). The first such committee is the "Committee of Experts" that the DG may constitute for facilitating the reviewing body and in case any such committee is constituted, the reviewing body shall consult it.

The Federal and Provincial Governments are also supposed to establish various "Sectoral Advisory Committees" consisting of eminent experts, educationists and NGOs for assisting the relevant EPAs (Regulations 5 and 8). The Regulations 2000 state that if such advisory committees are constituted, the reviewing body may also solicit their views while making decisions on IEE/EIAs (Regulation 11).

Another committee provided by the Regulations 2000 is the Inspection Committee that the DG may constitute to inspect the site of the project. The Regulations 2000 further state that the review of an IEE/EIA shall be based on, among other things, views of the above-mentioned committees (Regulation 11).

Finally, the Regulations 2000 state that the DG shall constitute an Environmental Assessment Advisory Committee for the purposes of rendering advice on all aspects of environmental assessment, including guidelines, procedures and categorization of projects. The Regulations 2000 also provide the constitution of this particular committee—*i.e.* the DG Federal EPA; one member from each provincial EPA; representatives of Federal Planning Commission and Provincial Planning and Development Departments; and, representatives of the industry, NGOs as well as legal and other experts (Regulation 23).

Although there are a number of committees provided in the law, it is not a mandatory requirement to engage such committees (Nadeem and Hameed, 2006). Furthermore, necessary details such as how these committees are to be constituted, the qualifications of committee members, their tenure, remuneration and other aspects are missing. This gap renders the whole concept of "engaging with experts" for various aspects of an IEE/EIA meaningless. The law fails to institutionalise the idea of expert committees and this weakness is reflected in practice.

The Deputy Director EIA at the Punjab EPA stated that, depending upon the complexity of an EIA, the EPA may decide to constitute a committee of experts. However, it is not a mandatory body for EIA review. It is also pointed out that generally speaking when an EPA has appointed or engaged any experts, it failed to get their meaningful assistance because of various reasons primarily because the EPA has limited resources and there is no allocation of funds for hiring experts, hence, there are few incentives for independent experts to facilitate the EPA (Faisal, 2006).

Monitoring

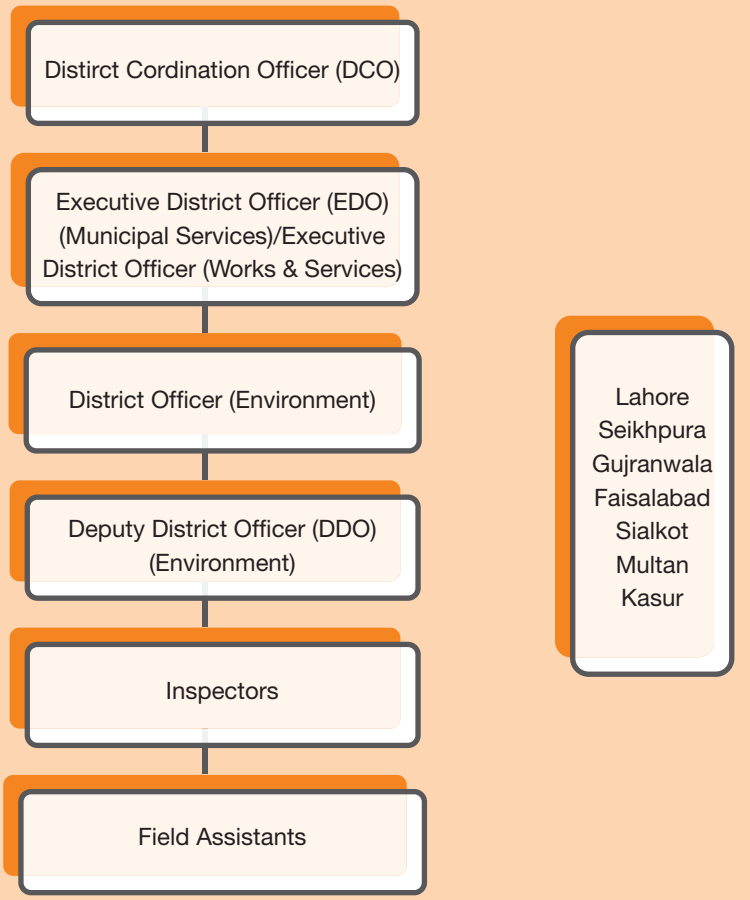
After approval of an EIA and before commencing operation of the project, the proponent has to inform the Provincial EPA that all conditions of approval have been complied with

and submit its Environmental Management Plan (EMP), indicating mitigating measures to be taken along with compliance documents (Regulation 14). At this point the federal agency may carry out such inspection of the site and seek such additional information as it may deem fit (Regulation 14).

On completion of construction of the project, the proponent shall submit another report of completion with the Provincial EPA and subsequently submit annual reports regarding operational performance of the project with reference to the conditions of approval and maintenance and mitigating measures adopted by the project (Regulation 19).

The Provincial EPA is empowered to cancel approval on the basis of information regarding non-compliance received from any source or through inspection of the site and project when it is of the opinion that the conditions undertaken in EIA are not being met, after giving a fair opportunity to the proponent to justify why its approval should not be cancelled (Regulation 20).

Figure 3.2: Institutional Monitoring Structure



The Provincial EPA may carry out inspection of the site and the plan prior to, during construction and operation phase through duly authorised personnel (Regulation 18) and shall be entitled to enter and inspect the project site, factory etc. The proponent shall ensure full co-operation at site to facilitate the inspection (Regulation 18).

The proponents are required to monitor their environmental performance and keep an environmental log as per the conditions accorded in the Environmental Approval. Furthermore, in practice the District wise setup operating under the EPA is required to undertake field monitoring. As per the representatives of the Punjab EPA, the responsibility for this lies with the District Officer Environment (DOE) to constitute and supervise a monitoring team.

3.5 Monitoring Structure

The law places heavy emphasis on project proponents to keep the EPAs informed regarding compliance with the conditions provided in the EIA. The proponent is to report to the EPA and to provide accurate information. What should be the parameters, nature, format and extent of these reports is not specified in the law. Furthermore, the law does not provide for strict and substantial timelines during the construction period and annual reports are only required from the proponents after completion of the project. There is no specific penalty for not complying with the reporting requirements under the law. An Environmental Protection Order (EPO) may be issued, but in practice it is rarely done.

Another serious gap in the law is the lack of institutional structure and mechanism for post approval monitoring. The law, as stated above, primarily relies on self-reporting of the proponent and does not specify who, under the Provincial EPA, is empowered to inspect, what should be its process and parameters. In a way, the entire concept of monitoring is missing from the law. Furthermore, there is no compulsion on the proponent to report and to implement the conditions committed to under EIA approval. Without a strong monitoring regime, the whole EIA process becomes questionable. As stated by the Punjab EPA, in practice, local government assists it, however, it is an *ad hoc* arrangement without any laid down rules and procedures.

Public Participation

The law recognizes public participation at the time of review of an EIA (§s 12 and 15 of the Federal/Punjab Act and Balochistan Act respectively read with Regulation 10 of the Regulations.). On receiving a completed EIA report, the provincial agency issues a confirmation of completion to the proponent and gives a public notice in Urdu and English local newspapers, giving details regarding type of project, its exact location, the name and address of the proponent, and giving at least a 30 day notice of EIA review. The public participation elements of the IEE/EIA rules could be strengthened considerably. There are several issues concerning public participation, which can be divided into three sections: screening, scoping; response to comments; and minimum binding standards.

Screening and Scoping

According to Regulation 10 of the Regulations 2000, public participation in the EIA process does not begin until an EIA report is submitted to the provincial agency. There are two issues that arise with this provision. Firstly, the rules completely eliminate public participation in the preparation and review of IEEs (Screening) and secondly, the public has no notice of the proposed activity or project, and no opportunity to participate and express their views, until after the EIA is prepared (Scoping) (Faisal, 2006). Engaging the public at this point is much too late in the process.

As stated above there is no public involvement at IEE level (screening) and the law simply provides a list of projects requiring IEE and EIA as mentioned above bypassing any public participation. Furthermore, public involvement at the beginning of the EIA process is commonly known as "scoping." This is a key stage for informing the public about a proposed activity and framing issues that will be discussed in the environmental report. This step is often combined with the process for determining the terms of reference for the report.

As described by Fischer and Nadeem (2013, 71-72) "Scoping is the EIA stage at which issues, impacts and preliminary alternatives are determined that should be addressed at subsequent stages. It directly follows the screening stage and is a systematic exercise that establishes the boundaries and Terms of Reference (ToR) for the EIA. A quality scoping study reduces the risk of including inappropriate components or excluding components which should be addressed. It helps to avoid the problem of unfocused, voluminous reports and the attendant delay while their deficiencies are addressed and corrected. Scoping helps to make sure that resources are targeted on collecting the information necessary for decision-making and that they are not wasted on undertaking excessive analysis."

Scoping is entirely absent from the process of IEE and EIA under the present laws, significantly affecting the quality of IEEs and EIAs. A good example of a scoping process is contained in §s 27 and 28 of South Africa's EIA regulations. In the said regime, after submitting an application for development permission or other activity that requires preparation of an EIA, the EIA consultant must conduct a public participation process to solicit comments concerning:

1) General issues about the proposed activity;

2) Potential environmental impacts of the proposed activity; and

3) Possible alternatives to the proposed activity that are feasible and reasonable.

The EIA consultant must prepare a "scoping report" which, among other things, summarizes the issues raised during scoping, and provides details about the public participation process and the comments received. Members of the public who participated in the scoping process are entitled to review and comment on the scoping report before it is submitted to the government authority. The scoping report is then used to identify issues that will be evaluated in the EIA report.

Response to Comments
Regulations 2000 (Regulation 10) state that all comments received by the Government Agency shall be "collated, tabulated and duly considered" before rendering a decision. However, the Regulations 2000 do not provide any procedure or process as to how these are to be tabulated, nor is there any requirement for government agencies to provide written comments.

Minimum, Binding Standards for Public Participation
The Regulations 2000 briefly discuss public participation and primarily address how notice of the availability of an EIA is to be published. The Regulations 2000 do not provide any uniform or binding standards governing the public participation process, nor does the Regulations 2000 ensure that interested and affected individuals and organisations are effectively notified of proposed activities and afforded ample opportunity to become involved in the decision-making process.

The Pakistan Environmental Protection Agency, through its website, has published a set of guidelines for public participation which provide minimum requirements but are not binding under the law. The current system gives project proponents and government authorities too much discretion, and poses a risk that the public will be arbitrarily shut out of important and/or controversial decisions. Justice and Environment, a network of European Environmental Law Organisations, has published a "Good Examples of EIA and SEA Regulation and Practice in Five European Union Countries, 2008", § 1.4 whereof providing a good outline of best practices in public participation.

Decision
Currently, the Regulations 2000 do not require the Provincial Authority to inform the public of its final decision concerning a proposed project or activity. The decision is communicated solely to the project proponent (Regulation 12).

3.6 Enforcement

Administrative Measures
Under the law, Environmental Agencies have the power to impose an Environmental Protection Order (EPO) (§s 16 and 24 of the statutes) against violation of provisions of the Act, rules, regulations or of the conditions of licence, which are likely to cause, is causing or has caused an adverse environmental effect. After giving a project proponent an opportunity to be heard, the Provincial Agency may take measures to control the adverse environmental effects as follows:

- immediate stoppage, prevention, lessening or controlling the discharge, emission, disposal, handling, act or omission, or to minimise or remedy the adverse environmental effect;
- installation, replacement or alteration of any equipment or thing to eliminate or control or abate on a permanent or temporary basis, such discharge, emission, disposal, handling, act or omission;
- action to remove or otherwise dispose of the effluent, waste, air pollutant, noise, or hazardous substances; and

- action to restore the environment to the condition existing prior to such discharge, disposal, handling, act or omission, or as close to such condition as may be reasonable in the circumstances, to the satisfaction of the Provincial Agency.

If the proponent fails to take action, as per the direction of the EPO, the provincial agency can do the same on its behalf and charge the person the cost of doing the same.

EPOs are a potent deterrent available with the relevant agencies if applied efficiently. However, very few, if any, EPOs have been issued against violation of proper implementation of IEE/EIA (Deputy Director EIA, Punjab). The law further specifies action if the directions given under EPO are not followed. In this case the provincial agencies may file a case against the proponent before the Environmental Tribunal.

In addition to an EPO, the provincial Agency also has the power to impose administrative penalties in the form of fines (§s 17 and 25) upon the responsible person for any omission or violation in implementing the provisions and conditions of IEE or EIA. To date penalty provisions have not been used, due to the lack of rules and procedures to impose them. However, in April 2013, the Punjab Government formulated the Punjab Environmental Protection (Administrative Penalty) Rules, 2013, but by May 2014, they were still to be implemented.

Environmental Tribunals

Non- compliance to file an IEE/EIA is an offence under the Federal Act punishable with a fine, which may extend to one million rupees and in case of continuing contravention, with an additional fine, which may extend to one hundred thousand rupees for every day during which such contravention continues (§ 17 of the Federal Law). Furthermore, second-time offenders may be imprisoned for a term that may extend to two years; their development (*e.g.* a factory) may be closed; machinery, equipment, vehicles, materials, substances, records and documents may be confiscated; orders to restore the environment may be given; and order to pay damages for any loss, bodily injury, damage to health and property may also be passed (§ 17). The Balochistan Act has adopted exactly the same provisions (§ 25). The Punjab Act has enhanced the fines from one million to five million and for continuing offence the fine is enhanced to five hundred thousand rupees for every day during which such contravention continues (§ 17) and the rest is the same as the Federal Act.

The law also recognizes personal liability of directors, partners, managers, secretaries and other officers of a corporate body where non-compliance is done with their consent, or is attributed to any negligence on their part and assumes that the responsible person shall be deemed guilty of such non-compliance along with the corporate body and shall be punished accordingly (§s 18 and 26). In the same manner the heads or officers of government bodies shall be punished where non-compliance occurs with their consent, or is attributed to any negligence on their part (§s 1927).

The Federal Act, Punjab Act and Balochistan Act all establish Environmental Tribunals and Environmental Magistrates to exclusively try offences under these Acts. Non-compliance to file an IEE/EIA is an offence exclusively triable by an Environmental

Tribunal (§s 21 and 29). The Environmental Tribunal can take cognisance of an offence only on written complaint of an EPA or any other government agency or local council aggrieved person.

The law does not provide for punishments that are true deterrents. For first-time offenders especially, only fines are imposed and anyone can carry on with the offence as long as nominal fines are being paid continuously. This is seriously problematic where bad projects are started without complying with the requirements of IEE/EIA, since once a project is completed there is no turning back unless the whole project is scrapped.

Another serious issue is the expertise, understanding and capacity of the Tribunals. There is not a single case in which any of the tribunals have discussed and laid down a jurisprudential principal in any matter including matters relating to IEE and EIA. It is interesting to note that in some cases projects were set up and functional prior to the Acts or the Regulations but the factories are fined in some cases; in others ordered to prepare an EIA after years of construction (2011 CLD 1271 Kar and 2011 CLD1295).

3.7 Conclusions and Recommendations

This chapter has demonstrated that the laws governing EIA regime are weak on multiple levels. However, the most central is an almost non-existent functioning institutional setup that leads to all other problems, including implementation complications. Constitution, expertise and human and financial resources of the EPAs are at the heart of the problem which leads to all other issues. Unfortunately, the recent provincial laws have failed to recognise and address this concern so far. Punjab, where most of the development projects are taking place, has adopted exactly the same structure as the 1997 Federal Act. An encouraging step in the right direction is the amendment in the Balochistan Act where EPAs are devolved to district level. However, the recently drafted provincial laws *i.e.* Punjab and Balochistan Acts fail to provide a comprehensive structure of the EPAs with clear-cut qualifications and responsibilities as far as the human resource is concerned. Furthermore, the EPAs are not given independence in raising funds for themselves and are still dependent on whatever is allocated to them. Any desire to improve the EIA mechanism in Pakistan cannot be achieved unless the overseeing body is qualified, competent, resourceful and financially and politically independent. Although there are other serious issues, this would be the first step in the right direction.

To make the IEE/EIA process more meaningful and potent, it is essential to amend the law in the following areas:

- The definition of EIA needs to be amended in the light of the more comprehensive international definitions in order to clearly specify the objectives and rationale for carrying out these exercises.
- The existing Schedules need to be revised with the assistance of technical experts. In order to make the schedules more holistic, such revision must be done with regard to two parameters;- to include in the list of IEE/EIA all other technologies which may have adverse environmental impact; and to enhance monetary benchmarks to make the thresholds more meaningful.

- The regulations should provide for periodical revisions of schedules to meet the changes of time.
- The Acts and Regulation 2000 need to recognise and separately deal with "cluster growths" to require proponents to provide assessment on cumulative effects of clusters instead of individual effects.
- It is important to amend the Acts and Regulations to require proponents to submit IEE/EIA at the planning stage of a project instead of construction stage.
- It is important that a list of approved consultants who are qualified with appropriate experience is made. The list should be included in a schedule attached with the Regulations 2002. All EIAs to be carried out by these approved consultants only.
- The approved consultants should be made personally liable for any negligence or misinformation provided in the report. In case of any grave negligence or misconduct the consultant may be black-listed.
- It is important to introduce a comprehensive institutional structure for reviewing and monitoring of IEEs/EIAs for better implementation of EIA at every stage. The reviewing body needs to have technical expertise/experience to be able to critically analyse EIAs and the monitoring body should have a detailed manual to inspect each detail according to the manual and to report in a more structured manner. Additionally, monitoring through third party auditing and public scrutiny must be included in the law.
- The Regulations 2000 need to be amended and a proper structure for Committee of experts, and other committees for reviewing purposes must be provided, details such as their remuneration, qualification, hiring process, their working and decision-making process, etc.
- The Acts and Regulations 2000 may be amended to make public participation mandatory at screening, scoping and reviewing stages of an IEE/EIA.
- To make public participation more meaningful, the Regulations 2000 may be amended to provide a formal structure for public participation. Requiring a minimum quorum and at least representation of one NGO from development sector to be present. Moreover, the comments/decision of the reviewing body must respond to the comments/concerns raised by the Committees and the public.
- For better enforcement of EIAs it is important to restructure Environmental Tribunals to bring them within the domain of the mainstream judicial system for better implementation. It is also important to train the judiciary, especially the Tribunal judges, in environmental laws with special focus on tools used for accessing environmental impacts for appropriate interpretation of the law.
- For meaningful implementation of IEE/EIAs, it is important to promulgate ambient standards.

Case Law:

2006 SCMR 1202 Sheri-CBE Versus Lahore Development Authority
PLD 2007 Kar 498 Shamsul Arfin Versus Karachi Building Control Authority
2008 SCMR 468 Farooq Hamid Versus Lahore Development Authority
2008 CLD 1185 Sumaira Awan Versus Government of Pakistan
2009 CLD 682 (Kar.) Ms. Salma Iqbal Chundrigar Versus Federation of Pakistan
2010 YLR 2624 Nighat Jamal Versus Province of Punjab
2011 CLD 1271 Sindh Particle Board Mills Ltd. Versus EPA—Sindh
2011 CLD 1295 Lafarge Pakistan Cement Company Versus DG EPA

4 EIA Teaching at Tertiary Level Institutions in Pakistan – Baseline and Development Needs

Thomas B Fischer, Ahmad Saeed, Bobbi Schijf and Muhammad Irfan Khan

This chapter presents some of the results of the National Impact Assessment Programme (NIAP) Pakistan assignment on the 'Development of EIA curricula for tertiary level academic and public administrations', focusing on baseline data collection exercises connected with two workshops which took place in Islamabad in September and November 2012. Based on these, tertiary level development needs were established. While some of the findings and suggestions from other professional authors are confirmed, there are some aspects emerging that are specific to Pakistan, in particular, with regard to the consideration of specific cultural aspects. The results of the surveys presented have led to the development of the EIA curriculum for higher education institutions in Pakistan (http://www.niap.pk/docs/Knowledge%20Repository/Reports/Draft%20EIA%20Curriculum%20for%20Tertiary%20Level%20Institutions%20in%20Pakistan.pdf) and this handbook.

4.1 Introduction

In Pakistan, EIA teaching has taken place for over two decades and many of those involved in it have suggested that there is a need to reflect on experiences and practices in terms of strengths and weaknesses, opportunities and challenges. It is within this context that NIAP had been conducting a review of EIA teaching at tertiary level academic institutions in Pakistan. Based on a basic survey of those 74 institutions that are currently offering tertiary level degree programmes in Pakistan, 33 were found to teach EIA in various undergraduate or postgraduate courses, almost entirely within environmental science and engineering faculties and departments[2]. Not all of the courses are fully dedicated to EIA, though, and none of the institutions is currently offering a specific EIA degree programme.

1 Internationally, whilst EIA teaching is also mostly happening in Science and Engineering related departments / faculties, (Sanchez and Morrison Saunders 2010; Fischer et al 2008), there is a significant share of social science related EIA education. In the EU, for example, Fischer and Jha-Thakur (2013) found that about 30% of EIA master level degree programmes were offered in planning / management / geography / other social science departments / faculties. Furthermore, the share of degree programmes offered in an interdisciplinary set-up was 8%.

This chapter presents some of the findings of a number of dedicated workshops in Islamabad, held between 2011 and 2013. While in this context, a total of seven data collection exercises took place, the main focus here is on three exercises, namely (1) a pre-workshop questionnaire survey with twenty representatives of tertiary level education institutions; (2) an anonymous survey, which was conducted using an audience response system (Genee World) to which 21 workshop participants contributed; and (3) group work conducted during one of the workshops.

4.2 Pre-workshop Questionnaire Results

The pre-workshop survey revolved around questions on the extent to which EIA was taught, the teaching techniques used, the topics covered and the teaching materials used (*e.g.* textbooks and other sources). Of the twenty representatives of tertiary level education institutions that were contacted, seveteen responded, *i.e.* the response rate is 85%. These represented sixteen public institutions (universities).

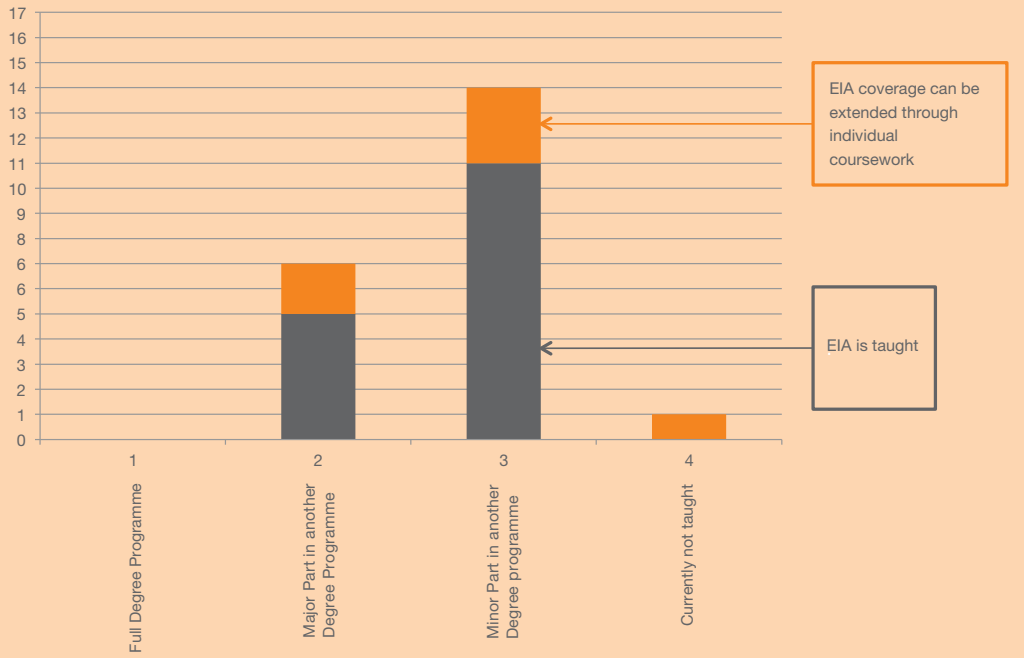
The sixteen institutions were found to offer 30 degree programmes in which EIA was taught (four were offering three related degree programmes, six were offering two and another six were offering one related degree programme). Fifteen programmes were of an undergraduate and fifteen of a post-graduate nature. In total, 35 courses were identified that were fully or partly dedicated to EIA. Of these, 29 had three credit-hours (one credit-hour is the equivalent of one classroom contact hour over a sixteen week teaching semester[3]), four had four credit-hours and one had two credit-hours. Furthermore, one course was offered, in which the EIA part was said to represent less than one credit-hour. Only some respondents specified the split between theoretical (*i.e.* lecture-based) and practical (*i.e.* active student) work within the modules. Of those courses that were specified, nine were found to be of a two-one credit-hour nature (*i.e.* two theory and one practical related credit hours), four of a 3+0 (*i.e.* no practical element), three of a 3+1 and one of a 2+0 nature. Most post-graduate degree programmes lasted two years (one each also lasted one, two and a half and three years). All undergraduate degree programmes lasted for four years.

Regarding the extent of EIA teaching in the 35 courses (**See:** Figure 4.1), in eleven institutions EIA was said to be covered in one course only in any one programme and in five institutions EIA was said to be covered in more than one course, usually two. Moreover, in one institution EIA was said to be dealt with in six 50-minute lectures. Representatives of six institutions said that EIA coverage can be extended further through *e.g.* specific individual coursework or related dissertations.

Eleven institutions were offering EIA related courses in both, undergraduate and postgraduate degree programmes. Furthermore, three institutions each were either offering a post- or an undergraduate degree only in which EIA related courses were offered. While in undergraduate degree programmes, EIA courses were taught mostly in course years 3 and 4, there was no clear pattern emerging for post-graduate degree programmes.

3 A three credit hour module makes up about one-tenth of a 2-year post-graduate programme of 30 credit-hours or one-fortieth of a 4-year undergraduate degree programme of 130-136 credit-hours.

Figure 4.1: Extent of EIA teaching in seventeen institutions



Representatives of six institutions said that EIA coverage could be extended further through *e.g.* specific individual coursework or related dissertations. While in undergraduate degree programmes, EIA courses were taught mostly in course years 3 and 4, there was no clear pattern emerging for post-graduate degree programmes. It is important that literally all institutions followed requirements formulated by the Higher Education Commission (HEC) of Pakistan.

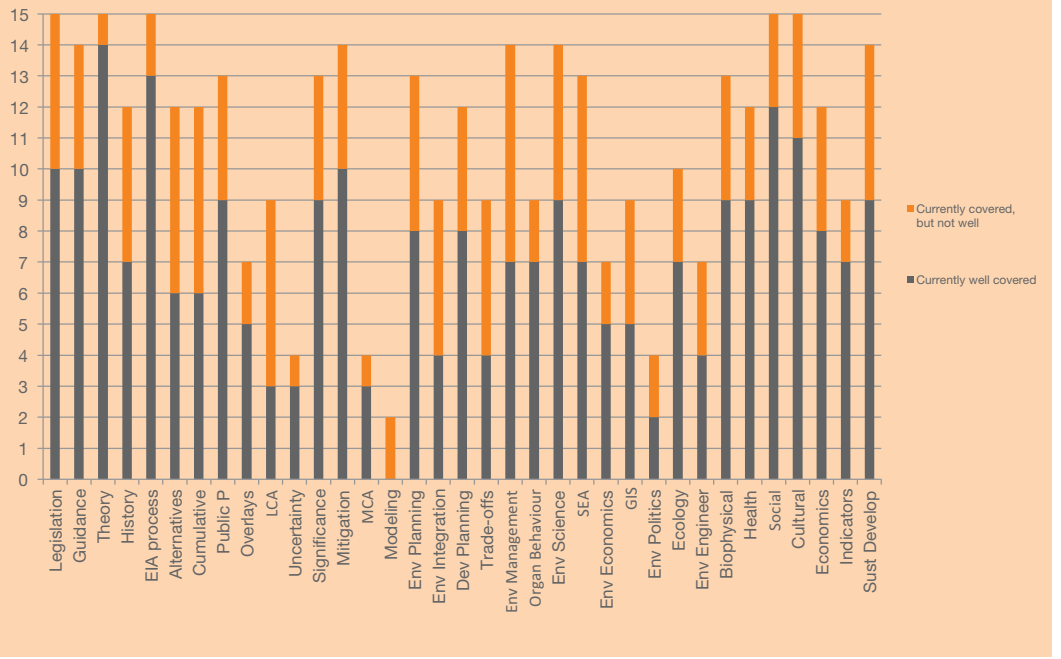
The pre-workshop survey also looked at the extent to which a total of 35 EIA related topics were covered in current EIA teaching (compiled from Sanchez and Morrison-Saunders (2010) and Fischer *et al.* , (2008)). Here, respondents were asked whether topics were (1) well covered, and (2) covered, but not well. Figure 4.2 displays the results.

All institutions covered 'legislation', 'theory', 'process', 'social' and 'cultural' issues, even though some said they were not covered well. Topics that were covered in at least thirteen of the sixteen institutions (*i.e.* 80%) included 'guidance', 'history of EIA', 'alternatives', 'cumulative impacts', 'public participation', 'impact significance', 'mitigation', 'environmental planning', 'environmental management', 'environmental science', 'SEA', 'bio-physical aspects', 'health aspects', 'economic aspects' and 'sustainable development'. Again, while all of these aspects were covered, quite a few were thought to be not covered well (in the cases of 'alternatives', 'cumulative impacts' and 'SEA' nearly half of the respondents said this was the case). On the other hand, seven or fewer institutions (*i.e.* less than about 40%) covered 'overlay mapping', 'uncertainty', 'multi-criteria analysis', 'environmental economics', environmental engineering' and 'modelling'. Regarding the latter, none said the topic was covered well,

and only two said this was covered at all. Topics that were covered by between 40% and 80% of the institutions included 'life-cycle assessment', 'environmental integration', development planning', 'dealing with trade-offs', 'organisational behaviour', 'environmental economics', 'GIS' and 'indicators'.

What is somewhat surprising about these findings is that quite a few of what are more technical issues (*e.g.* specific prediction techniques) were covered less well than what might be expected from science and engineering departments/faculties. While it might be the case that some technical knowledge is taught in other courses, there is undoubtedly a need to make connections with what might be taught elsewhere and EIA clear.

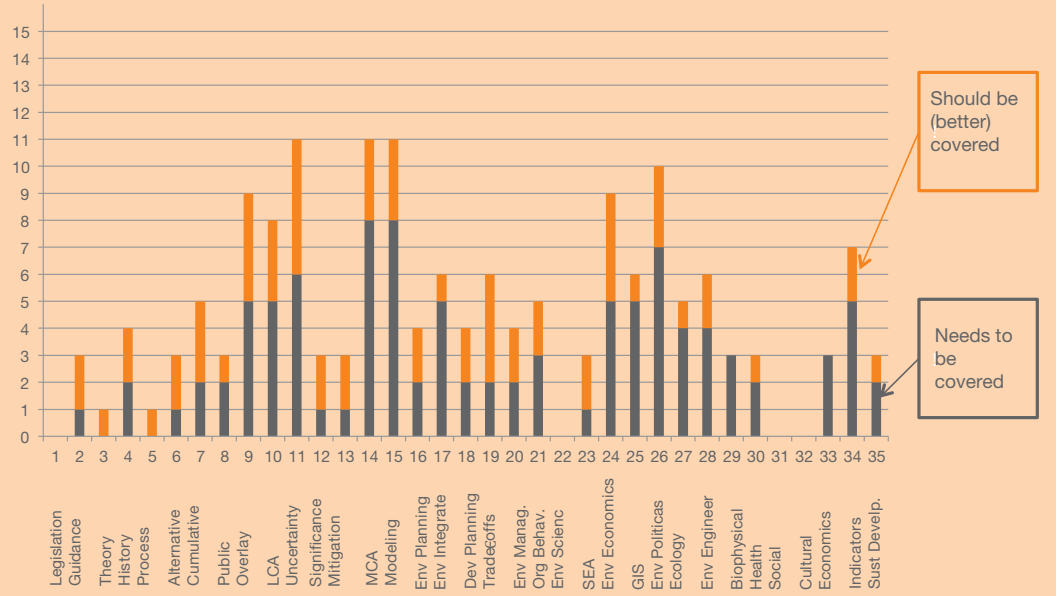
Figure 4.2: topics covered in EIA related teaching



Overall, there are quite a few similarities between the Pakistani situation and the 'content topics of impact assessment courses' identified by Sanchez and Morrison-Saunders (2010) with regard to EIA teaching in eighteen countries throughout the world. This relates to both, the topics that were covered well and those that were not, with a few notable exceptions. Social and cultural impacts in particular obtained some considerable attention in Pakistan. In this context, during discussion, one workshop participant said: "*Moral and ethical aspects, and in this context religious considerations, are given to almost everything in Pakistan".* On the other hand, modelling and multi-criteria analysis were covered poorly in Pakistan when compared with institutions elsewhere in the world.

Representatives from the sixteen institutions also gave their opinions on what topics needed to be covered or should be better covered (**See**: Figure 4.3). Representatives of over eight institutions thought that there was a particular need to cover (better) 'overlay

Figure 4.3: Topics that need to be covered or should be (better) covered.



mapping', 'life-cycle assessment', 'uncertainties' 'multi-criteria analysis', 'modelling', 'environmental economics' and environmental politics'. Other topics for which representatives of at least five institutions (*i.e.* about 30%) thought that (better) coverage was needed include 'cumulative impacts', 'environmental integration', 'trade-offs', 'organisational behaviour', GIS', 'ecology', 'environmental engineering' and indicators'. Again, the science and engineering nature of many of these suggests that there may be scope for linking up closer or better with courses taught elsewhere in the Department / Faculty within which EIA is taught. Furthermore, there were suggestions from some institutions that there should be an increased effort in teaching decision-making and its political nature.

When asked what other aspects of importance were not included in the list used as a basis for Figures 4.2 and 4.3, respondents mentioned 'environmental risk assessment', 'writing skills', 'national EIA practices', 'sectoral and regional EIA practices', 'relationships between actors in the process', 'post EIA monitoring/auditing', 'international conventions and protocols', 'EIA project and data base management', 'trans-boundary impacts', 'role of sponsors / donors', 'compensation and resettlement plans', 'practical work, study tours, site visits and participation in hearings', 'analytical hierarchy process (AHP)', 'internships', 'evaluation/review of reports', 'checklists', 'matrices', 'networking', 'costs and benefits of EIA'. Some of these aspects are not surprising, including, in particular, the references made to the various EIA procedural stages. These were deliberately omitted from the already lengthy list of 35 topics in the survey and the general term 'EIA procedure' was used instead. Others are clearly more Pakistan / developing country specific, *i.e.* 'role of donors'. Still others refer to what authors elsewhere in the world had also identified as weaknesses in EIA education, including *e.g.* 'writing skills', 'practical work' and 'internships' (Weiland, 2012). Finally,

'risk assessment' is explicitly mentioned in Pakistani EIA guidance and it is therefore not surprising that this was mentioned.

Respondents also provided some useful statements when asked what they thought was of particular importance for teaching of EIA in Pakistan, as follows:

- *Students should be encouraged to do EIA practically in the field;*
- *There is currently inadequate expert knowledge in the EIA field and university education plays a crucial role to amend this;*
- *EIA monitoring should be covered better;*
- *At least one university should offer dedicated EIA/SEA degree programmes at undergraduate and postgraduate levels;*
- *Training of teachers is important;*
- *Establishing links with developed countries is important;*
- *There is currently a gap between academia, consultancies and the government;*
- *Engineers don't know EIA well;*
- *There is weak enforcement and lack of technical assistance;*
- *EIA should be a compulsory subject in all environmental sciences degrees; and*
- *Bridging theory-practice gap is important.*

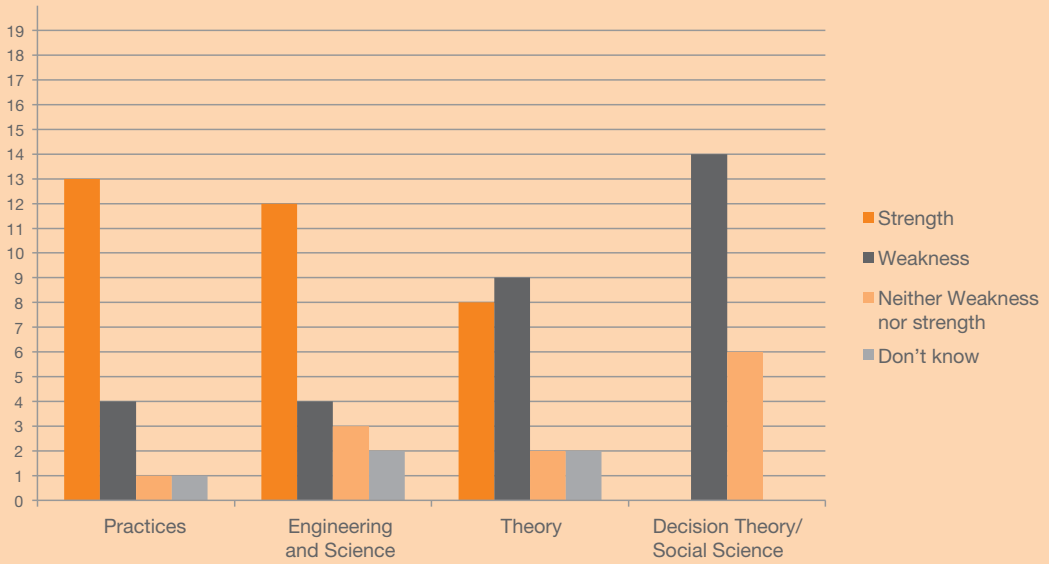
4.3 Audience Response Survey

Thirty questions were put to participants at the beginning of one of the workshops, using an audience response system (Genee World), which allows for anonymous replies, but providing the audience with results (*e.g.* in terms of the number of yes' and nos) straightaway. Fifteen out of 21 tertiary level institutions based workshop participants specified what disciplines were represented by EIA staff members. While ten said that these were representing natural science and engineering only, five also mentioned social sciences. Three of the latter were saying that there was also management expertise. This means that while programmes were offered almost entirely in science and engineering departments / faculties, there was also social science expertise present in EIA teaching.

Regarding their own university education (*i.e.* their *alma mater*), an equal number of respondents (meaning there was a half-half split) said they held degrees from (1) Pakistani institutions and (2) overseas institutions from North America, Europe or Australia. A very similar picture was emerging when asked where EIA teaching colleagues had done their degree. There is thus a high degree of exposure to education in tertiary level institutions from elsewhere in the world with an international knowledge base accumulated among EIA teachers in Pakistan.

Regarding an involvement in real life EIA practice, thirteen out of nineteen respondents said they had been involved in real life EIAs as both, stakeholders or general members of the public and in organising parts of an EIA process. One each had done either of the above. Only four had not been involved in any real life EIAs, but had studied related documentation. When asked what their main focus of EIA related teaching was, only one out of eighteen said that this was lecturing alone. While two each said that either seminars or practical work was the main focus of teaching, thirteen stated that practical

Figure 4.4: Strengths and weaknesses of EIA teaching



work was part of the main focus in their teaching activities, *i.e.* there clearly is an emphasis on practice, not simply theory.

Further evidence for EIA practice being of great importance in current teaching was obtained when workshop participants were asked about teaching strengths and weaknesses (Figure 4.4). While practice along with science and engineering was perceived more of a strength than a weakness, an equal number of participants perceived theory as both, a weakness and a strength.

Decision theory and the social sciences were seen by most workshop participants (thirteen out of seventeen) as the main shortcoming of EIA teaching materials. Only three thought the main shortcoming was practice related and only one thought there weren't any shortcomings at all. In line with this, fifteen out of nineteen workshop participants thought that the EIA literature did not provide them with everything they needed. While this indicates that the theory element in particular needs some close attention, this does not mean that the connections made with practice are satisfactory. It rather suggests that the literature does currently cover practice to a greater extent than, Pakistan relevant, decision theory. In this context, it is important that many participants saw creating better connections with real practice as particularly urgent. Creating better teaching materials was also seen as a priority. Furthermore, eighteen out of 21 respondents saw the creation of truly international textbooks (*i.e.* textbooks that are not dominated by theory and practice form a certain country or system) along with national or regional textbooks as being particularly urgently needed. All workshop participants stated that EIA needed to be adapted to national circumstances. In line with this, sixteen out of 21 respondents stated EIA teaching currently did not cater to the needs of practice. While five said that it was at least partly achieving this, none said it was fully doing so.

4.4 Group Work of Workshop Participants

Workshop participants were split into three groups in order to discuss questions revolving around the further development of EIA teaching at tertiary level institutions in Pakistan. The first question was about the specific training needs of EIA teachers / lecturers in Pakistan. The second question was about what initiatives may be useful to achieve effective training. Box 4.1 shows the bullet points compiled by those discussing the topics.

Regarding specific training needs, the interaction between practitioners *i.e.* consultants, governments/ public administration *i.e.* EPAs, and the education sector was stressed. To have these engaged in EIA training is thus not only of particular importance but also a great challenge. Furthermore, the engagement in 'real' projects (through *e.g.* field trips and participation in public hearings) was seen to be of great importance, even though field trips were seen as problematic, due to the difficult security situation and socio-cultural settings in some parts of the country. Effective training should deal with data availability for EIA as well as providing access to the wider literature and best practice / success stories. Appropriate funding for training was also seen as important, in particular for training activities abroad.

Box 4.1: Replies of participants to questions on specific training needs and initiatives for effective training

Specific training needs:

- Collaboration between national and international EIA experts;
- Sharing of knowledge/data with consultants, EPA's and other stakeholders; and
- Practical exposure to EIA concerned projects and sites and exchange of views with EIA experts and related stakeholders.

Initiatives for effective training:

- EIA data availability;
- Access to literature related to best practices/success stories;
- Short training sessions;
- Workshops for all EIA teaching faculty from a university; and
- Provision of funds for EIA trainings for EIA faculty abroad.

4.5 Conclusions

This chapter contributes to the growing international literature on EIA higher education, looking at the current baseline and development needs in Pakistan, where about 40% of all higher education institutions offer courses which also cover EIA. There is currently no dedicated EIA degree programme available, though. Overall, it is found that the extent to which different EIA related topics are covered in Pakistan is not dissimilar from elsewhere in the world, with the exception of cultural and social aspects that are covered rather well. Problems are currently associated in particular with a lack of Pakistan specific textbooks and other sources, as well as insufficient connections between the academic and practice worlds. The handbook this chapter forms part of

and the EIA curriculum for higher education institutions in Pakistan (*http://www.niap.pk/docs/Knowledge%20Repository/Reports/Draft%20EIA%20Curriculum%20for%20Tertiary%20Level%20Institutions%20in%20Pakistan.pdf*) are a direct response to this. Furthermore, the teaching of social science theory / decision-making theory is perceived to be a weakness by those teaching EIA. Bridging the theory-practice gap is seen to be of particular importance for developing EIA education in the country further. Also, training of trainers is seen as a priority. However, overall, there are clearly many positive aspects of existing EIA higher education in Pakistan and there is a high awareness of concepts and practices. Furthermore, the EIA teaching body in Pakistan is well aware of international debates, trends and developments.

5 Taking Stock of EIA Application in Pakistan: Findings of EIA Mapping

By Bobbi Schijf and Reinoud Post

In an Environmental Impact Assessment mapping workshop, practitioners jointly analyse the EIA system in their country or region. EIA mapping looks both, at the EIA legislation and the practice in a given country, and considers the EIA procedure as well as the project approval decision-making that is based on the EIA. The mapping analysis is undertaken in an interactive setting, with participants involved in EIA practice. In 2010, a series of EIA mappings was undertaken in Pakistan. The image that emerges from the mapping results is one of a comprehensive and mature legislative framework, outfitted with professional environmental agencies to oversee it. At the same time, there are major challenges: EIAs are of variable quality, there is limited participation, and generally a low level of monitoring and follow-up. This chapter describes how EIA mapping works and outlines the results of the Pakistani mappings.

5.1 Introduction

All around the world professionals are actively improving impact assessment in their own working environment. Sometimes through small daily efforts, but at other times by implementing more comprehensive multi-year impact assessment improvement programmes. Before investing in such larger scale efforts, it is helpful to get a good grip on how the current impact assessment system is working and what its strengths and weaknesses are. Such an understanding can help to identify priorities and to decide where time and financial resources, which are usually scarce, should be focussed.

To be able to come to such understanding, the Netherlands Commission for Environmental Assessment (NCEA – **See:** Box 5.1) developed a tool called EIA mapping. As the name suggests, this tool is focussed specifically on project level impact assessment. EIA mapping assesses the quality of the regulatory framework for EIA in a given jurisdiction, and the level of compliance with this framework in practice. At the heart of the tool is a questionnaire of several hundred questions, which is completed in a two day workshop by a group of representatives of all stakeholders in EIA. In the course of the workshop, the EIA practitioners discuss the full range of EIA aspects. Their collective answers are processed in a spreadsheet, producing a range of diagrams that clearly display the strengths and weaknesses of EIA.

A series of EIA mapping workshops were undertaken in 2010 throughout the provinces of Pakistan, and Azad Jammu Kashmir and Gilgit-Baltistan, in support of the Pakistan National Impact Assessment Programme (NIAP). One of the key objectives of this programme, which ran from 2009 until 2014, was to improve EIA. The EIA mapping workshops helped to focus the design of EIA activities within the programme. In this chapter, the EIA mapping tool will be further explained, and we will also describe the results of the application of EIA mapping within Pakistan.

EIA mapping provides an in-depth exploration of EIA, and consequently substantial time and effort goes into using this tool. Before delving deeper into the workings of EIA mapping, it is important to note that there are also other approaches available to analyse EIA. Most notably, we want to mention here the EIA barometer, which was developed by the Southern African Institute for Environmental Assessment (SAIEA), and which has been applied in different countries in Africa. The EIA Barometer is based around a condensed list of questions, and could be regarded as a 'first cut' tool, more suitable to a situation where a more superficial analysis is sufficient.

Box 5.1 Netherlands Commission on Environmental Assessment

When the Dutch legislation on EIA entered into force in 1987, it provided the legal basis for the establishment of the Netherlands Commission for Environmental Assessment (NCEA). This commission has been set up as an independent advisory body tasked with reviewing the quality of EIAs (as well as strategic environmental assessments). The NCEA has a statutory role in the review stage of most EIA procedures in the Netherlands.

In 1993, the NCEA started to provide advice outside of the Netherlands. It was tasked to do this by the Dutch Ministry of Foreign Affairs, and the focus of the NCEA international activities is on countries eligible for Dutch International Cooperation. Strengthening EIA systems, including the capacities needed for the system to function, is the core of the work of the NCEA internationally. The technical staff of the Commission can give tailored advice on developing EIA systems. Additional information can be found on the NCEAs website: www.eia.nl.

5.2 EIA Mapping in Practice

National EIA systems differ in their set-up; however, there are generic elements that define EIA systems everywhere. And though there is no one size fits all, the approach chosen by one country may inspire another. With this in mind, the NCEA inventoried and structured hundreds of elements of EIA systems that occur somewhere in the world and developed an interactive questionnaire which addresses each of these elements in turn. This questionnaire is the core of the EIA map. It takes the shape of a workbook of interlinked spreadsheets. Each spreadsheet focuses on a different element of an EIA system, both the legal procedure concerning this element as well as how it plays out in practice. See Figure 5.1 for an overview of the elements addressed.

On the basis of its experience with capacity-building for impact assessment, the NCEA looks at the EIA process through a wide lens. As a result the elements included in the EIA map look at the core activities within EIA, such as screening, scoping, assessment, and review, but also the inter-links with the whole cycle of development projects. In

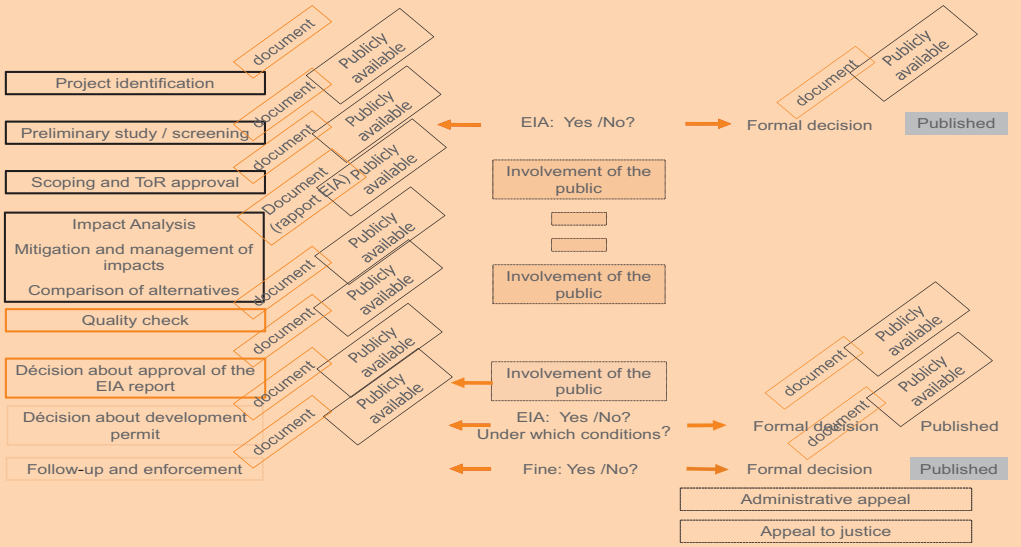
particular, the EIA map addresses decision-making on environmental permitting and project approval, and explores how the information on environmental and social risks identified in the EIA is actually used in decisions on development. Furthermore, the EIA map looks at inspection and enforcement, and how environmental conditions that are designed on the basis of an EIA are imposed and then followed up.

For each of these elements *i.e*. screening, scoping, assessment, review, decision-making, inspection and enforcement, the EIA map analyses the measures in place to ensure participation, and transparency. To what degree are decisions within the EIA process open for input from others? And are decisions supported by clear argumentation, documented and published? In the experience of the NCEA, participation and transparency can make an important difference to the quality and consistency of EIA practice in a country. The map looks at how these qualities are guaranteed on paper, but also at how they are realised in practice.

Finally, EIA mapping explores the general prerequisites for sound EIA procedures, including:

- funding of the EIA system;
- EIA knowledge infrastructure;
- legal appeal and mediation; and
- democratic accountability.

Figure 5.1: EIA process components as addressed in NCEA EIA map



In a workshop setting, each of the questions is addressed by a group of professionals, representing different perspectives on EIA. To develop a good and balanced discussion, participation in EIA mapping workshops should be broad. It should include participation of staff members of government agencies administering EIA, representatives of line

agencies, representatives of local governments, inspectorate, NGOs, EIA-consultants, investors, the media, academics and others.
Many of the questions have a quick and clear yes/no answer, others require a quality judgement or an estimation from the group and generally take more discussion. Some examples of questions are:

- Is there a legal requirement for public participation in EIA?
- How do you judge the quality of the written justifications for EIA screening decisions?
- Which % of investment projects requires an EIA according to the regulation? and
- Which % of investment projects actually undergoes an EIA?

When the EIA mapping was applied within Pakistan, it was clear that one workshop would not suffice. Because EIA practice in Pakistan differs from region to region, mapping workshops were organised in Islamabad (federal territory), Baluchistan, Khyber-Pakhtunkhwa (KP), Punjab, Sindh, Gilgit-Baltistan (GB) and Azad Jammu Kashmir (AJK). In October 2010, at the end of the series of workshops, a national session was held to share the mapping outcomes and get feedback on the results. Overall, in these workshops, the participation was skewed towards governmental representatives. This does not invalidate the results, but must be borne in mind when interpreting them. The complete mapping results were documented in a report prepared by the NCEA. A selection of the results is shared below.

5.3 EIA Mapping Results for Pakistan

Preconditions for EIA performance
EIA mapping identifies two sets of contextual conditions that are crucial to how an EIA system operates. These are specific characteristics of the country, province or regional context that influence how EIA is implemented. The first set of conditions concerns the checks and balances that exist within a society, which help to ensure that government delivers on the policies it has set and enforces the rules and regulations which have been agreed upon. In EIA mapping these are called “external preconditions”, and include; an active and critical press, active and strong civil society, and an independent judiciary. The second set of criteria is more internal to government, and concerns the checks and balances that exist to ensure that the government agencies that have a role in EIA fulfil their specific responsibilities. These internal preconditions include; the public nature of procedures, possibilities to lodge a complaint when procedures are not properly applied, accountability of officials and politicians and ways in which government agencies improve their functioning through learning.

From an international perspective the EIA mapping scores on preconditions external to government are high in Pakistan. The preconditions for EIA at the level of society are generally scored well, although workshop participants mentioned that (civil) society is not especially active in EIA. Concerning the checks and balances internal to government, the scores given in the different workshops are lower overall and there is a more marked difference between the regions. The scores suggest that internal preconditions may be an important critical factor throughout Pakistan.

Legal basis for EIA in Pakistan

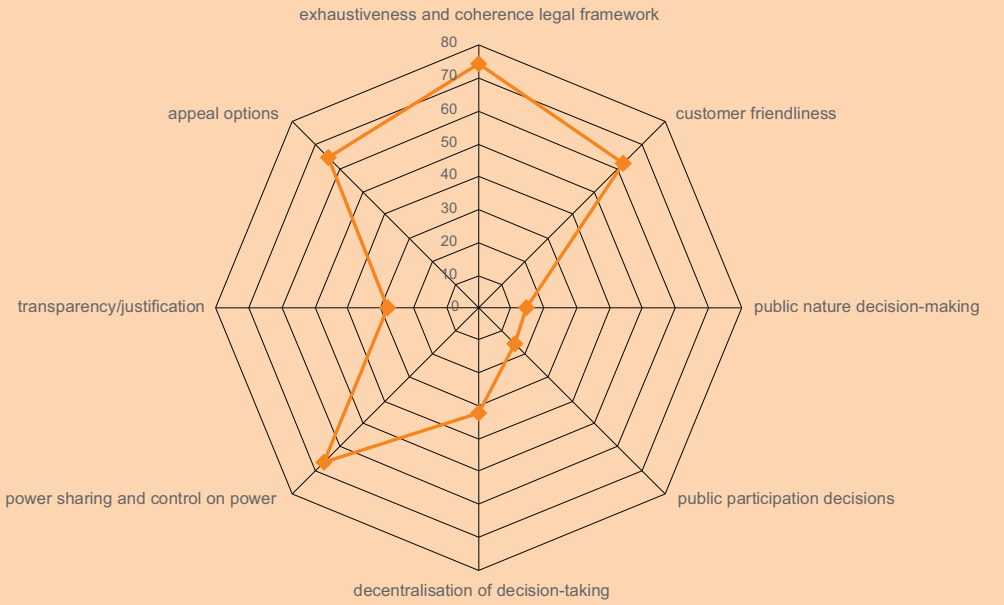
The EIA mapping workshops in 2010 predate the 18th amendment to the Pakistani constitution, which decentralised environmental management responsibilities. At the time of the mapping workshops, the legal basis for EIA was the Pakistani PEPA. Combining all the scores from the different workshops, Figure 5.2 shows the averaged results on the legal basis for EIA. Each axis of this amoeba represents one aspect of the regulation. Where the coloured line cuts the axis is the score for that specific aspect. The EIA map does not compare against any specific good practice standard, but against all-inclusive regulation, that incorporates the maximum of regulatory options that can be found for that aspect internationally. So, a 100% score on a specific axis means that the Pakistani regulation includes a very comprehensive set of requirements on that aspect.

The EIA mapping results shows that the legal framework for EIA is mostly well developed in Pakistan. The workshop participants reported that the regulations are in place, environmental norms and standards exist (although they are not entirely complete), and there are some EIA sector guidelines. Generic EIA guidance is also available in Pakistan, but there is some disagreement on its status among the various EIA mapping workshop participants: is it a requirement to follow the guidance, or is it voluntary? The extent to which the regulation covers projects that potentially have environmental impact is far-reaching. There are few or no relevant projects that do not fall under this requirement. The public nature of the EIA process has also been regulated, meaning that decisions should be transparent.

The diagram also highlights aspects which have not been regulated to any great extent, for example, the solidity EIA system funding. This aspect is about the arrangements in the regulation for structural funding for EIA roles, for hiring external experts if needed, and for doing EIA of government projects. The provisions to provide information

Figure 5.2: Legal basis for EIA (Pakistan average)

Figure 5.3: Legal base decision-making (Pakistan average)



beforehand, at an early stage of the EIA process, are also not strong. This is about the requirements to ensure that the start and the subject of an EIA is announced early (in a starting notice/ToR for the EIA, for example), and made public, so that there are possibilities to direct the focus of the EIA to those issues that are most relevant to decision-makers and the public. In the discussion on these results, representatives from the AJK and Punjab environmental protection agencies point out that they have additional requirements for early provision of information, on top of what the regulation demands. This aspect is well organised in their provinces, and may serve as an example for other provinces.

The presentation of the mapping results prompted the discussion of several other topics concerning the legislative framework. For example, participants agreed that the screening criteria and schedules should be further specified, and that the EIA content requirements should be strengthened. The quality of documents was also singled out as a factor which needs attention. All participants have experiences with poor quality EIAs, which do not provide sufficient information on impacts (especially “cut-and-paste EIAs” which use content from other EIAs, without adapting this content to the project or location at hand). On reviewing of EIA, the key issue participants focus on is the lack of technical knowledge to assess the content of EIAs. Especially of EIAs that are more complex.

Legal basis for EIA-based decision-making in Pakistan

The EIA map examines both, the EIA procedure as well as the decision-making process that the EIA should support. In the Pakistani context, the EIA map focussed on the No Objection Certificate (NOC) decision, and the conditions for project implementation given therein. This NOC is in effect the environmental approval for a project. The mapping analysis looked at aspects such as public involvement in decision-making, transparency and accountability, appeal options against decisions taken, and more. In Figure 5.3, again, the axes for the scores represent a maximum of regulatory options for organising a specific aspect.

In Pakistan, decision-making is comprehensive. Power sharing and control on power also score higher. In this context, participants felt that the division of mandates mostly prevent political pressure on decision-maker to "go easy" on the EIA requirement, and that mechanisms are in place to make sure decision-makers can be held accountable. Options to appeal EIA-related decision also exist; both administrative and court appeals are possible. Mediation is a possibility that is allowed for in the regulatory framework, but it is not applied to environmental disputes. This possibility could be worth exploring as a low cost, low threshold mechanism to use when NOC conditions are not respected, for example. The scores on customer friendliness are also high. This means that there are realistic procedural timelines, and that the amount of red tape is limited.

There are also weakly regulated areas concerning decision-making. The requirements for publication of the decisions are not comprehensive, and for justification of decision they are very limited. Scores on transparency and justification of decisions are consequently low. Participation also scored lower. This score represents the level of participation that the legal framework prescribes in the different decision-making steps of the EIA process. The Pakistani regulation requires participation in the EIA review and NOC decision (which are combined) but not in other steps, such as scoping.

Institutional Capacity and EIA Enforcement

The results of the EIA mapping questions on the level of application of EIA stand out. In all regions, EIA application is much too low when compared to the level of ongoing development and number of project licensing decisions taken. The estimates among the workshop participants for each region varied greatly, from 50% to under 10%, meaning that half or less of the projects that should undergo EIA in Pakistan, actually do. Here, clearly lies an enforcement challenge for the future. There is qualified staff who can meet this challenge. All provinces as well as AJK and GP score the availability of expertise for managing the EIA procedures high, and indicate that there are good opportunities for people working with EIA to further develop their skills. However, there are too few staff available for EIA related work, meaning that any effort to increase enforcement of the EIA requirements would quickly run into a bottleneck in EIA processing capacity at the EPAs.

Practice of EIA in Pakistan

Across the provinces as well as AJK and GP, EIA mapping scores for public participation are not strong, as a result of the relatively low number of EIA procedures within which public meetings are actually held, as well as the low number of participants that show up and take part. The workshop participants were similarly unified on the quality of EIA. Low scores were given on the extent to which all steps in the EIA process are undertaken and on the completeness of the EIA reports. Generally the quality of EIA scores too low, although there are examples of good EIAs as well. At federal level the quality of EIAs appears to be somewhat higher. Also, monitoring of implementation of project for which EIAs have been done is considered insufficient overall.

Dissemination of knowledge on legal requirements varies across the regions. Most participants score the awareness among planning and sectoral agencies as not sufficient. This contributes to the low application of EIA, participants say, although the EIA requirement is also knowingly avoided, even by government agencies. There were low scores also concerning the involvement of independent experts in review. The

regulation allows for this possibility, but it is not a common occurrence across the country, mostly because funds are lacking to compensate these experts for their time.

Practice of EIA-based decision-making in Pakistan

The EIA mapping results concerning decision-making show that appeal practice is practically non-existent, there are very few EIA related cases going to court. A high profile EIA court case might be an interesting development for Pakistan, which can boost the level of awareness and compliance in the country. Across the provinces and AJK and GP there are also low scores for inspection tasks and enforcement. Few environmental inspections are being undertaken, as there is not enough staff available to do this. Only rarely are sanctions imposed if inspection shows infringement of the environmental conditions of the NOC. In the Punjab EIA mapping the EPA reported that it had been requested to act on NOC infringements approximately 25 times in the previous year, and had administered sanctions in 12 cases.

Scores for the publicity of decision are also low. In practice decisions on the NOC are not usually published, although they may be available for inspection at the EPA. In practice, participation in decision-making is also limited, going by the number of written reactions that are submitted to different decisions that the EPAs take in the EIA process (screening, approval, *etc*.). At federal level the score is higher; here there is a more vocal public. The aspect of transparency/justification gets mixed scores, although most of the scores in the local EIA mapping workshops are low, meaning that written and detailed justifications for EIA decisions are not readily published. It is also rare to find a reference to the input received through public participation in the decision document.

5.4 Interpreting the EIA Mapping Results for Pakistan

The EIA mapping results from the workshops across the provinces of Pakistan, as well as AJK and GB, give a snapshot of EIA legislation and practice in 2010. The image that emerges is one of a comprehensive and mature legislative framework, outfitted with professional environmental agencies to administrate it. At the same time, major challenges lie in the practice of EIA: the variable quality of EIA reports, the limited participation, and the low level of monitoring and follow-up.

What is striking in the mapping results is the estimated number of projects with potential environmental impacts that are approved without EIA. There was some discussion at the workshops when the results were displayed about whether the numbers of projects and percentages entered in the different EIA maps were correct. During the workshops there had been some confusion about whether the requested statistics concerned the full EIAs or the more limited initial environmental examinations (IEE). The distinction between the two types of assessment had not been made consistently throughout the country, it turned out. This is an important lesson learned for the mapping method. However, though the exact percentages might need some adjustment, the overall conclusion that the level of application of EIA is too low, was uncontested. All participants seemed to agree that enforcement of the EIA requirement should be improved.

Two constraining factors for enforcement stand out in the mapping results: one being the lack of capacity at the environmental administrations, and the other the limited

accountability and transparency in decision-making. Accountability of the environmental administrations could be one avenue to explore further. Going by similar experiences that the NCEA has had in other countries, including in Asia, enforcement can be greatly improved when there is more personal and political risk attached to the lack of enforcement. In Pakistan it seems that there is limited risk of repercussions attached to avoidance of the EIA requirement. Risks are limited for the initiators of projects, but they are also minimal for the authorities that approve projects without an NOC, such as the Provincial planning and development departments. When negative environmental effects materialise after project approval, who should be held accountable? This is worth looking at more closely in Pakistan, if the level of application of EIA is to be elevated.

Lack of capacity is closely related to the lack of resources for environmental protection agencies to execute the tasks assigned to them. At each of the EIA mapping workshops, the participants agreed that financial resources allocated to these tasks are not sufficient. To illustrate: the regulatory framework for EIA in Pakistan allows Environmental Protection Agencies to engage external experts to review EIA reports, which is a particularly valuable option when the EIA to be reviewed is complex and requires expert knowledge that the EPA does not have in house. However, EPAs by and large do not have the funds to compensate such experts for their efforts. They need to rely on volunteers, with mixed results. Resource constraints are also evident in the levels of staffing and equipment at EPAs. The Pakistani mapping participants did not consider these sufficient to administer the EIA procedure, nor for compliance monitoring of environmental conditions.

A potential solution that could be explored in Pakistan is the introduction of EIA processing fees that better reflect the true costs that government incurs in carrying out its responsibilities. However, any revenues raised in such a way would have to be channelled to the Pakistani EPAs in order to benefit EIA application specifically. There are examples from which Pakistan could draw here. The Ghanaian EIA fee system, for example, scores on both these counts (NCEA and INECE, forthcoming). The EIA permit processing fee in Ghana is determined by a project's industry sector, project value, and the scale of the impact, and ranges from several hundred US dollars for a small manufacturing installation to over 50.000 US dollars for a large-scale mining project. Revenues generated are deposited into the National Environment Fund and a set percentage is used for the operations of the Environmental Protection Agency (EPA). Robust rules have been established for the administration of the fund, to ensure no resources are misappropriated.

As noted earlier in this chapter, the goal of the series of EIA mapping exercises was to inform the National Impact Assessment Programme of Pakistan. The mapping effort seems to have done so in different ways. First of all, the NIAP has tried to tackle one of the key constraints to EIA performance that mapping brought into view. The NIAP helped to strengthen the capacity at the environmental protection agencies. Each of the agencies was provided with additional staff for the four and a half year duration of the project. All of the EPA staff involved in EIA was given training opportunities, and an information system was developed for the agencies to ease their administrative workload and facilitate the provision of information to projects developers and to the

public at large. Such an information system should also make it easier to expose the "cut-and-paste" EIA reports.

The NIAP also concentrated efforts on increasing the quality of EIA in Pakistan. Guidance was developed for EIA, for example. The programme also instigated, and supported, a country-wide discussion on the possibility of introducing accreditation for consultants that prepare EIAs. Different accreditation options were further developed (but at the date of print, none had been chosen or implemented yet).

Transparency and accountability were not nominated as priorities for improvement. The participants of the workshops felt that the regulatory basis for decision-making in Pakistan met the current needs and ambitions. Consequently, neither of these themes was taken up by the NIAP partners. Perhaps this can be explained by the fact that many of the workshop participants represented governmental agencies. Similarly, the NIAP partners are governmental. There is an understandable unease around the topics of accountability and transparency among governmental stakeholders, If for no other reason than that it would increase the pressure on these parties. The NIAP did include a range of activities geared towards increasing awareness of both the EIA requirements, and the potential added value of EIA. This should also help to raise the level of application of EIA in Pakistan.

5.5 Looking Back and Looking Forward

Interestingly, the EIA mapping workshop participants throughout Pakistan more often remark on the opportunity that the EIA mapping experience gave them to discuss EIA with their peers, than they do on the actual mapping results. It is not often that professionals involved in EIA have the occasion to jointly review their EIA system. The EIA map provides a structure for these professionals to discuss not just the core EIA activities, but also what EIA contributes to decision-making and to environmental management on the ground. It facilitates a debate of the EIA system on paper, and as it is in practice. For the NIAP it seems to have helped bring focus to the programme activities, and create momentum for EIA improvement among those involved.

In 2014 a second round of mappings is planned. This EIA mapping series will again engage a wide range of EIA stakeholders in discussion, and can feed a debate on where to focus efforts to improve EIA in Pakistan in the near future. Perhaps some of the limitations identified in 2010 will no longer need attention. A new set of priorities might surface. The 2014 mapping results will also be compared to those of the first mapping round, and in this way provide a means to track the progress that has been made in EIA legislation and practice in the past four years.

6 The Role of International Organisations and Development Banks in Pakistan's Environmental Impact Assessment Practices[4-5]

By Ernesto Sánchez-Triana, Santiago Enriquez and Javaid Afzal

International Organisations and Development Banks (IODBs) shared global experience which helped Pakistan in its adoption of environmental impact assessment (EIA) system. From a procedural standpoint, IODBs have been effective in complying with their internal policies and procedures on environmental assessment. While the substantive effectiveness of EIAs for opening up decision-making processes to public scrutiny has not been substantiated yet, selected EIAs have contributed to build environmental management capacity and enhance positive environmental impacts.

IODBs, particularly the Asian Development Bank, The Netherlands Government and the World Bank have been instrumental in promoting the use of policy strategic environmental assessments (SEA) at the sectoral, national, and regional levels. In Pakistan, policy SEAs have tended to be more widely influential than traditional EIAs in the last several years because of the extent of stakeholder participation to validate the process, ownership by Pakistani decision-makers, and strategic timing of analytical work and social learning process with respect to country actions and priorities.

6.1 Introduction

Environmental Impact Assessment (EIA) has become a widespread environmental management tool. The United States was the first country to adopt it as part of its legal framework in 1969 and this effort was emulated by both, developed and developing countries over the next few decades. In this chapter we argue that such growth in the number of developing countries with a formal EIA system was significantly spurred by international organisations

4 The findings, interpretations, and conclusions herein are those of the author and do not necessarily reflect the views of the International Bank for Reconstruction and Development/The World Bank and its affiliated organisations, or those of the Executive Directors of The World Bank or the governments they represent. The authors are grateful to Thomas Fischer and Herbert Acquay for their helpful comments to previous versions of this chapter.

5 This chapter was prepared by Ernesto Sanchez-Triana, Javaid Afzal and Santiago Enriquez from The World Bank.

and development banks (IODBs). This may help to understand the common features in the design of EIA systems across regions and development gradients.

In many developing countries, EIAs have become the main environmental management tool, often used to replace command and control or market-based instruments to regulate air, water, soil or noise pollution. In the case of Pakistan, where specific environmental standards for ambient air and water quality are considered too stringent for national circumstances, the EIA largely endorses the conditions under which large scale projects may be developed and operated. However, as this chapter illustrates, because the institutional capacities of the country's environmental organisations still need significant strengthening, the completion of EIAs does not necessarily result in better environmental outcomes or improved decision-making. While EIA has made important contributions to enhance the sustainability of specific projects, available evidence, including the case studies reviewed during the preparation of this chapter, suggests that, in general, environmental assessments tend to be weak, lack serious public participation to inform project development, and tend to result in generic recommendations that are seldom monitored and enforced (Nadeem and Hameed, 2006 and 2008; Riffat and Khan, 2006; Nadeem and Fischer, 2011).

At the same time, other environmental assessment tools have proved effective in addressing the country's environmental challenges, while simultaneously strengthening the institutional capacity of national and sub-national authorities (Posas, and Sánchez-Triana, 2012; Sánchez-Triana *et al.* , 2013). In particular, Strategic Environmental Assessments (SEAs) that have been conducted at the policy level over the last decade have been effective in identifying environmental priorities and linking them to development and poverty reduction goals, engaging a broad range of stakeholders, and identifying the key governance and institutional capacity weaknesses that need to be addressed.

To support these arguments, this chapter begins by providing an overview in Section 2 about the origin of EIA in Pakistan and the role of IODBs in it. Section 3 continues with a review of the implementation of EIA in Pakistan. Section 4 assesses the effectiveness of three EIAs reviewed during the preparation of this chapter. Section 5 discusses the positive contributions of EIAs in Pakistan, particularly in terms of building institutional capacity and enhancing positive impacts, while Section 6 presents the insights of Pakistan's experiences with policy SEAs and the contributions of institution-centered SEAs relative to EIA-type SEAs. Section 7 presents the chapter's conclusions. This chapter's annex presents case studies of three EIAs that were conducted in Pakistan, with the support of IODBs, discussing how they met the main components of the EIA process required by national regulations, as well as by international organisations.

6.2 Role of International Organisations and Development Banks in the Design and Implementation of Pakistan's EIA System

The first EIA programme worldwide was established by the U.S. Congress in the National Environmental Policy Act (NEPA) of 1969 (Park, 2008). Section 102 (2) (c) of NEPA established the basis to require US federal agencies to prepare an environmental

impact statement for any project that would "significantly affect" the quality of human environment, by assessing environmental consequences in development projects, analysing alternatives and ordering a public disclosure of the report to affected groups (Jones and Stokes, 2003).

During the 1980s, international non-governmental organisations (NGOs), pressured International Financial Institutions (IFIs) and its shareholders, to make these organisations adopt environmental management policies (Nielson and Tierney, 2003; Wade, 1997; Keck and Sikkink, 1998). In 1989, the U.S. Congress passed the provision known as the "Pelosi Amendment," which, according to Bowles and Kormos (1999), played "an important role in the development of the World Bank's EIA policy." The amendment required the U.S. Executive Director to abstain from voting on proposed multilateral development bank loans with potentially "significant" environmental impacts, unless an EIA, including any relevant supporting documents such as environmental management plans, resettlement action plans etc., had been made available at least 120 days in advance and disseminated to the public (Wirth, 1998: 66).[6] Under the "Pelosi Amendment", U.S. representatives in the IFI's boards of directors had to promote the creation of "Environmental Departments" in all of the multilateral development banks (Hicks *et al.* , 2008). In October 1989, during the US Congressional debates over environmental impacts of projects funded by IFIs, the World Bank released its environmental assessment policy (Bowles and Kormos, 1999).

More specifically, the World Bank introduced an Operational Directive (OD 4.00) requesting "an environmental assessment for all projects that may have a significant negative impact on the environment" (Hironaka, 2002: 70). In 1991, the OD was amended as OD 4.01, "two years after its initial adoption and two months before the Pelosi directive took effect" (Bowles and Kormos, 1999). Following the 1992 Earth Summit in Rio de Janeiro,[7] some Bank shareholders became increasingly concerned about the institution's stance on environmental issues. In 1993 the World Bank's Inspection Panel was established in response to civil society and member states' demands to make the Bank more accountable for its actions (Park, 2010).

After the World Bank, other multilateral banks, such as the Asia Development Bank (ADB), the Inter-American Development Bank (IADB), and the African Development Bank (AfDB) adopted environmental assessment policies (IADB, 2009; ADB, 2009; AfDB, 2004). In the ADB, as an accountability mechanism, the Compliance Review Panel (CRP) conducts inspections of projects in response to alleged violations of the safeguard policies (Asian Development Bank - ADB, 2005b).

According to Rifat and Khan (2006), the Pakistan EIA system was adopted due to the efforts of donor agencies like the World Bank, ADB and different NGOs. The promulgation of the 1983 Environmental Protection Ordinance introduced the requirements of EIA in Pakistan (IUCN, 2005). However, EIA was not institutionalized until July, 1994 when the Government of Pakistan made it mandatory for infrastructure

6 This amendment applies exclusively to the action of the U.S. ED and does not preclude Board approval, but requires the U.S. ED to oppose or abstain.

7 The Earth Summit produced a document known as Rio Declaration, which stated that "the environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority" (Principle 17).

investment projects. In December 1997, the Ordinance was repealed by the Pakistan Environmental Protection Act (PEPA), in order to provide a stronger legal basis for environmental protection (Nadeem and Hameed, 2006).

PEPA set forth the definition of EIA as "an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed" (GoP, 1997).

In October and November 1997, before PEPA was enacted, the Pakistan Environmental Protection Agency (Pak-EPA) issued comprehensive guidelines known as the "EIA package," which included general and sectoral non-mandatory guidelines covering most aspects of EIA preparation. While the official stance is that these have been formulated keeping in view the local circumstances, they are primarily based on the guidelines of ADB and World Bank, as can be inferred from similarities in their perspectives and approaches, which are discussed in the following section (Nadeem and Hameed, 2010).

6.3 Implementing EIA in Pakistan - International Organisations and Development Banks' Perspectives and Practices

IODBs adopted their environmental impact assessment policies and practices in the mid-1990s, within the context described in the previous section. The main goal of these policies and practices was to mitigate the negative environmental impacts with the aim of ring-fencing IODB's financed projects. The environmental assessment policies adopted by IODBs are the basis of these organisations' safeguards systems. The safeguards systems were developed to address the general absence of corresponding client safeguard systems (legal frameworks and implementing institutions), a condition that produced instances of severe adverse outcomes for the environment and project-affected peoples in IODB's supported projects (Rich, 1995). At the time of their initial formulation, it could be said that the safeguards reflected primarily the values of the donor countries. Since that time, many governments, such as the Government of Pakistan, have adopted legally binding EIA regulations that are similar to IODB's EIA regulations, often with technical support from these organisations.

Several IODBs have labeled their safeguard policies as "do no harm" policies, as their aim was to protect people and the environment from all negative impacts (World Bank, 2009a). In addition, emphasis has been placed on managing reputational risk. According to the World Bank's Independent Evaluation Group (IEG), "the safeguards (do no harm) approach is basically focused on protecting the reputation of the Bank." (IEG, 2010: xxvi).

Many of the objectives and principles of the IODB's environmental assessment policies are also reflected in international conventions and legal instruments such as the Aarhus Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters, and the Espoo Convention on Environmental Impact

Assessment in a Trans-boundary Context, conventions which many governments have ratified. The “do no harm” approach to many aspects of the EIA has been incorporated into best practice guidance notes, such as the MFI-Environment Working Group Common Approaches to EIA, and the principles set forth by the International Association for Impact Assessment.

The World Bank was the first IFI that developed an environmental and social safeguards system, using an approach that was emulated by other key IODBs. The Bank’s Operational Policy 4.01 explains that Environmental Assessment (EA) “evaluates a project’s potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation”.[8]

The World Bank begins with a screening process to determine the appropriate extent and type of EA. The Bank classifies the proposed project into one of four categories. Category A projects are those that are likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. Category B projects are those whose potential adverse environmental impacts on human populations or environmentally important areas are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be readily designed. Category C projects are those that are likely to have minimal or no adverse environmental impacts. Finally, Category FI applies to projects involving investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

The EA for Category A projects requires an analysis of alternatives and recommends any measures needed to prevent, minimise, mitigate, or compensate for adverse impacts and improve environmental performance. The borrower is responsible for carrying out the EA and must prepare a report, usually an EIA. Requirements of Category B projects are similar to those of Category A project, except that their scope tends to be narrower. For Category C projects, no action is required after screening.

OP 4.01 includes provisions for public consultations for all Category A and B proposed projects. The borrower country is required to consult project-affected groups and local non-governmental organisations (NGOs) about the project’s environmental aspects and take their views into account. In the case of Category A projects, these groups must be consulted at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalised; and (b) once a draft EA report is prepared. Further consultations are required throughout the implementation of the World Bank-supported project as needed to address EA-related issues that affect the mentioned groups.

The ADB introduced in 2009 a new Safeguard Policy Statement that integrated under a single policy its previous safeguard policies on the environment, involuntary

8 World Bank OP 4.01, available at: http://go.worldbank.org/K7F3DCUDD0

resettlement, and indigenous peoples. The policy's social dimensions include gender and labor aspects. The unification of this policy aimed to enhance the consistency and coherence of its procedures to address environmental and social impacts and risks.[9]

ADB uses the same environmental categorisation as the World Bank (*e.g.* categories A, B, C and FI). The assessment may comprise a full-scale environmental impact assessment for category A projects and an initial environmental examination (IEE) or equivalent process for category B projects. The borrower is required to prepare an environmental management plan (EMP) that addresses the potential impacts and risks identified by the environmental assessment. The EMP will include the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organisational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Also, where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the project is designed, constructed, and operated in compliance with applicable laws and regulations.

ADB's guidelines also discuss the requirements for meaningful participation with affected people and other stakeholders, requires that the borrower establish a grievance redress mechanism, and indicates the documents that will be disclosed in the Bank's website, such as the EIA. In addition, the borrower will monitor and measure progress in implementation of the EMP. For projects likely to have significant adverse environmental impacts, the borrower is required to retain qualified and experienced external experts or qualified NGOs to verify its monitoring information. The borrower must also document monitoring results, identify the necessary corrective actions, and reflect them in a corrective action plan that must be implemented.

The Japanese International Cooperation Agency (JICA) is another key development partner that provides grants, technical cooperation and loans to Pakistan. In April 2010, JICA adopted its new guidelines, which integrate environmental and social considerations.[10] The process established by the guidelines begins with a screening process, through which projects are classified into one of four categories based on the magnitude of their potential impacts. The categories are similar to the World Bank's: A (likely to have significant adverse impacts), B (potential impacts are less adverse than A), C (minimal or little impact), and FI (JICA provides funds to a financial intermediary of which sub-projects could not be identified prior to JICA's approval).[11]

In the next step, the Environmental Review, JICA confirms the possible environmental or social impacts along with the measures proposed by the project proponents. This is done through the examination of documents, including an environmental impact assessment (EIA) report and Environmental Checklist. After consulting stakeholders, JICA evaluates the adequacy of the proposed measures to avoid, minimise, mitigate, or compensate the adverse impacts, and to enhance the positive impacts of the proposed

9 ADB (2009), "Safeguard Policy Statement", available at: http://www.adb.org/documents/safeguard-policy-statement?ref=site/safeguards/publications

10 http://www.jica.go.jp/english/our_work/social_environmental/guideline/index.html

11 JICA (undated), "Guidelines for Environmental and Social Considerations", available at http://www.jica.go.jp/english/publications/reports/annual/2012/c8h0vm00002qe6vj-att/46.pdf

project on the environment and society. JICA promotes the transparency of the Environmental Review by disclosing relevant documents, including the EIA report on its website prior to the process.

Project proponents are responsible for monitoring the approved measures, but JICA oversees the results of this monitoring for a certain period of time that covers the implementation and post-completion stages. If JICA identifies or anticipates any issues as a result of these efforts, it will urge project proponents to devise appropriate counter-measures and or provide the necessary support.

These guidelines state that JICA's projects must not deviate significantly from the World Bank's Safeguard Policies, and that JICA should refer to the internationally recognised standards and good practices, including that of the international financial organisations, when appropriate.n To this end, JICA actively seeks harmonisation of its environmental and social procedures with procedures of developing partners, such as the World Bank and the ADB.

As the previous paragraphs indicate, environmental assessment practices are not uniform across IODBs. However, their approach to EIA is similar in many ways, particularly in its approach to ring-fencing internationally-funded projects by using a method that mainly aims to "do no harm". This is also PEPA's approach, as discussed in the following section, which focuses on the effectiveness of EIA in Pakistan, based on three case studies supported by IODBs that illustrate such similarities.

6.4 Examining EIA Effectiveness

Three case studies were completed during the preparation of this chapter, based on the EIAs prepared for the Pakistani railway development investment programme; the revival of Karachi Circular Railway; and the reconstruction of Berth 15-17A, including SRB's 1and2 on East Wharves at Karachi Port. These case studies, summarized in the annex, exemplify current EIA practice in Pakistan. While they cannot be offered as a representative sample of EIA in Pakistan, they do spotlight some of the key features of current practices in the country. All three projects underwent a screening process; however, in all cases the requirement for a full-fledged EIA was dictated by a fixed list of projects determined by regulations, rather than by a tailored analysis of the characteristics of each project and the specific site in which they would be developed. Similarly, scoping of the EIAs was based on a need to comply with legal requirements, not necessarily on a participatory process through which potentially affected groups could voice their concerns and influence the reach of the environmental impacts study. The three cases included an analysis of alternatives; yet, these seem to be a justification of a previously selected option.

In terms of the identification of project impacts and mitigation measures, the three EIAs recommend broad management practices or guidelines, *e.g.* "proper storage of waste" or "use of advanced construction techniques", and do not provide any specific or quantitative indicators of the environmental management practices that will be implemented. In none of these cases were impacts quantified or mitigation measures

developed to a level of detail that would support actual decisions related to the project design or operation. Similar lack of detail about impacts and mitigation measures was found in previous studies on EIA in Pakistan (Saeed *et al. ,* 2012; Nadeem and Hameed, 2006). While all case studies seemingly engaged the public, there is no information that indicates that their concerns were systematically incorporated into the analysis of impacts or development of mitigation options.[12] Thus, while the three EIAs met legal requirements and were approved by the competent authority, there is room to question their effectiveness in terms of the degree to which they influenced planning decisions.

The findings of the case studies are consistent with several academic papers that have discussed ways in which EIAs in Pakistan comply with procedures set forth in PEPA and other regulations (Nadeem and Hameed, 2006; 2008; 2010 Riffat and Khan, 2006; Saeed *et al. ,* 2012). However, there is much less certainty about the influence of EIA on Pakistan's environmental quality and the effectiveness and efficiency of EIA tools. There has been little comparative review of EIA practices across all sectors, relative to existing and proposed legislation and international EIA standards[13]. There has also been little comparative analysis of EIA effectiveness, particularly in regard to monitoring, follow-up and compliance with EIA commitments[14]. The case studies suggest that EIA in practice may focus on meeting pro forma legal requirements, without necessarily adding value or modifying a proposed project in a way that fundamentally addresses its environmental impacts. In order to address these gaps, this section discusses the strengths and limitations of EIAs of projects funded by IODBs.

IODB's approach to EIA is similar in many ways, particularly in its approach to ring-fencing internationally-funded projects by using a method that mainly aims to "do no harm", as discussed in Section 3 above. However, environmental assessment practices are not uniform across IODBs. A variety of policies among IODBs specify different types of EIA documents, terms of reference for EIA scope and content, timing for review and approval, and means of public consultation. In addition, EIA practices also differ among provinces and sectors, for example between water resources and defense. Similarly, EIA practice varies across sectors in Pakistan, where water resources and transport have developed some more advance practices. Notwithstanding these variations, the prevalent view by IODBs look at EIA as a tool aimed at designing environmental management plans based on detailed mitigation measures. According to this view, EIA is characterised by most IODBs as a compliance tool, to avoid harm to third parties, and as a risk management (safeguarding) framework. This definition incorporates the different objectives of EIA, including:

- To anticipate and avoid, minimise or offset the adverse significant biophysical, social and other relevant effects of development proposals; and

- To protect the capacity of natural systems and the ecological processes to maintain their functions.

12 Nadeem and Fischer (2011) also find weak influence of public participation on substantive quality of EIA and decision-making.

13 See Saeed *et al* (2012), Nizami *et al*., (2011), and Riffat and Khan (2006) for a comparison of EIA procedures and practice in Pakistan compared with international best practices.

14 See Nadeem and Hameed (2010) for a review of monitoring, follow up and compliance with EIA commitments.

According to the prevalent view, EIA goals associated with avoiding, minimising or mitigating environmental impacts to third parties are attained with the design and implementation of environmental and social management plans (ESMPs) that embody mitigation measures on: pollution control; conservation of biodiversity; management of forest, water and other natural resources; technical environmental specifications for sectoral environmental management; and in some cases, involuntary resettlement.

The analysis of the case studies discussed above suggests that the focus of environmental assessment is geared towards approval of the project EIA rather than toward ensuring long-term environmental management and sustainability (Table 6.1). Scoping of EIAs without thorough and comprehensive public participation correlates with the low quality of EIAs (Saeed *et al*., 2011). Scoping (from terms of reference that are not tailored to the conditions of Pakistan) sometimes leads to largely descriptive exercises with a focus on baseline data collection (Saeed *et al.*, 2011; Nadeem and Hameed, 2006). There is lesser emphasis given to the determination, prediction and analysis of project impacts. In many cases, the EIA practice does not include assessments of the cumulative effects of single projects (Nadeem and Hameed, 2010).

Table 6.1 Analysis of Case Studies compared to best international EIA procedural compliance

EIA Component	Case 1	Case 2	Case 3
Was EIA Scoping conducted?	Partial	No	No
Was public participation involved in EIA Scoping?	Partially	No	No
Was EIA screening conducted?	Yes	Yes	Yes
Was an analysis of alternatives conducted?	Partial	Partial	No
Was baseline data sufficient for prediction of environmental impacts?	Partial	Partial	Partial
Were data gaps identified?	No	No	No
Was a quantitative evaluation of project impacts conducted?	No	No	No
Was consideration given to the assessment of cumulative effects or indirect project impacts?	Yes	No	No
Was an environmental management plan developed based on assessed project impacts?	Yes	Yes	Yes
Was there implementation of the environmental management plan and development of an environmental management system?	Yes	Yes	Yes
Was public consultation started at the earliest stage of the project and continued throughout the life of the project?	Partially	No	Partially
Was there a feedback in the consultation process to involve project-affected stakeholders in the EIA process?	Partial	No	No
Were broad public hearings held?	Partial	No	No
Was an EIA monitoring and follow-up programme developed by the company to assess the effectiveness of environmental and social management activities?	Yes	Yes	Yes

Source: Authors. Note. Case studies are included in Annex 1 of this chapter.

According to the ADB (2008:ii) in Pakistan **"**The environment impact assessment (EIA) guidelines are not adequate to ensure effective appraisal of large infrastructure projects such as dams and mega water projects. A major challenge associated with the large infrastructure projects would be to address resettlement and compensation issues in the absence of a resettlement policy."

Public participation in the EIA process has been initiated in Pakistan and both formal and informal processes are in operation. By August of 2013, there was no standardised public consultation process among EIA practices of IODBs. Public participation, while initiated early in some cases, is only usually conducted at the time of the public hearing to discuss the draft EA report (Saeed *et al.* , 2011). Public participation in the EIA process in Pakistan is largely informative in nature: to apprise the public about coming projects and their legal rights, and to inform them about the project and its potential impacts and management. Formal public hearings are geared more towards dissemination of project information rather than providing a mechanism whereby public comment and input can enter the decision-making process and affect the outcome of approval decisions. The lack of consistency in the approach to and scope of public participation in Pakistan have made it difficult or impossible for the opinions of the most vulnerable groups of society.

As in most countries with EIA systems, in Pakistan, the EIA follow-up and monitoring process is poorly developed (Nadeem and Hameed, 2010; Morrison-Saunders *et al.*, 2007). The responsible authority at the provincial level grants the approval of the environmental impact assessment study. However, the responsible authority does not necessarily have budgetary resources or staff for the supervision and compliance of the project's environmental and social management plans. Financial constraints often impede the ability for effective compliance monitoring in the field. Finally, monitoring reports are not available to the public for review and the public has no role in the EIA follow-up process. Several IODBs have allocated staff and resources to strengthen ESMP enforcement and follow-up. However, progress reports and ex-post evaluations of these activities are not available, publicly.

Furthermore, at the time of EIA preparation, only preliminary engineering details are usually available. As underscored by the case studies reviewed in Annex 1 of this chapter, environmental management plans presented in EIA therefore are largely conceptual in nature and are intended to be a guideline as to how they will be implemented once detailed engineering design is finalised. The compliance monitoring entity is also directed by legal requirements that are more concerned with formal compliance than actual commitments made in the EIA. The overall result is a suboptimal EIA follow-up process (Nadeem and Hameed, 2010). Despite this situation, EIAs have made important contributions to Pakistan's sustainable development, as discussed in the following section.[15]

15 Nadeem and Hameed (2010) find that there are "some encouraging examples of public sector proponents who implemented many commitments made in the EMP of a Project". However, they also note that such examples are rare.

6.5. Enhancing Positive Impacts and Building Capacity through EIA

As discussed in the previous sections, IODBs have significantly helped in the development of EIA approaches and practice in Pakistan, which have often prioritised procedural over substantive compliance. However, selected IODB-funded-projects in Pakistan have used environmental assessments to design activities meant to improve positive environmental impacts, and build environmental management capacity. The intent in this regard is to seek cost-effective synergies for increasing sustainability by promoting the systematic integration of environmental considerations into projects. The "beyond safeguard compliance" examples in this chapter demonstrate that the IODBs' environmental assessment safeguards policies provide an entry point to promote the inclusion of components that go beyond the strict compliance of the safeguard policies and lead to positive environmental outcomes in projects and to strengthen client capacity.

Enhancing Positive Impacts

Some projects funded by IODBs have enhanced their positive environmental impacts and have developed environmental and social components instrumental in achieving project development objectives. Projects such as the World Bank-supported Sindh Education Sector Reform Programme, which addresses environmental impacts for a programme but on a school-by-school basis, provide evidence that the IODBs' environmental assessments have taken advantage of safeguards policies to incorporate positive environmental outcomes as goals into projects. The objective of this project is to increase school participation, reduce gender and rural-urban disparities, increase progression from primary to secondary school, and improve the measurement of student learning in Pakistan's Sindh Province. During the course of project preparation, a number of environmentally-related inadequacies in Sindh schools came to light, including health concerns associated with lack of adequate clean drinking water facilities; inadequate sanitation facilities; poor sunlight exposure in classrooms; groundwater contamination; and the risk of natural disasters as a result of the school's location and structural design. The results of the environmental assessment led the project to incorporate environmental goals such as: seismic resistant structural designs for schools, design typologies for schools that reduce vulnerability to floods and other natural disasters, toilets designed to meet girls' needs, energy-efficient architectural designs, and cost-effective interventions to remove arsenic and pathogens from water storage facilities (World Bank 2009).

Strengthening Client Capacity

Client capacity-building consists of supporting agencies that implement projects and policies, as well as NGOs, to strengthen their capacity for environmental management, including identifying key environmental issues, setting environmental priorities, designing and implementing environmental interventions, conducting environmental monitoring, evaluating studies, and enforcing environmental requirements (Margulis and Vetleseter, 1999).

Many IODBs projects necessarily include some client capacity strengthening, since even conducting an environmental assessment is initially beyond the capacity of many

implementing agencies. However, the IODB's emphasis on client capacity-building has room for improvement, as client capacity-building has been carried out on an *ad-hoc* basis. For example, the IFC's "Performance Standards on Environmental and Social Sustainability", which include environmental assessment and environmental management systems as instrumental tools, incorporate client capacity-building as part of their essential design. Most IFC projects entail environmental assessment and, if necessary, strengthening of the environmental management systems of their development partners (IFC, 2012).

Two case studies illustrate the use of EIAs to build environmental management capacity at the provincial level in the irrigation and education sectors. With support of the ADB and the World Bank, the Water and Power Development Authority (WAPDA) implemented one of the most successful programmes in institutional strengthening in the water resources sector at the end of the 2000s. The agency also established a strategy to strengthen its environmental management together with an organisational restructuring centered on an Environmental Section with staff highly qualified in engineering and environmental sciences. A multidisciplinary team was created with highly qualified specialists, including civil engineers, agronomists, biologists and geographers, whose principal duties relate to the mitigation of negative environmental impacts and enhancement of the positive effects of water resources projects. A key role of the Environmental Section is to support the national and provincial environmental protection agencies in the sustainable environmental management of water resources projects. The strategy identified two objectives: (a) to obtain and maintain leadership in the rational use and protection of national natural resources, such as conservation of the natural environment; and (b) to minimise negative impacts and maximise positive impacts of road projects on the environment and natural resources (Afzal and Hussain, 1996; World Bank, 1997).

In another case, the environmental assessment for the Punjab Irrigation Development Policy Loan led to include reforms aimed at strengthening the capacity of the Punjab's Irrigation Department for assessing and mitigating social and environmental risks associated with asset management activities. As a result, a Social and Environmental Management Unit was set up within that Department, which is fully staffed and functional even after Bank funding to this Department ended. Some of the landmarks achieved by the capacity-building programme include the development and implementation of guidelines for the identification of social and environmental risks associated with the maintenance and rehabilitation of irrigation infrastructure. These guidelines include a comprehensive capacity development programme for the technical staff in the Irrigation Department to increase its awareness on social and environmental issues. Implementation of guidelines is fully institutionalised and includes regular dissemination of environmental activities through a newsletter. In Pakistan, an ex-post evaluation found that, as an instrument, the DPL is a more powerful tool in introducing long-lasting and sustainable reforms than a standard investment loan, which has a more project-based approach (World Bank, 2010b).

While EIAs at the project level can produce significant achievements in terms of enhancing positive impacts and building institutional capacity, environmental

assessments at the policy level offer further opportunities, as discussed in the following section.

6.6 Insights from SEA Experience in Pakistan

This chapter has focused, up to this point, on the EIA of specific infrastructure projects. In this section, the discussion centers on strategic environmental assessments (SEA), an analytical and participatory decision-making process for integrating environmental and sustainability considerations into policies, plans, and programmes. Although SEA came into use primarily over the last two decades and was first popularized in developed countries, SEA's value and potential for Pakistan has been acknowledged since the early 1990s (World Bank, 1995; Afzal and Hussain, 1996; World Bank, 1997). The section characterises the evolution of SEA application and distinguishes between two main types of SEA, as applied by IODBs in Pakistan. The section also evaluates the relative degree of influence of policy SEAs from 2004 to 2014 and summarises their conclusions.

Even before the year 2001, when the European Union's SEA Directive[16] entered into force and when SEAs received a new impetus and validation through the World Bank's first Environment Strategy, there were important stirrings of SEA activity in Pakistan. Sectoral and regional environmental assessments had already been undertaken and completed in sectors such as irrigation and drainage (National Engineering Services Pakistan (PVT) Limited; Mott MacDonald International Limited. 1993, World Bank, 1995; Afzal and Hussain, 1996; World Bank, 1997). In this regard, Naim (2002) acknowledges "SEA look-alike" activities that had already occurred in relation to Pakistan's water and drainage programmes and the 1995 IUCN National Conservation Strategy.

This review identified seven World Bank-supported SEAs undertaken in Pakistan between 1993 and early 2012. A trend was seen in the use of different types of SEA instruments over time. In Pakistan, there has been a definite shift in the use of certain types of SEA instruments after 2004. Prior to 2004, only SEAs for programmes and large projects were done, with a few differences from EIAs. The post-2004 shift in SEA titling and greater use of policy SEA instruments may be explained by the World Bank's Environment Strategy, which acknowledged the need for upstream analysis of social and environmental conditions and risks and mentioned policy SEA and Country Environmental Analysis as tools to mainstream environmental considerations into public policies (World Bank, 2001; Dalal-Clayton and Sadler, 2005). Then, in 2005, the World Bank established a SEA Pilot Programme to test and promote institution-centered SEA approaches in policy and sector reform, providing grants and specialised assistance. Several of these pilots were carried out in Pakistan and are profiled in Table 6.2.

16 Formally titled Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

Table 6.2. Selected SEAs Undertaken in Pakistan

SEA Title	Year*	Sector	Type
National Drainage Programme Project	1993	Agriculture	Sectoral EA
Highway Rehabilitation Project Sectoral Social and Environmental Assessment	2003	Transport	Sectoral SEA
Balochistan Small Scale Irrigation Project	2005	Agriculture	Cumulative EA
Pakistan Strategic Country Environmental Assessment	2006	Country	CEA
Pakistan Strategic Environmental, Poverty and Social Assessment of Freight Transport Sector Reforms	2011	Transport	Policy SEA
Mainstreaming Environmental Sustainability into Pakistan's Industrial Development	2012	Industry	Policy SEA
Strategic Sectoral Environmental and Social Assessment of Indus Basin (in progress)	In progress	Water	Policy SEA

Source: Authors. *Year of publication or disclosure. Acronyms: CEA-Country Environmental Analysis; EA-Environmental Assessment; SEA-Strategic Environmental Assessment.

EIA-like SEAs, centered mainly on the impacts of programmes, made up the bulk of SEA experience prior to 2004 and were undertaken to comply with "safeguard" policies of international development organisations. After 2004, policy SEAs have increasingly been used in Pakistan to mainstream environmental sustainability, social issues, and poverty alleviation into public policy design and implementation. Given that EIA-like SEAs use the same procedures and methods of EIAs, except for addressing cumulative and large-scale impacts of megaprojects, there are no significant differences between a comprehensive EIA and an EIA-like SEA in terms of methodols and arguably, also in terms of influencing decision-making (Tetlow and Hanusch, 2012). Policy SEA is defined as: "an analytical and participatory approach for incorporating environmental, social, and climate change considerations in sector reforms" (World Bank *et al.*, 2011). Institution-centered SEAs, formally piloted in the World Bank since 2005, focus on identifying environmental priorities, assessing institutions and governance systems and assessing alternative policy actions. Policy SEAs are acknowledged to require "a particular focus on the political, institutional, and governance context underlying decision-making processes" (World Bank *et al.*, 2011, p. 2).[17] The objective of policy SEAs is different from that of EIA-like-SEAs, particularly as it includes:

- Identifying environmental priorities for poverty alleviation and analysis of the capacity of natural resources and environmental services to support sector-wide economic activities and sector growth;
- Highlighting institutional and governance gaps or constraints affecting environmental and social sustainability;
- Promoting capacity-building and institutional, legal, and regulatory adjustments critical for environmental and social sustainability of sector reforms;
- Strengthening accountability on the management of environmental and social risks through increasing transparency and empowering weaker stakeholders; and
- Institutionalising social learning processes around the design and implementation of public policies (World Bank *et al.*, 2011).

17 A succinct presentation of insights and guidance on Policy SEA can be found in World Bank et al., 2011, et al. (2011).

Several policy SEAs developed in Pakistan after 2004 raised public awareness, promoted debate nationwide, and led to design environmentally sustainable public policies. Being among the most influential policy SEAs, the Pakistan Strategic Country Environmental Analysis; the Sindh Environmental and Climate Change Priorities SEA, the Strategic Environmental, Poverty and Social Assessment of Freight Transport Reforms (SEPSA), and the Mainstreaming Environmental Sustainability into Pakistan's Industrial Development SEA are highlighted here.

Mainstreaming Environmental Sustainability into Pakistan's Industrial Development SEA was initiated at the end of 2009 to mainstream sustainability into Pakistan's Industrial Competitiveness. The SEA was steered by a High Level Committee set up by the Ministry of Industries, representing the federal government, four provincial governments, academia, NGOs, the private sector and the World Bank. The SEA promoted a consensus building process that resulted in the formulation of a coherent and sustainable industrialisation strategy. The SEA stresses that industrial structural change, spatial transformation and improvements in infrastructure in industrial clusters are needed if Pakistan is to realise gains in economic efficiency and competitiveness, especially in export markets. This in turn requires a cross-sectoral approach that has been endorsed by the Planning Commission and the Ministry of Industries, which has requested programmematic lending support for the implementation of Pakistan's green industrial growth strategy (Sánchez-Triana, Ortolano and Afzal, 2012; Sánchez-Triana *et al.*, 2014).

Sindh Environmental and Climate Change Priorities SEA. At the request of the Government of Sindh (GoS) in 2010, the World Bank initiated a non-lending technical assistance (NLTA) on the Sindh Province with the objectives of: (i) creating a mechanism for ranking the province's environmental problems; (ii) assessing the efficiency and cost-effectiveness of alternative interventions to address priority environmental problems; and (iii) identifying the policy reforms, technical assistance, and investments that are needed to strengthen environmental sustainability in Sindh. As in the previous case, this SEA was steered by a high level committee integrated by representatives from the provincial government, business associations, environmental NGOs and other stakeholders. The SEA stressed that, currently, there is no priority setting mechanism in Sindh and the scarce available resources are not used to address the categories of environmental degradation that are causing the most significant effects. This SEA constituted the first formal assessment of the severity of environmental degradation in the province. It also provided a roadmap for carrying out investments, policy reforms and institutional strengthening activities that would result in better environmental conditions. The methods and approach adopted by the NLTA can be replicated in the future to evaluate progress in improving environmental conditions; identifying policy and intervention improvements; and determining the most efficient use of scarce resources (Sánchez-Triana *et al.*, forthcoming).

Strategic Environmental, Poverty and Social Assessment of Freight Transport Reforms (SEPSA). In order to ensure meaningful discussion among key stakeholders in the identification of specific sustainability criteria that would be incorporated into freight transport reforms, the GoP and the Bank held a series of workshops during 2009 to

scope out the studies that would be completed using methods developed for policy SEA and poverty and social impact analysis (PSIA). This gave rise to the Pakistan Strategic Environmental, Poverty and Social Assessment of Freight Transport Reforms (SEPSA). The environmental management component of SEPSA focused on the environmental aspects of investments and reforms in the trade and transport sector, particularly freight. The potential environmental effects of three strategic alternatives were analysed: (i) the "no reforms" alternative; (ii) policy reform and investment in the road freight sector; and, (iii) policy reform and investment in the rail freight sector. Each alternative was evaluated based on the set of priority issues identified jointly with stakeholders (climate change, air quality, transport of hazardous materials, road and railway safety, urban sprawl and accessibility, and environmental management systems) to assess their potential environmental and social implications.

The PSIA was prepared to identify potential social and distributional impacts of transport sector reforms on stakeholder groups, employing a computable general equilibrium (CGE) model that uses actual economic data to simulate how an economy might react to changes in policy or other external factors. The PSIA identified the main effects of proposed policy reforms and developed a menu of options to: mitigate negative impacts; incorporate poverty alleviation measures into the design of transport reforms and projects; enhance positive effects on poverty alleviation; and address environmental and social priorities. Strong governance and institutional capacity in sectoral and environmental agencies were highlighted as indispensable for the adoption of the options identified.

Findings from the Pakistan SEPSA include that a modal shift from road freight to rail freight transport for long hauls would have significant environmental and social benefits; that environmental issues should not be considered in isolation from social ones, particularly in situations in which policy reforms could increase the risk of social conflict; and, that understanding social patterns and conflicts illuminates the feasibility and weaknesses of potential solutions and needed mitigation measures. To stimulate economic growth, employment, and poverty reduction, reforms to promote industrial competitiveness need to be made along with significant investments in increasing road density to improve the connectivity of industrial clusters to domestic and international markets. Strengthening the infrastructure of urban centers to receive rural and inter-provincial migrants is also required (Sánchez-Triana, Afzal, Biller and Malik, 2013).

Pakistan Strategic Country Environmental Analysis (SCEA). Completed by the World Bank in 2007, the SCEA involved the identification of environment-poverty priorities, assessment of relevant environmental policies and institutions, and institutional analysis linked with identified themes and sectors (World Bank, 2007). The objective of the SCEA process centered on four principal tasks: identification of priority environmental concerns for sustainable, poverty-reducing development; analysis of the policies affecting the priority environmental concerns; assessment of environmental management capacity and performance in relation to the identified priorities; and development of a set of proposals to support improvements in the management of key environmental concerns. It involved an analysis of cost of environmental degradation analysis (COED). Identified priority problems included outdoor and indoor air pollution,

inadequate water supply, sanitation and hygiene, soil quality, and strengthening institutions for environmental management. As a result of the COED's quantification of economic losses from environmental degradation, other priorities for additional action and Bank support emerged, such as reducing the threat of air pollution to human health and the need to better control urban and industrial effluent in urban centers. The SCEA influenced the environmental content of the Poverty Reduction Strategy Paper (PRSP) and was meant to serve the donor community more widely as well as to guide World Bank environmental support to Pakistan (World Bank, 2007).

Pakistan Country Environmental Analysis (CEA). Prepared by the ADB in 2008, the CEA identified the following priority areas of investment: (i) access to basic sanitation and safe water for all; (ii) achieving energy efficiency; (iii) checking urban air pollution; (iv) improving agricultural productivity; and (v) establishing public-private partnerships for cleaner production and the treatment of industrial effluents. The CEA also proposed a series of reforms, technical assistance and investments to build the country's capacity to address identified priorities.

An analysis of the profiled policy SEAs identifies similar features: robust stakeholder participation, client ownership, and temporal coordination with the county's development priorities and processes. They also tend to be done in ways that are collaborative, evolving, and ongoing rather than as a safeguard clearance requirement which may receive heavier attention during project preparation than during project implementation (Slunge and Loayza, 2012).

A noteworthy strength of recent policy SEAs in Pakistan is an often explicit attention to social and poverty issues, particularly when linked to sectoral or environment-related reforms. This encompassing approach is consistent with the guidance of the OECD-DAC (2006, p. 42), which lists the first benefit of SEA as "safeguard[ing] the environmental assets and opportunities upon which all people depend, particularly the poor, and so promot[ing] sustainable poverty reduction and development." Through public consultations and outreach, policy SEAs were able to ensure that some of the follow-up actions focused on poverty alleviation and addressing citizen and stakeholder concerns. The importance of these actions cannot be overemphasised, particularly considering that EIAs were initially conceived as a tool to engage stakeholders and open up decision-making to public scrutiny, but as this chapter's previous sections indicate, have become environmental management tools in which the value of public participation and robust analysis of environmental impacts to inform decision-making has been sidelined in the interest of procedural compliance.

6.7 Conclusions

Results with EIAs conducted for projects financed by IODBs in Pakistan overall have been mixed in terms of procedural and substantive compliance. The EIAs for projects financed by IODBs tend to be done primarily to meet these organisations' clearance requirements and to minimise their "reputational risk[18]". The main indicator of procedural

18 Policies issued by IODBs do not define the concept of reputational risk. Furthermore, these organisations have not operationalized or measured reputational risk in terms of the IODBs' assets value.

compliance is given by the percentage of projects subject to investigations by CAO or Inspection Panel type of organisations. Overall, the number of cases subject to these investigations in agencies like the ADB, the International Financial Corporation or the World Bank, has been less than 1% of the projects supported. Procedural compliance with internal policies of international development agencies has been achieved to a large extent.

In terms of substantive compliance, there is little evidence to demonstrate the influence of EIA on decision-making. Most EIAs for IODB-supported projects are often initiated too late in project or programme preparation to be truly strategic and tend to be weak in their analysis of alternatives and cumulative effects. Most of these EIAs seldom enhance environmental planning or significantly open up decision-making to public scrutiny. On the positive side, there is evidence that environmental management plans provide value-added particularly in areas with lack of precise regulations such as biodiversity conservation or re-vegetation. The strengths and weaknesses of EIAs can be found in EIA-like-SEAs

Different from EIA-like-SEAs, the profiled policy SEAs generally led to significant influence by identifying environmental priorities associated with poverty alleviation, highlighting governance gaps or constraints, promoting capacity-building, strengthening accountability and transparency, and empowering weaker stakeholders.

Policy SEAs are a versatile instrument, proving their use in a range of contexts and sectors in Pakistan, including water resources, energy, transport, and regional development. Policy SEA and CEA benefits include: providing data, highlighting governance gaps or constraints, promoting capacity-building, strengthening accountability and transparency, and empowering weaker stakeholders. In Pakistan, because of the extent of stakeholder participation to validate the process, ownership by Pakistani decision-makers, and strategic timing of analytical work and social learning process with respect to country actions and priorities, policy SEAs, in the last several years, have tended to be more widely influential than traditional EIAs.

Recent policy and institution SEAs in Pakistan prioritise identifying and addressing environment-linked social and poverty issues, and this added understanding has proved valuable for: formulating mitigation measures to address vulnerabilities of various groups; reducing the cost of environmental degradation on human health; and greening growth. Awareness among Pakistan's decision makers of SEA's benefits is still limited and should be strengthened, particularly with respect to SEA's potential. Given SEA's proven value in Pakistan, greater attention needs to be paid to the ongoing financing for undertaking SEAs, since these have largely relied on trust funds and grants whose availability is rapidly diminishing in the current economic climate.

To conclude, SEA can play an active role in helping address pressing environmental and social issues so that Pakistan's growth becomes increasingly green, more competitive in regional and international markets, and conducive to improvement of living standards for urban and rural populations along the income spectrum. SEAs, particularly those that also unravel and illumine social issues and institutional bottlenecks, offer crucial insights

and information for addressing key priorities and challenges in the region. Most notably, Pakistan has strong partners in the analytical work and takes forward the findings and recommendations of its own initiative, oftentimes with new requests for development partner support or follow up. This is occurring not only with respect to environment ministries, but ministries of industry and other productive sectors. Policy SEA is proving itself as a tool to green sectors, regional development, and national development.

Annex: EIA process – Case Studies from International Organisations and Development Banks

In order to support the findings of this chapter, three EIAs from the transport sector were reviewed as case studies to assess the EIA preparation, review and approval process against established best international EIA practice (Tables A.1 - A.3 on the EIAs of the Pakistani railway development investment programme; the revival of Karachi Circular Railway and the reconstruction of Berth 15-17A including SRB's 1and2 on East Wharves at Karachi Port). The tables below summarize the information provided in each EIA report.[19]

Table A.1: Case 1. Environmental Impact Assessment - Pakistan: Railway Development Investment Programme (Project 1) (March, 2011).

EIA Report	Summary
Project Description	Proponent: Pakistan Railways (PR). Project objective: complete track renewal and rehabilitation of 132.34 km from Lahore to Lalamusa (in the Punjab province), including the rehabilitation of the Lahore, Shahdara and Wazirabad railway yards. Financed by the ADB.
Screening	The Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulation 2000 requires an EIA for all railways projects.
Scoping	The report indicated that the overall results of the screening process identified that possible impacts are expected to be temporary and could be mitigated or reduced by implementing proper environmental management plans throughout the project cycle.
EIA Preparation	A detailed site visit was carried out for collecting primary and secondary data to identify and establish the Corridor of Impact and mitigation measures required to minimise the adverse impacts.
Analysis of Alternatives	According to the report, three different alternatives were evaluated: "No Project". This alternative was estimated to result in further worsening of the present safety and environmental conditions and increased disturbance to residents of the area and the surrounding road users. "Rehabilitation and Doubling of the Existing Alignment". This option was rejected because the traffic projections did not justify doubling the line.

19 This annex is based on a 2011 World Bank consulting report prepared by A. M. Salamanca

	"Rehabilitation of the Existing Alignment". This option was selected. While it helps to improve the operational conditions of the railway along the study corridor, it also helps accommodate future traffic growth through improvements that only entail impacts that can be mitigated and minimal environmental impacts.
Major Impacts	During construction: temporary effects caused by construction machinery, equipment and vehicles, as well as from workers' daily activities. These included impacts on air quality, water quality, noise and vibrations, soil, and generation of hazardous and solid wastes. Operational phase: impacts from the operation of trains and stations' daily activities. These included impacts on air quality, water quality, noise and vibrations, soil, generation of hazardous and solid wastes, and safety due to pedestrian and livestock crossing the tracks.
Authority responsible for EIA Evaluation and Decision	Punjab Environmental Protection Agency.
Mitigation Measures	During rehabilitation: adoption of good management practices, such as the use of appropriate equipment, adequate scheduling of operations, location of worker camps in areas away from water bodies and agricultural lands, and adoption of waste management plans. Operational phase: adequate management practices, such as maintenance of equipment and locomotives, instructions to locomotive operators, and proper handling of hazardous wastes. Erecting walls to serve as noise barriers and impede pedestrians and livestock from crossing in inadequate spots. Use of environmentally-friendly equipment like solar water heaters and water saving devices for stations.
EIA Follow-up	PR will be responsible for the development and implementation of the monitoring plan for the operational phase, in cooperation with the Environmental Protection Agency (National and Punjab). Provincial and local authorities would need to provide authorisations for water use, cutting trees, and ensuring that workers camps and plants met legal requirements.
Public Participation	Four public consultative meetings were held in Shahdara, Gujranwala, Wazirabad, and Lalamusa.
EIA Conclusions	The report concludes that "the EIA shows that no major negative environmental impacts are expected as a result of the rehabilitation. This has been mainly attributed to the nature of the works, which include rehabilitation works only as opposed to new construction".

Source: Authors based on Pakistan Railways (2011)[20]

20 Available at http://pakrail.com/tender_files/460_EIA%2004012011.pdf

Table A.2: Case 2. Environmental Impact Assessment- Revival of Karachi Circular Railway (KCR)- January, 2009.

EIA Report	Summary and Observations
Project Description	Project proponent: Karachi Urban Transport Corporation (KUTC). Project objective: doubling of KCR Loop (29 km) with 9.320 km elevated track and provision of two dedicated tracks along the main line from Karachi Cantt to Drigh Road (14 km) and connection of Jinnah International Airport (6.0 km extension) with either underground or elevated track. Financed by JICA.
Screening	The Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulation 2000 requires an EIA for all railways projects.
Scoping	Based on meetings with KUTC officials; preliminary meetings with stakeholders on the KCR track; and a collection of maps and existing information.
EIA Preparation	The EIA was designed to address the regulatory requirements as well as to make it acceptable to KUTC, JICA, and EPA Sindh.
Analysis of Alternatives	Four alternatives were considered: “No project”. Rejected because traffic problems and associated environmental health problems would persist; “Revival of KCR”. The report finds this would be the preferred alternative to alleviate the transportation problems of Karachi provided the deficiencies in its past performance were removed and reforms in the management system were effectively introduced to strengthen the existing KCR infrastructure; “Horizontal alignment of KCR”. Alignment cannot be changed because the RoW of KCR land is fixed along the existing KCR and Main Railway track; and “An alternative power supply traction system”. This could be pursued through three options including DC 1, 500V, AC 25kV and AC2x 25kV for power supply to the traction system, each of which would need further elaboration.
Major impacts	During construction: temporary effects on air quality, noise and vibrations, water quality, soil contamination, generation of hazardous and solid wastes, and traffic congestion, caused by construction activities. During the operational phase: impacts from the operation of trains and daily activities of depots and stations, including both positive effects, such as air quality improvement due to electric train operation and improved traffic conditions on the road, negative impacts such as noise and waste generation.
Authority responsible for EIA Evaluation and Decision	Government of Sindh’s Environmental Protection Agency

Mitigation Measures	During construction: use of advanced railway construction techniques, development of a waste management programme and proper routing around site areas. During the operational phase: erect a sound barrier wall, which would also act as safety wall. A solid waste collection system would be provided and hazardous waste treatment would be required. Other mitigation measures consisted of treatment of waste-water and maintenance of infrastructure and equipment. The report stated that a "resettlement action will be prepared that includes monetary compensation, relocation, resettlement and rehabilitation."
EIA Follow-up	Pakistan Railways would be responsible for the overall management of KUTC.
Public Participation	Preliminary meetings were held with stakeholders on the KCR track to obtain their views on the construction of the road and on information to support the study.
EIA Conclusions	The report concluded "[t]he Revival of Karachi Circular Railway Project would vitalise Karachi, solve its traffic problems extensively and make a major contribution towards improving the living standard of the people of the city."

Source: Authors based on EMC (2009).[21]

21 Available at: http://www.kutckcr.com/files/KCR-EIA-Final-Report-_opt.pdf

Table A.3: Case 3: Environmental Impact Assessment of Reconstruction of Berth 15-17A including SRB's-1 and 2 on East Wharves at Karachi Port (May 2010)

EIA Report	Observations
Project Description	Project proponent: Karachi Port Trust (KPT). Project objective: undertake the reconstruction of berths 15-17 A and Ship Repair Berths (SRB) 1and 2 on East Wharves at the Karachi Port to eliminate waiting time for ships and yield savings in marine transport costs. Funded by IBRD and IFC.
Screening	Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulation 2000 states that ports and harbour development for ships of 500 gross tons and above require an EIA.
Scoping	Scoping Each impact identified was evaluated against its significance in terms of its severity and the likelihood of its occurrence, considering its effects on the natural ecosystem. Impacts were classified based on project phases (pre-construction, construction and operation) and type (physical, biological and socio-economic).
EIA Preparation	The method included meeting with the KPT; collection of primary and secondary data; analysis of alternatives; public consultation; review of the legislative requirements; impact assessments; identification of mitigation measures; development of environmental management plan; and documentation of EIA report.
Analysis of Alternatives	Four alternatives were considered: (1) no project option, (2) relocation of berths to idle part of the harbor, (3) increase in cargo handling capacity of other operational berth to compensate for the loss due to unavailability of these berths and (4) deepening of harbour channel to accommodate more ships at the existing berths. The report did not include the analysis of these alternatives.
Major impacts	During construction: waste generation; air quality; soil contamination; water quality; dredging and reclamation; benthic flora and fauna; noise and vibration; public health and safety; and impacts on employment, as well as on historical, archeological and cultural property. During operation: air quality, noise, vibrations, accidental oil spills, waste generation and contamination of sea-water.
Authority responsible for EIA Evaluation and Decision	Pakistan Environmental Protection Agency, because the Karachi Port is located on Federal land.

Mitigation Measures	Design and pre-construction phase: adequate design and construction, cautionary signage, identification of noise sources, and safe transport of the demolition material through use of well-maintained vehicles and proper training of the drivers, among others. Construction phase: elaboration of a waste management plan, worker use of protective devices, provision of adequate facilities for workers, proper storage of hazardous materials, and adequate maintenance of equipment and vehicles, among others. Operational phase: adequate management practices and compliance with existing norms and regulations. These include ensuring compliance with noise emission standards, appropriate procedures for handling and storage of hazardous cargoes, and cleaning of spills of oil, toxic chemicals etc. as early as possible, among others.
EIA Follow-up	The report recommends engaging an Independent Monitoring Consultant to oversee the adoption of the mitigation measures. KPT would be responsible for implementing the EMP.
Public Participation	Meetings were held with the communities living in Baba, Bhit and Shams Pir Island, IUCN, WWF, an international contractor working in the harbour, shipping agents and Port Traffic and Safety Departments of the KPT to discuss the project, its components and its expected environmental and socio- economic impacts and proposed mitigation measures.
EIA Conclusions	The EIA established baseline data for air quality, sub-sea soil, noise and sea-water quality and recommends strengthening it by conducting monitoring during the pre-construction phase until the Pak EPA approves the project. It also recommends strengthening KPT's Pollution Control Department's capacity for environmental monitoring.

Source: Authors based on KTP (2010)[22]

22 http://documents.worldbank.org/curated/en/2010/05/12315319/pakistan-karachi-port-improvement-project-environmental-assessment-environmental-impact-assessment-reconstruction-berth-15-17a-including-srbs-1-2-east-wharves-karachi-port

7 Public Participation Practice in EIA in Pakistan

By Obaidullah Nadeem and Rizwan Hameed

Public participation is a mandatory requirement in Environmental Impact Assessment (EIA) in Pakistan and many other countries. Although public hearings are held for every development project which undergoes an EIA process, their efficacy with regard to achieving the objective of adequately considering stakeholders' genuine concerns in the final outcome of EIA is questionable. Public hearing as a mechanism of involving people does not facilitate stakeholders to influence decisions. The Pakistani practice demonstrates that it begins after procuring the project site and even the start of construction and that the proponents take it largely as a formality. The effectiveness of public participation in EIA can possibly be enhanced by; involving the public as early as possible in the project planning and development cycle through a participation mechanism which facilitates more interactive communication; shared analysis; negotiations and trade-offs; as well as involving independent experts/environmentalists in the EIA review, public participation and decision making processes.

7.1 Introduction

It is said that "EIA is not EIA without consultation and participation" (Wood, 2003, p.275). Consultation refers to a process in which the affected and interested people *i.e.*stakeholders are invited to comment on documentation/ the EIA report. Participation is an engagement process in which the public is invited to exchange information, views and predictions and thus contribute to decision making (Fischer, 2007). Consulting the public to provide EIA related information and considering their concerns pertaining to probable environmental and socio-economic impacts of development projects in decision-making are some of its core objectives. Enhancing its effectiveness in terms of influencing the final decisions through various mechanisms has been the central theme in the relevant literature (O'Faircheallaigh, 2010; Glucker, 2013). The degree to which the interested and potentially affected public or stakeholders of a project are involved in EIA process varies across the globe.

It has been increasingly suggested that the public should be involved during the various stages of EIA process, including: screening, scoping, impact assessment, identification of mitigation measures, review of EIA report,

implementation and monitoring (Fischer and Nadeem, 2013; Heiland, 2005; Canter, 1996). A wide range of mechanisms or techniques are used for this purpose. Most common methods include: public hearings, public meetings, community advisory groups and focus groups (Chess and Purcell, 1999). International experience suggests that public hearings are a relatively weak mechanism of public participation. It may result in a complicated situation as more voiced groups with vested interest in the project tend to influence or hijack the consultation process (Naim, 2004). Other techniques, by their very nature, provide a more interactive environment, particularly for mediation and trade-offs (Beierle and Cayford, 2002). Notwithstanding the practice of more interactive procedures, the public participation/stakeholders' concerns tend to have a weak influence on the final decision/EIA outcomes in most countries (Nadeem *et al*., 2014).

This chapter portrays the practice of public participation in EIA in Pakistan. The first section establishes its legal and institutional context. The second section discusses the ways in which the public is consulted during EIA studies. The third section explores the methods of inviting the public for written comments and public hearings. The next two sections describe the public hearing proceedings. Substantive quality in terms of considering stakeholders' concerns in EIA reports is then examined. The extent to which stakeholders' concerns influence the final outcome is determined. This is followed by a critical analysis of the degree of transparency of the decision-making process and the way decisions are disseminated. The penultimate section discusses the significance and practice of post-EIA public participation. The final section presents some concluding remarks.

7.2 Legal and Institutional Context

Pakistan's Federal Environmental Protection Act 1997 §12(3), the Provincial Acts (the Punjab Environmental Protection Act 1997 §12(3) and the Balochistan Environment Protection Act 2012 §15(1)), require the concerned environmental protection agencies (EPAs) to carry out EIA review with public participation. EPAs have been established in the Federal Capital as well as in all the provinces, including Gilgit-Baltistan and Azad Jammu and Kashmir.

The Acts require that information pertaining to "business activities, techniques of proprietary nature or commercial, scientific or technical matters" shall not be disclosed during public participation as requested by the proponent to remain confidential. The Director General of the concerned EPA may release the information in greater public interest if the request of the proponent is deemed not 'well-founded'. Information pertaining to international relations, national security, and law and order shall also be kept confidential except with the consent of the Federal/Provincial government (GoP, 1997, GoPb, 2012; GoB, 2013).

Pak-EPA's Review of IEE and EIA Regulations 2000 provide for mechanisms of public participation. Regulation 10 stipulates inviting written comments of the public/stakeholders of every project on its EIA report, once submitted, and subsequently holding a public hearing. The responsibility for the public hearing rests with the concerned EPA. A public notice is required to be published in any English or Urdu national newspaper and in a local newspaper of general circulation in the project

affected area(s), allowing a minimum time of 30 days between the date of publication of notices and the public hearing. The notice should indicate the type and the location of the project, name and address of the proponent as well as the places at which EIA report of the project is available (GoP, 2000). Beyond this point, the legal instruments are silent, whereas Pak-EPA's guidelines for public consultation elaborate on the manner in which these requirements may be fulfilled (GoP, 1997a).

The remainder of this paper will explain various aspects of the actual practice of public consultation and/or participation in EIA in Pakistan. This will be done in the light of legal provisions and guidelines, local and international practices.

7.3 Consulting the Public During EIA Studies

Since public consultation during EIA studies or preparation of an EIA report is not required under any federal or provincial law, proponents/consultants do it in a manner and to an extent that is convenient to them. Pak-EPA's guidelines for public consultation, however, suggest that the stakeholders should be involved to identify the need and level of EIA, project alternatives, assess impacts and identify mitigation measures, implementation and monitoring (GoP, 1997a). In practice, in Pakistan, identification of the need and level of EIA (screening and scoping) is a purely in-house activity between the EIA consultant and EPA officials. For identification of issues, project alternatives, assessment of impacts and identification of mitigation measures, the views of a small fraction of potential affectees are often sought through questionnaire surveys during EIA studies. Some cases can also be found where focus groups were organized for this purpose (NESPAK, 2007). In case of projects funded by international organisations such as the Asian Development Bank, community meetings are held and the proceedings are video recorded, perhaps to provide a proof to the funding agency (NESPAK, 2008).

In some developed countries, for example, the Netherlands and USA, the general public is allowed to comment during scoping. In the UK and Canada, concerned agencies/statutory consultees are involved during screening and scoping (Wood, 2003; Bassi *et al.*, 2012). In China where the EIA system is relatively young, public consultation is not only compulsory during scoping and review of EIA for development projects but also for plans (Wang and Chen, 2006).

7.4 Inviting the Public for Written Comments and Public Hearing

In Pakistan, EIA is submitted usually after starting construction and in response to repeated reminders by the concerned EPA (Nadeem and Hameed, 2008). Once submitted, after its preliminary review, the concerned EPA invites the public for submitting written comments as well as for participation in public hearing. The title of this invitation given by the Balochistan EPA is 'Notice of Admission', while it is 'Public Notice' by the Sindh EPA (Dawn, 2013; The News, 2013) and 'Public Hearing Notice' by the Punjab EPA (The News, 2011). Such invitations normally appear in the newspaper pages that contain tender notices. Readers often skip these pages and thus mostly remain ignorant of public hearing notices.

In addition to the newspapers, the Federal EPA features the public hearing notice on its website. Provincial EPAs do not have independent websites but have links on the respective provincial government websites. There is no practice of publishing such notices at any of the provincial EPAs web pages. The EPAs also send special invitations by surface mail to twenty to 30 stakeholders/officials of various government departments, educational institutions, representatives of active NGOs for written comments and participation in public hearing.

Informing/inviting stakeholders of a project is one of the important pre-requisites for wider public participation. If the public is not aware of an opportunity to give comments or to be heard, turn out in public hearings is usually thin, except where community leaders are active in bringing potential affectees to the public hearing venue. This is obvious when studying the attendance sheets of public hearings of most of the projects held so far in the country. However, this practice, in some cases, may be termed as a blessing in disguise. Bringing 'everyone' to a public hearing may lead to a chaotic situation without any meaningful comments being obtained or negotiations between a project proponent and its potential affectees (Nadeem, 2010).

A hard copy of the EIA report is placed in the office of the concerned EPA, District Officer Environment and/or in a public library located in the city close to the project site. An EIA report can also be seen in the office of the project proponent. Generally speaking, photocopying of any part of EIA report is not allowed. Due to fixed time of libraries and EPA/proponent offices, stakeholders find it difficult to spare time during working hours and read voluminous reports for giving comments. But it is encouraging to note that some consultants/government departments have initiated uploading full EIA report on their websites (see, for example http://www.emc.com.pk/pdf/Final%20Report%20-%20KPD%20TAY%20Project.pdf). Thus, accessibility to full EIA reports can be termed as better than some other developing countries like India and Thailand where only executive summaries are available to the public (Paliwal; 2006; Maowong and Ogunlana, 2006). In the USA and Canada, any stakeholder can download a soft copy of the EIA report from the EPA/proponent's website or can purchase a hard copy (Wood, 2003).

7.5 Holding Public Hearings

Public hearings are generally held in hotels or public halls/auditoriums located in the city and sometime in the office of Tehsil Municipal Administration (TMA) within the jurisdiction of which the project is situated. Some examples can also be found where public hearings were held on or close to the project site (The News, 2009). Nevertheless, poor accessibility of public consultation/hearing venues for the majority of stakeholders, especially direct affectees of projects has been frequently observed as one of the constraints in public participation in many countries (Cunningham and Tiefenbacher, 2008; Zubair *et al.*, 2011). Review of several notices for public hearings and discussions with EPA officials revealed that there was no practice of providing transport to poor affectees to get to the hearing venue. Due to this reason, affectees are often unable to participate if the venue is located in the heart of a big city while they are living in remote areas.

Schedules of public hearings depend upon the suitability of project proponents, consultants and EPA officials. It is normally held on any working day during office hours. Studies suggest that weekends or afternoons of working days are a more suitable time for the general public and even qualified professionals (Nadeem, 2010; Chompunth, 2011). While the public hearing is organised by the EIA consultant, it is sponsored by the the project proponent. After introduction to the project and its EIA by the concerned Director/Deputy Director of the EPA, the consultants give Power Point presentations briefly explaining the project design and its benefits for the country/area and for the people, if any, as well as the EIA method, consultation with stakeholders, identification and assessment of impacts, proposed mitigation measures and the environmental management plan (EMP).

The participants are then provided with the opportunity to raise issues or their concerns and make suggestions. Whoever wants to speak is given full liberty to do so. Perhaps this is why the atmosphere of some hearings turns hostile. Under normal circumstances, the EIA consultant responds to questions or issues raised by the participants and promises to incorporate their concerns in the EIA report (for further detail see The Frontier Post, 2012). In most hearings, a few 'speakers' may not get the opportunity due to shortage of time, since it is practically impossible to continue a public hearing all day. Usually, a public hearing lasts from three to four hours. The remaining participants are advised to submit written comments to the EPA officials after the hearing.

Looking at the practice in other developing countries, it is worth mentioning that the public hearings are executed by a panel of independent experts, community representatives and officials from the government departments invloved with the project. For instance, hearing panel members in India belong to State Pollution Control Board, Department of Environment, Local Government/ Municipalities or Punchayats, and senior citizens of the affected areas (not more than three in both cases) nominated by the District Collector (Rajvanshi, 2003; Panigrahi and Amirapu, 2012). In Ghana, panels for public hearings consist of at least three representatives of local diversity (Bawol, 2013). In Thailand, public hearings are conducted by a committee appointed by the concerned Minister. Their members are selected from academic institutions, parliament, council of lawyers and technical experts. The committee is also responsible to decide the date, place and time of hearing and submit its report to the Cabinet (Chompunth, 2011).

7.6 Recording Public Concerns

Public hearing proceedings, including the issues and concerns raised by stakeholders are recorded by the concerned EPA and consultant staff. Mainly the minutes are taken by EPA staff. Still photography and video recording is done by a member of the consultant's team. The issues and concerns are then communicated to the project proponent. A written response is then submitted to the EPA by the proponent, as prepared by the EIA consultant. The number of days proponents normally take in submitting the response may range from less than seven days to more than seven months depending upon the nature of comments and revisions needed. EPAs allow a one week period for this purpose. However, if a proponent does not respond, the

respective EPA sends a reminder after appproximately a month's time. For example, in the case of Sunder Industrial Estate Project, the proponent took seven months since a new EIA report was prepared after hiring a new consultant. During this period, the Punjab EPA sent three reminders while the construction work continued during this period.

7.7 Substantive Quality of the Outcome- Considering Stakeholders' Concerns in EIA Reports

The extent to which stakeholders' concerns are considered in EIA reports varies from project to project. A review of the literature indicates that there are some factors that may contribute to better consideration of stakeholders' concerns in the EIA report. These mainly include: foreign funding; employment of formally qualified environmental planning and management professionals and social scientists by the project proponent; active participation of formally educated and/or environmental planning and management experts, members of NGOs, and the direct affectees; requirements of social acceptability; no political involvement; and a diverse, and project relevant, team of EIA consultants (Cooper and Elliott, 2000; Manowong and Ogunlana, 2006; Jha-Thakur, 2006; Nadeem, 2010; Nadeem and Fischer 2011).

These factors suggest that a donor agency can play an effective role in ensuring the adequate consideration of stakeholders concerns in the EIA report. The foreign donor agencies have their own comprehensive guidelines and employ qualified environmental and social scientists (ADB, 2003; World Bank, 1999). In Pakistan, the employment of qualified environmentalists and social scientists is scant in public and private sector organisations. The composition of a team of EIA consultants is also an important factor. In case of developing countries, examples exist where EIA reports are prepared by one man, 'jack of all trades master of none' type consultant. This generally leads to poor quality of EIA reports. If the consultant has a complete team of professionals having expertise relevant to the nature of project and various aspects of EIA, the possibility of better quality EIA report and adequate consideration of stakeholders concerns increases. For example, social and environmental Impact assessment of Pakistan Highway Rehabilitation Project funded by the World Bank was found to have many attributes of good practice (for further details see Nadeem *et al.*, 2013).

In case of Chotiari Reservoir located in the Sindh Province, the quality of the EIA report and the consideration of stakeholders' concerns pertaining to socio-economic and environmental impacts were found to be inadequate. This happened mainly due to poor evaluation of such impacts and a bias of the EIA consultant in favour of the contractor despite the fact that the project was funded by a foreign donor agency (Magsi and Torre, 2012). But this project was already approved in 1994, *i.e.* in the early days of EIA in Pakistan. EIA practice, including public consultation, has matured since then. Still, there is a need to do further research, identifying the factors which may contribute to enhancing the quality of the EIA report and adequate consideration of stakeholders' concerns. For locally funded development projects, Saeed *et al.* (2012), while reviewing the EIA of Zero-point Interchange, Islamabad, noted that

> *'the public consultation section is very poor. The consultant team was not able to exactly identify the stakeholder categories. The method and approach adopted for public consultation was not professional. General views of people about the proposed project have been included in this section; even no technical sentence was seen in this section. No stakeholder from international organisations like IUCN, UNDP, WWF etc. and institutional stakeholders like Environment Directorate, Ministry of Forestry, Ministry of Environment, etc. were invited honestly and sufficiently for raising the environmental issues regarding proposed project'* (p.1914).

However, a few examples of EIAs exist where some independent EIA experts, representatives of NGOs, and representatives from concerned departments of the government raised technically valid objections on the EIA reports. For instance, the EIA report of Sundar Industrial Estate Project was initially rejected by the EPA due to the concerns raised by the aforementioned stakeholders during public hearing. The revised report included more detailed identification and assessment of potential impacts, mitigation measures, and a comprehensive environmental management plan (EMP). Those directly affected, including residents of villages surrounding the site and those whose land was compulsorily acquired, were not involved in the consultation process. This is potentially why, possible socio-economic impacts expected to affect both their livelihood and quality of life were not given any consideration in the EIA report (Nadeem, 2010).

7.8 Influence of Stakeholders' Concerns on the Final Outcome

Adequate consideration of stakeholders' concerns in the final decision on the application seeking environmental approval/NOC for a development project indicates the degree of their influence on the final outcome of EIA. There are some matured EIA regimes, where it could succeed in having moderate influence, for instance, in the Netherlands and Canada. This was mostly in the form of modifications in the project design and environmental approval conditions (Wood, 2003, Sinclair and Diduck, 2001). However, in developing countries, influence of public participation or stakeholders' concerns on the final outcome of EIA has been found to be weak (Song and Glasson, 2010; Chompunth, 2011; Naser 2012; Panigrahi and Amirapu, 2012).
In Pakistan, EPA's in-house committees or concerned directors, if satisfied with the proponent's response to the public concerns, issue environmental approval/NOC. Every approval is subject to certain conditions. As discussed earlier, in most cases EIA reports are submitted after starting construction. The reports are deficient in consulting stakeholders and considering their concerns. Although EIA reports are rejected or revised it is extremely rare that a project is rejected on the basis of stakeholders' concerns pertaining to possible environmental and socio-economic impacts.

Review of the EIA reports, public hearing proceedings and environmental approval/NOCs of several projects revealed that many concerns raised by the stakeholders were not given adequate consideration in the final decisions or conditions of approval. Such concerns were mainly related to inappropriate project location or lack of considering project alternatives, loss of rich agricultural land and livelihood, possible impacts on human health due to air and ground water pollution as well as lack of

considering cumulative impacts of proposed projects (Nadeem, 2010; Nadeem and Fischer, 2011; Magsi and Torre, 2012; Saeed *et al.*, 2012).

7.9 Transparency of Decision-making and Dissemination of Decisions

Some of the EIA regimes in developed countries have established decision-making processes which inherently contain certain degrees of transparency. For instance, in the Netherlands, the public is provided with open access to the information pertaining to all stages of the process - from screening to the final decision and implementation monitoring. Notification of intent by the proponent including a brief description of the project, findings of the EIS review, final decision and the audit report are published. The competent authorities publicly state how the EIA and public concerns influenced consideration of project alternatives and the final decision. In addition, copies of the decision are sent to the participants of the public hearings, statutory consultees and members of the EIA commission (Wood, 2003).

In some younger EIA regimes of developing countries, for example Syria, decision-making procedures are not well established and transparent (Haydar and Pediaditi, 2010). A transparent decision-making process is an attribute of an egalitarian system of governance and true democracy. This often does not suit all countries, even if these are formally democracies. Perhaps that is why "the public is effectively excluded from project planning and decision making" Boyle (1998, p.95). However, in India, final decision including the conditions of EIA approval is displayed on the notice boards of the concerned EPA (Jha-Thakur, 2006). The stakeholders are also provided with the copies of the final decision upon request (Sinclair and Diduck, 2000). In Turkey, "the provincial Environment Board announces the decision through appropriate media to the concerned public" (Innanen, 2004, p.147). However, in China and Thailand, for example, the public is not informed about the final outcome of EIA (Yang, 2008; Chompunth, 2011).

Owing to the 'in-house' nature of the EIA decision-making process in Pakistan, stakeholders are not informed how their concerns were incorporated in the EIA report or considered in the final decision. The environmental approval letter/NOC is issued to the project proponent with copies to the concerned government departments/agencies and District Officer(s) Environment. Representatives of the affected communities or NGOs might also be informed about a decision and the conditions of approval, if they demand. However, the Pak-EPA's guidelines for the preparation and review of environmental reports suggest that the decision should be made public. A register of decisions should also be maintained and made available to the public (GoP, 1997b).

7.10 Post-EIA Public Participation

Theoretically, EIA public participation should not only be proactive but also be continued during the project implementation and operation as well as during environmental monitoring (Canter, 1996; Heiland, 2005; Chompunth, 2011). It is one of the weakest aspects of public involvement in EIA, and the same is the case in Pakistan. Pak-EPA's guidelines for public consultation suggest that representatives of the local communities

should be involved in the project implementation and monitoring processes (GoP, 1997a). In practice, proponents do not involve affected communities or their representatives during these stages. This is common practice in other developing countries, as well. In Egypt, Turkey, Tunisia and India, monitoring takes place mostly in response to complaints by the direct affectees and other stakeholders (Ahmad, and Wood, 2002; Panigrahi and Amirapu, 2012).

In Pakistan, if someone submits a complaint to the concerned EPA against the environmental pollution caused by a project, it issues a notice or Environmental Protection Order to the proponent. If the proponent fails to implement mitigation measures, EPA sends its inspection/monitoring team. If the evidence of pollution is established, EPA issues warning/environmental protection order or sends its case to the concerned Environmental Protection Tribunal for legal proceedings against the proponent. Fact of the matter is that several cases remain pending because both the EPAs and Environmental Tribunals lack adequate human and financial resources (for further details see Pastakia/NIAP, 2012).

7.11 Concluding Remarks

Legal requirements of public consultation or participation are a significant aspect of EIA that makes it unique compared with other decision-making support instruments which may be associated with actions that potentially have severe effects on quality of life. It is encouraging that public participation or at least public hearing is being held during the review of EIA of development projects in Pakistan. However, the public is normally involved only after taking irreversible decisions pertaining to the project site and start of construction activities. In the entire EIA public participation process there is no step to determine whether the proposed/acquired site of a project is in accordance with the provisions of the land use/master plan of that city/area. The substantive quality of an EIA report and influence of public concerns on the final outcome are weak, as is the case in other developing countries. Whatever the conditions of environmental approval are, proponents try to avoid implementing those.

In order to transform public participation into a fruitful exercise, there is a need to involve the public as early as possible in the project planning and development cycle through participation mechanisms which facilitate more interactive communication, shared analysis, negotiations and trade-offs. Involving independent experts/environmentalists in the EIA review, public participation and decision-making can possibly enhance the transparency of the decision-making processes and adequate consideration of stakeholders concerns. To ensure an environmental and people friendly outcome of a development, involving experts and potentially affected communities during project implementation and monitoring is necessary.

8 Climate Proofing and EIA

By Miriam Kugele[23]

The aim of mainstreaming climate change into sectoral policies, guidance and tools is to integrate assessments of climate change risks, to design pro-active adaptation and mitigation actions for better alignment, and to achieve higher efficiency and effectiveness in addressing looming climate change impacts. Since EIA is mandatory for project development in Pakistan and elsewhere, it presents an ideal entry point to such ends. This chapter will look at past experiences of integration of climate change in EIA and also strategic environmental assessment (SEA) to explore the goals that climate-proofing in EIA could achieve. Different entry points for including climate analyses and actions - especially those relevant for the Pakistan climate change and policy context - are analysed and opportunities for innovation and further research are presented. This analysis shows that the integration of climate change through climate proofing tools in EIA and SEA can contribute to more climate resilient development.

8.1 Introduction

There is a growing interest in how to pro-actively address the risks associated with climate change, in policy and increasingly in plans, programmes and projects. Development agencies and selected national governments are making an effort to develop tools to screen their projects prior to implementation, thus aiming at climate compatible development. This is connected with the recognition that climatic factors affect not only soil, air, water, biodiversity and other aspects of the natural environment, but also our cultural heritage, health, material assets, and development prospects overall. With most recent warnings that frequency of extreme events like floods are increasing, the consequences for economic development are serious (IPCC, 2012). Therefore, climate change is becoming one of the most critical drivers of change in our times. The goal of 'climate proofing' is to avoid negative effects of climate change on project performance, to decrease emissions that cause climate change, and to increase adaptive capacity and resilience.
To increase efficiency in the use of financial and human resources, climate change considerations can also be integrated into existing modalities of project design and management. Environmental Impact Assessment (EIA), which is an accepted and mandatory tool for environmental decision making in

23 This chapter has kindly been reviewed by Pervaiz Amir

many countries, is of particular relevance in this regard and offers many entry points for climate change incorporation into project design. Increasingly, the EIA community is interested in using EIA to bridge the gap between science and decision-making at the project level, thus supporting decisions either to adapt or to mitigate climate change (see *e.g.* Agrawala *et al.*, 2010; Bell *et al.*, 2002; 2003; Yi and Hacking, 2012). A more substantive body of literature addresses climate change in Strategic Environment Assessment (SEA) as climate change is a cumulative effect through the build-up of many actions (see *e.g.* Brooks and Adger, 2003; EC, 2013; Füssel, 2007; Noble, 2008; Gunn and Noble, 2009; Fischer *et al.*, 2011; OECD, 2008; Fischer, 1999).

EIA is designed to assess the impacts of a project on the environment, and not the impacts of environmental change on the project (Agrawala *et al.*, 2010). Climate change mitigation (*i.e.* the implementing policies to reduce GHG emissions and enhance sinks; IPCC, 2007) is in line with this form of risk avoidance. However, climate change also impacts on a project and its development benefits with diverging consequences on the beneficiary base. Integration of climate proofing therefore offers an opportunity to make the project *results* more resilient in the context of climate change, in other words climate change adaptation can be considered at the design and approval stages of a project (adaptation being adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities; *ibid*.). What is of particular importance is that "EIA can serve as an important link between international standards and local decisions" (Christopher, 2008) due to allowing agencies to tailor solutions to the specific situational needs rather than enforcing a top-down approach.

This chapter argues that integrating climate change aspects into EIA (and SEA) processes can be more *efficient* when compared to stand-alone and add-on climate change assessments, and can also attain higher *effectiveness* to address climate change impacts, since EIAs have management plans for concrete corrective action. Furthermore, the inclusion of climate proofing can trigger innovation in EIA and SEA, thus improving planning for better dealing with current *and* future risks.

Subsequently, the chapter looks at climate change in Pakistan, firstly in terms of impacts and secondly in terms of the policy context. Climate proofing is introduced, followed by an analysis of the experiences with integration of climate change and other tools. Finally, lessons of climate change integration will be drawn for Pakistan, before the chapter is concluded with an outlook.

8.2 Pakistan and Climate Change

The rising concentration of carbon dioxide (CO_2) and other greenhouse gases (GHG) in the atmosphere, caused particularly by the burning of fossil fuels and by deforestation, is changing its composition and preventing heat from escaping the earth's surface. Man-made emissions have already increased GHG concentrations by one third compared with the start of the industrial era. The result is climate change. Global average temperature has risen by about 0.6°C since the beginning of the twentieth century, with about 0.4°C of this warming occurring since the 1970s. The Intergovernmental Panel on

Climate Change has attributed at least 95% of the observed warming of the last 50 years to human activities (IPCC, 2013).

Pakistan has been ranked as one of the most vulnerable countries to climate change impacts; Maplecroft (2011) ranked the country as the sixteenth most vulnerable to climate change impacts over the next 30 years, while the GermanWatch Climate Risk Index (2013) ranks Pakistan as the eighth most affected country between 1991 to 2010 due to numerous climate-related extreme events in that time (LEAD, 2011). This overall vulnerability stems from a range of underlying factors, including the large range of geophysical systems from the northern mountains to the southern deserts and delta, exposure to projected temperature rise and precipitation variations, prevailing high poverty and low human development confounded by the challenging security situation, the high rate of population growth, extensive ecosystems degradation followed by declining provision of ecosystem services, lack of land tenure, as well as low institutional capacities at all levels. The complexity of these issues presents a particular challenge for disaster management, including risk reduction, preparation, and recovery for more resilience to future impacts. With climate change, extreme events are expected to be more frequent, intense, and more likely to become disasters as a combination of hydro-meteorological events and man-made outcomes. Projections of future temperatures show strong warming trends: over Pakistan as a whole, mean annual temperature has increased by 0.35°C over the period 1970–99; annual average temperatures in the region are projected to increase by 1.0°C to 2.25°C by 2025, and from 2.0°C to 3.5°C by 2050, in a mid-emissions scenario; and extreme heat has already increased significantly since 1960 (Pakistan Meteorological Department, 2009). The variability in monsoon rains will increase, and in line with this the risks of floods and extended droughts. Other impacts of climate change and climate variability in Pakistan that are already visible and expected to increase with continuing global climate change include glacial melt, altered disease spread and sea level rise. Climate change poses a serious threat to the water, food and energy security of the country (Rasul *et al.,* 2012; Mahbub ul Haq Center, 2013), as Pakistan's economy is heavily dependent on climate-sensitive sectors like agriculture. Thus, vulnerabilities both of ecosystems and of socio-economic activities towards climate change are very high.

Yet the preparedness to cope with the arising challenges of climate change impacts is low. Institutional capacities and infrastructure to cope with and timely respond to the impacts of climate change are inadequate. The NEEDS study assessed the costs of adaptation to climate change in Pakistan. Based on various models of calculations, annual adaptation costs are expected to range from USD seven to fourteen billion (UNFCCC and Core Group on Climate Change, 2011). The devastating floods in 2010 already cost between USD seven and nine billion (World Bank and Asian Development Bank, 2010), thus showing the realistic scale of the aforementioned estimates. Overall, the mean annual cost of environmental degradation in Pakistan is estimated to be approximately six percent of GDP (World Bank, 2006), therefore hugely hampering development. About a third of these costs stem from 'water supply, sanitation and hygiene' and other from agricultural land and soil degradation. All of these can be addressed within project design.

With such high vulnerability and experiences of disasters over the last decades, coupled with underlying issues of *e.g.* poverty, aridity and infrastructure deficits that aggravate slow-onset events or impacts, the need for assessing and mitigating the potentially negative impacts of climate change on all relevant sectors is pressing. Climate proofing, whether integrated or stand-alone, will be a very important tool not only to assess impacts but also to identify workable adaptation options and strategies within Pakistan's nine distinct agro-ecological zones.

8.3 Policy Context

The National Environment Policy of 2005 is the most recent policy of the Government of Pakistan on environment. The National Conservation Strategy of 1992 was a seminal document, which put a lot of emphasis on EIA. However, it is the Pakistan Environmental Protection Ordinance of 1983, which made EIA a legal requirement in Pakistan, which was later strengthened under the Pakistan Environmental Protection Act of 1997. SEA, applied during the development of policies, plans and programmes, is a new approach for Pakistan and not yet a legal requirement. Both tools are set in the context of sustainable development. The creation of the Ministry of Climate Change in 2010 and its re-organisation in June 2013 under the Cabinet Secretariat aims to streamline efforts of the preceding Environment Ministry that were hampered due to splitting up and devolution of these functions to different ministries post eighteenth Constitutional Amendment in 2010. Since much of the environmental agenda has been devolved to provinces, the weaknesses in institutional reform in the provinces poses immense challenges for ensuring suitable and consistent incorporation of a climate change agenda into provincial level projects.

It is important that SEA and EIA are also seen as effective implementing mechanisms of several international conventions, including the UNFCCC (Article 4.1[24]), CBD (Article 14), and Espoo convention (including its Protocol on SEA, Article 2.7). In the European context, the EIA Directive (85/337EEC) requires that in the implementation of EIA, effects of projects on climate (Article 3) and climate factors (Annex IV) should be examined. Also, the IPCC concluded that consideration of climate change impacts at the planning stage is key to boosting adaptive capacity (IPCC, 2007, p.20).

Recently, the National Climate Change Policy (NCCP) for Pakistan has been approved by the Federal Cabinet in March, 2012, with the goal "to ensure that climate change is mainstreamed into the economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate resilient development". However, the NCCP does not even mention EIA as a possible modality for integrating and implementing climate change considerations. Therefore, Pakistan cannot be said to have expressed an intention to integrate climate change aspects into EIA or *vice versa*, let alone to have developed operational level guidance or to have implemented it. Some initiatives have been made on a sectoral level to incorporate climate change dimensions into agriculture and water management (Amir, 2009). The international focus on climate mainstreaming

24 Article 4.1.f: "Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimising adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change"

and increasing consideration of the topic may, however, change the policy focus in Pakistan to recognise the critical importance of climate change across sectors. Furthermore, private sector actors and project developers may see the benefits and opportunities of assessments, and consequently vitalise the debate.

8.4 Climate Proofing

Climate proofing, although technically a misnomer as no project can be made resistant to climate change impacts, refers to ensuring development to be as resilient as possible and affordable to conceivable climate change scenarios and to avoid maladaptation. The term 'climate proofing' originates from the international climate change adaptation and development literature. The concept is appearing in discussions and to an increasing degree around other sectors, such as for example budget review or infrastructure in the EU. Discussions on climate proofing have used partly interchangeable concepts such as the 'climate resilience', 'mainstreaming' and 'integration' without always clearly describing the goal and desired outcome. The concept of climate proofing normally embraces two important dimensions of climate change policy, namely the need to mitigate the causes of the problem and to adapt projects and funding strategies to risks posed by climate change. Some insightful definitions of climate proofing include the following:

"Climate-proofing – a shorthand term for identifying risks to a development project, or any other specified natural or human asset, as a consequence of climate variability and change, and ensuring that those risks are reduced to acceptable levels through long-lasting and environmentally sound, economically viable, and socially acceptable changes implemented at one or more of the following stages in the project cycle: planning, design, construction, operation, and decommissioning." (ADB, 2005a)

"Climate-Proofing for Development is a methodological approach aimed at incorporating issues of climate change into development planning. It enables the development measures to be analysed with regard to the current and future challenges and opportunities presented by climate change. The approach can be applied during the planning phase or when revising plans." (GIZ, 2010a[25])

"Ensuring the sustainability of investments over their entire lifetime taking explicit account of a changing climate is often referred to as 'climate proofing'" (EC, 2007).

"Adaptation should be mainstreamed in the EU's policies and co-operation programmes. Mainstreaming of climate change into cooperation and development strategies and programmes ("climate proofing") are imperative in this regard" „Revision of EIA/SEA Directives to ensure that plans and projects falling under this scope require climate proofing as a pre-condition" is also stated (EC, 2009).

In recent years there has been a growing policy interest in the cost of adaptation. An important method used in this context originates from a World Bank study (2010a). Therein, the 'mark-up' factor for the fraction of an investment that is climate sensitive

25 See also http://www.climateplanning.org/ for a range of tools

reflects the cost of climate proofing. The World Bank assumed this extra cost to be 2-20% of domestic investments, 10% of foreign investments, and 40% of ODA. The Stern Review (2007) suggested an overall share of between 5 and 20%. Yet, these mark-up factors should be differentiated for national contexts, per sector as well as for geographic locations. Also, they should ideally be related to the damage costs likely to be experienced in case of non-adaptation. Thereby, it becomes important to communicate to developers that adaptation considerations are in their interest in order to avoid losses on their investments over the long-term. The ADB (2005a) states that in its experience and assessments for infrastructure projects, it is possible to avoid most of the damage costs attributable to climate change and to enhance the lifetime of projects, if climate proofing is undertaken during the decision stage of a project. Investments are expected to be relatively small in relation to the maintenance and repair costs that would otherwise be incurred. The above figures suggest that the cost of climate proofing in EIA is likely to fall into the stated ranges. The question of who is to pay for the added assessment and the mark-up for project adaptation, however, has not been addressed in policy to date.

8.5 Dimensions of Climate Proofing in EIA

This section explores the various goals for which integration of climate change in EIA and SEA would be conducted, and by implication at which stage of EIA this would need to occur. Fleischhauer (2009) distinguishes between three dimensions of climate proofing: most prevalently, the object-related dimension refers to protecting *e.g.* infrastructure from climate change impacts; a process-related dimension looks at the decision making process that shall create resilient spatial structures as a holistic approach; and subject-related climate-proofing aims at improving knowledge and thus coping or adaptation. This section starts with an object dimension (*e.g.* costs of climate proofing) but increasingly looks at processes and stakeholders that need to be involved to govern the whole integration process.

Birkmann and Fleischhauer (2008) observed a paradigm shift with regard to EIA/SEA and climate proofing: this is because EIA and SEA assess and describe the environmental effects of projects, programmes, plans and policies on the basis of which reasonable alternatives are provided. In climate proofing, on the other hand, scenarios will show the climate change impacts on the project, the vulnerability will be assessed, and then adaptation or resilience improving measures will be suggested. This element of providing pro-active options for action is the main advantage to be built into the integration process.

When the two are integrated, there are more possibilities to work *with* climate change to propose adaptation and mitigation options. To distinguish the various goals for which climate proofing can be applied to EIA, **Table 1** has been devised. It differentiates six of a range of possible dimensions of questions that planners, consultants and project developers may wish to ask.

Table 8.1: Development of goals, questions/aspects of climate prrofing and process implications

Questions	Goal	Process
Is the project sensitive to climate change impacts?	Determine if climate proofing is required	'What if' questions / scenarios
How does expected climate change impact the project?	Climate proof project / investment; Reduce impact	Down-scaled climate scenarios
What are the climate change implications for future environmental performance of project?	Future-enhanced EIA; Reduce vulnerability	Up-scale current environmental impact within future scenarios
Does the project emit significant amounts of GHG? Does the project / plan encourage reduction of GHG?	Mitigation of GHG *(sometimes already considered in EIAs)*	Emission assessments for entire project lifecycle
How will the long-term and cumulative effects of climate change impact the project impacts? Does the project / plan help to prepare for the effects of climate change?	Longer-term sustainable development; Avoid maladaptation	Downscaled climate scenarios; Participatory approaches
What is the impact of a project on adaptation options in the future? Does the project / plan help reduce overall vulnerability in the future and increase adaptive management?	Building resilience; Coping with uncertainty	Adaptive management; Broadly owned and managed process; Results based management

Source: Author

These questions towards different goals on how climate change and EIA can potentially interact show that innovation is possible through integration. In this context, EIA is understood not only as a regulatory tool but also as a design tool, in the sense of designing more resilient projects and resilient investments with better development impacts in the long-term. For SEA, a similar differentiation as in Table 1 could be developed, though the dimensions of scale, time and required process elements would vary and are likely to be more complex.

Ultimately, the goal of climate proofing, and therefore the lessons learnt for integrating climate change aspects in EIA or SEA leads to improved risk management, since reducing climate-based risks to zero would be an unrealistic goal for any country. Again, such integration is seen as being more effective and efficient than stand alone approaches or even potential duplication of similar efforts, in particular in places where EIA is already well recognised and mandated, as in Pakistan, although at times the tool is only informally employed to meet statutory or donor requirements. Further reasons to integrate climate change in EIA, SEA or impact assessment more generally, include a)

the pro-active approach to climate change thus representing a shift away from stand-alone or projectised approaches to adaptation, b) EIA as an entry point for climate change across sectors, c) the combined quantitative and qualitative approach, and d) showing that the process of the assessment (learning) through it is just as important as the outcome (*e.g.* environmental management plan of the EIA). Integration or mainstreaming of climate change has also taken place in other spheres, such as into development cooperation (**See** esp. OECD, 2009), showing possible procedural steps and outcomes for EIA.

8.6 Experiences with Climate Proofing in Practice in the Contexts of Developing Countries

Overall, more work has been done relating to climate change integration in SEA while there is limited information on how mitigation and adaptation should be taken into account in EIA practice. This may be due to the long-term nature of climate change, which correlates more with SEA on its strategic level. Examples of climate change considerations in SEA include the Scottish EPA guidance (2010), recent EC guidance on integration of climate change and biodiversity in SEA (2013), or the UK Environment Agency (2007) guidance for practitioners.

The level of progress in integrating climate change considerations in EIA varies considerably among countries. Grawala *et al.,* (2010) have differentiated countries on three levels of integration: intention, operational guidance, and implementation. Canada, Australia, and the Netherlands are globally advanced: the three countries have reached the implementation stage by mainstreaming climate change in EIA of actual (pilot) projects. Other countries have made varying progress at the policy intention and operational guidance and legal framework levels.

In the Netherlands, the plan 'Room for Rivers' was screened with a SEA, which considered high water levels in the Rhine River for 2020 and sea level rise in the Northern Sea for 2100 according to IPCC projections, and complemented the EIAs for its 40 associated projects (Dutch Ministry of Transport, 2006, in Agrawala *et al.*, 2010).

Canada not only has many years of experience with integrating climate change considerations within EIA, but has also made many assessments publically available, so that reviews can be conducted (Lee, 2001; Agrawala *et al.*, 2010; Canadian Environmental Assessment Agency, 2003). Projects include water tailing structures, pipelines, roads, bridges and the decommissioning of a mine. Climate change was considered in the design phase of these projects through climate-enhanced EIA and integrated into planning and operations. These projects considered the long-term design life of the infrastructure, so that climate change impacts become increasingly relevant.

Planning authorities in some Australian states and territories require a climate change risk assessment to be undertaken in EIAs although there is no one national framework (see Agrawala *et al.*, 2010). Several projects have piloted this work, especially on roads, electricity and water supply projects, and tailings ponds. Important considerations highlighted were the use of a range of time horizons, using return periods of extreme

events as a basis for planning, consideration of interactions with biodiversity and climate change, and use of risk rankings for easier communications.

Examples of integration of climate change in EIA from developing countries are limited to the intentional and guidance levels. A few examples are given in the following:

Due to high exposure to sea level rise and extreme events, many Small Island Developing States (SIDS) have stated particular interest in the use of EIA as a tool to incorporate considerations of climate change in projects. Many of their National Adaptation Plans of Action (NAPAs) formulate that EIA is seen as a tool for adaptation (*e.g.* Samoa, Kiribati, Vanuatu) and that legislation would be upgraded to include climate change (*e.g.* St. Lucia).

The ADB has published a study on climate proofing in the Pacific (2005a), which provides assistance and operational guidance for further developments in this area.

The Environmental Management Bureau in the Philippines has taken pro-active steps to mainstream disaster risk reduction and climate change adaptation into operational procedures for EIA. It has developed Technical Guidelines that aim at "ensuring that future developments are resilient and that their environmental impacts do not aggravate natural hazards or climate change effects on human or natural systems" by using projections for 2020 and 2050, a General Guidance Document, as well as 8 DRR/CCA-enhanced Environmental Impact Statement (EIS) Screening Forms and 14 Checklist Report Forms – the latter two forms customized by industry type to improve assessments (EMB, 2011). This is a good example of systematically integrating DRR and CCA into EIA.

In the hydropower sub-sector, Nepal's previous three-year interim plan stated that new projects should be environmentally friendly and adapted to the changing climate. The current thirteenth plan now makes it compulsory to consider the impacts of climate change when developing large hydropower projects. This new requirement is a great leap forward from a general EIA[26].

In Indonesia, incorporation of climate change into EIA has started to be taken up: "Certain projects such as coal power generation, large scale agriculture, solid waste landfill etc. are required by ministerial decrees to be subject to an EIA and need to incorporate climate change issues such as GHG emissions." (Sudijanto, in ACEAN and APAN, 2011, p.20). It is, however, unclear whether this is a mere statement of intention or already part of practice, and does not appear to address all aspects of climate change and project interaction.

In Bangladesh, the Global Climate Change Alliance (EU funded[27]) is making progress on including climate change in planning river management through comprehensive modelling and climate induced risk mitigation.

26 http://cdkn.org/2013/09/opinion-how-far-has-climate-change-been-mainstreamed-in-development-policy-in-nepal/?loclang=en_gb

27 http://www.gcca.eu/national-programmemes/asia/gcca-bangladesh-climate-change-resilience-fund-bccrf

Agrawala *et al.,*(2010) and others have given possible reasons as to why there is a gap between the stated intention to integrate climate change impacts into EIA and the actual experience of implementation in projects, including the availability of detailed historical data and specific scenarios for the required locations, the risk of unnecessary investments, and the need to retain some flexibility in management. The examples given above, however, also highlight possible reasons as to what factors have enabled the champions to get to the operational level of integration, such as:

First, these countries share very *high vulnerability* to climate change and disaster impacts, and are to a large extent driven by need. Secondly, integration of climate change into EIA procedures *e.g.* by Canada and CARICOM places a strong emphasis on the potential of projects to *absorb risks* associated with climate change though such integration. As such risks affect more than the project itself, it is important for the climate-enhanced EIA to consider the project's interactions with the natural, social and economic surroundings. Thirdly, the champions have *embraced innovation*, and risked looking beyond the 'low-hanging fruits' such as energy performance of housing and industry for GHG emissions. Doing so, they have actually recognised that sustainability requires an exploration of a range of plausible futures such as climate change scenarios. Guidance for various sectors on such analysis is available, *e.g.* the UKCIP Business Areas Climate Assessment Tool applied to the building and construction sector[28]. Fourthly, risk management in the course of a project's lifetime or operations ideally requires '*adaptive management'*. For this reason, Lee (2001) highlighted the importance of *monitoring* of climate-relevant aspects influencing the project in order not to integrate historical data alone.

Practice has shown (**See:** *e.g.* Mickwitz *et al.*, 2009) that there are substantial differences in the quality of EIAs undertaken, with the greatest limitations being time pressure, availability of background information and environmental expertise in an EIA team. Due to greater complexity but uncertainty in projections, all these constraints are enhanced when climate change considerations are added. Further, institutional capacity, policy context and makeup of the EIA team will shape how well such assessments, their outputs and particularly the aspects related to climate change (possibly dependent on practicability of the recommendations) will be taken up. Despite the environmental management report being a one-time report, it will be important to maintain a degree of flexibility in the management ('adaptive management') and implementation of a project in order to adapt the assessment to the local conditions and requirements. At this stage one can also tie in with larger sustainable development concepts and practices such as cradle-to-cradle or cost-benefit analysis. These can assist when deliberating on alternatives.

8.7 Lessons – Challenges and Opportunities for Climate Proofing and EIA in Pakistan

The integration of climate change in EIA/SEA is driven either at the country-level (*e.g.* policy, guidelines and other soft policy tools) or by project proponents (esp. MDBs and development agencies with safeguards and guidelines). In Pakistan, there has been very

28 http://www.ukcip.org.uk/bacliat/workshop-b/case-studies/building-design/

limited consideration for climate change integration at the national level despite recognition of such a need by the Planning Commission of Pakistan. The relationships between the NCCP and sectoral policies have not been assessed, either. Entry points with relevance to EIA and SEA include the NCCP, building and zoning laws, and provincial rules and regulations as the environment is a devolved subject. Where such legislations exist, public awareness is low and the mechanisms for monitoring and enforcement are very weak, leading to loosely defined roles and responsibilities. Further opportunities for climate change integration in more bottom-up and location specific procedures may involve the PC1 forms that are mandated project development forms. A balance will need to be found between overburdening guidelines and processes, and developing simplistic check-list type assessments that would not live up to the complexity of climate change impacts. The new dimensions with climate change in EIA will have to be integrated in the strongly required capacity-building and trainings for government and private actors involved in project design.

One of the main issues for integrating climate change on the level of projects or plans is that the latter are site-specific, while climate change impacts are not. They are more cumulative and may take decades to materialise. It is, thus, difficult for project proponents to connect project impacts with climate change scenarios and uncertainty needs to be clearly communicated in order to understand the level and elements of risk. This has implications for the required capacities to integrate climate change in EIA (more than SEA). First, interaction with stakeholders not previously involved in EIA will need to be sought, such as the Meteorological Department, universities and think tanks, and the Climate Change Advisory Group of the Government of Pakistan. Secondly, the involved climate specialists should ensure that climate change information is down-scaled to the project scale as far as possible, and is adequately communicated in terms of meanings and uncertainties to the project developers. This requires the use not only of historical climate data but also of scenarios relevant to the site or region. Thirdly, it is important that if climate change is integrated into EIA/SEA, the resulting Environmental Impact Statements or Management Plans maintain scientific rigour for adequately projecting and thus evaluating GHG emissions, impacts of a changing environment, and project sustainability, yet are able to provide site-specific guidance on how the project and the environment are to be managed under climate change scenarios. Likewise, capacity-building is required for EIA consultants, as well. In fact, this presents an opportunity for research and decision-making to be more closely interacting and benefiting from each other's expertise.

When climate-proofing is applied in EIA or SEA, there are several possible actions to integrate mitigation. With regard to project decisions, through comparing emissions in various project options, the EIA process should, at an early stage, influence the *location* of projects and *design elements,* such as substitution of materials and maintenance, to optimise GHG performance and *avoid* or *reduce* contribution to GHG emissions; it should also consider *compensation* options for unavoidable emissions (iema, 2010). Ideally, net or whole-life emissions of the project should be included, not just the emissions of establishment or construction of the project. With regard to policy, plan and programme decisions, a SEA would be able to point out technological investments, shifts in sectoral foci, or consider implications of plans and policies on land use change,

which all require longer time horizons. An obvious example would be the energy sector policy, shifting from fossil fuels towards increasing renewable energy sources while considering the integration of all aspects of sustainability: economic viability, social aspects (*e.g.* 'green jobs') and environmental impacts (*e.g.* on biodiversity) with special attention to water resource assessment in response to climate change.

For adaptation, several possible actions within project design and especially – and this is new with climate proofing being integrated – for the operation of the project and maintenance throughout its lifetime can be distilled. First, *scenarios* will help the EIA team and project proponent to understand vulnerabilities and adaptive capacities as well as requirements towards resilience. Since climate change impacts are not site-specific this is a challenge for assessments as they relate to specific sites, and therefore the analysis of several scenarios – from business-as-usual to holistic sustainable development aspirations – becomes even more important. Secondly, where an EIA establishes that the likely consequences of climate change pose significant risk to a project's ability to effectively function and to provide development benefits in the future, the assessment should aim to ensure the *costs of not adapting* are properly considered in order to guide the design and decision-making process. Importantly, business-as-usual should also be an active decision. Thirdly, where there is substantial uncertainty surrounding a predicted significant environmental effect related to the project's impact in a climate adverse future, *monitoring* of the impacts should be included in the management plan. Fourthly, adaptation action in the project itself can again involve *location and design elements* of the project, taking into account the interactions of people, environment and (economic) development aspirations to consider different options of hard and soft measures. Fifthly, *risks can be spread* significantly through shared decision making, such as in a transparent and inclusive consultation process with the public in EIA and SEA (**See** below).

Consideration of these and more mitigation and adaptation options require time and additional effort. Hence, it is important to consider the timing of when climate change should be considered. The initial, *i.e.* screening steps of EIA and SEA should answer this question. Some authors have hinted at the following being possible factors of when climate change considerations shall be included: the scale of projects (Agrawala *et al.* , 2010, p.12); timeframe of expected project lifetime; biodiversity and ecological sensitivity, especially relevant for Pakistan as many ecosystems and their elements are unique; dependence of the project and its operation on climate-sensitive natural resources or on climatic parameters such as wind and precipitation (GIZ, 2010b); or when the project can also be expected to enhance adaptive capacities and resilience or improve environmental quality (GIZ, 2010a). During the following scoping steps, climate change mitigation and adaptation issues and opportunities should be considered alongside each other to ensure their synergies in project implementation. "EIAs, while clearly having had considerable positive effects on the way development projects are designed and run, are only as good as their follow-up in practical development work." (Klein *et al.*, 2007, p.14). The same holds true for devising more suitable adaptation and mitigation actions to climate change when integrating climate aspects into EIA and SEA.

"Experience suggests that the earlier these considerations are made, the easier it is to

incorporate them into the project development process and at the least financial cost" (Agrawala *et al.*, 2010, p.9). This is an important argument, because two *additional costs* of climate proofing will be encountered: one is the additional costs to the assessment itself; and the other is the possible mark-up to the project costs (see above, 5-20%). It is unclear which stakeholder would pay for these. On the other hand, as Agrawala *et al.,* (2010) suggest, climate proofing of a project should deliver savings,in the long term, in contrast to the potential losses from adverse climate change impacts. However, the question then arises as to who would be entitled to benefit from such savings or from the development gain and who is liable for the future costs of potential mal-adaptation or lack thereof if EIA identified risks? Christopher (2008) has started looking at EIA litigation to assess overlaps and boundaries to climate change integration, but these questions need to be much further deliberated on, nationally and internationally.

In the foregoing analysis three aspects come to the fore that are new when climate proofing is integrated into EIA and SEA: the first relates to the increasingly process-based nature of assessments as one moves through the questions or levels in Table 1, towards an adaptive management approach in the project cycle. Adaptation in an uncertain future is partially a trial-and-error process, and teaches us to avoid path dependency in a move towards resilience. Thus, a lesson can be learned from adaptation practice, in that ongoing monitoring, reflection and adjustments should become central to EIA or SEA and environmental management plans. Yet, also in Pakistan no guidance or strategy exists on how to communicate climate change in EIAs and management plans.

The second aspect relates to governance of the assessment and decision-making process in project design. Climate proofing does not traditionally employ participatory tools, therefore can benefit from EIA and SEA experiences by incorporating a wider consultation process, which is used to make the analysis local specific and to build ownership among all stakeholders. In fact, considering local perspectives in climate (risk) assessments is critical for successful adaptation and management (Klein *et al.*, 2007). Hence, assembling the appropriate team for undertaking an EIA becomes increasingly important, so that expertise on climate change (incl. adaptation, mitigation and potentially EbA) should also be added where climate change is relevant. This process shall also serve to enhance the quality, relevance and independence of an EIA and its environmental management plan, as well as to provide an innovative platform for those consultancies who can garner climate change expertise in their EIA teams towards interested project proponents. Currently, capacities relating to climate change in Pakistan are relatively low and information is partial and not always shared. Not only for enhancing EIA and SEA, climate change may present an opportunity for 'green skills' training.

Thirdly, when it comes to adaptation within EIA for projects and investments – a much more complex undertaking than mitigation – it is just as critical to consider the design of the project, as in the built infrastructure, as the soft infrastructure such as institutional and management setups or maintenance routines. "The idea is to use hard infrastructure to reduce risks to a quantified level, accepted by the society or economy. This risk can be further combated by 'softer' measures such as insurance schemes or, as a last

resort, evacuation plans." (Kabat *et al.*, 2005, in Fleischhauer, 2009). Here, it would be important to consider green infrastructure and ecosystem-based adaptation options (*e.g.* Vignola *et al.*, 2009; CBD; IUCN) in the project design. Fankhauser (2009, p.10) argues even a step further, in that "it is important to move away from the study of incremental adaptation and integrate adaptation into development planning. Doing so would recognise that adaptation is in fact 'climate-resilient development'".

To conclude this discussion on the applicability of climate proofing to EIA and SEA in Pakistan, or in similar developing country contexts, we should probably think more of EIA being a potential tool to climate proof projects, rather than climate aspects necessarily being integrated into all EIA application. Therefore, it is about adapting EIA as a tool for improved adaptation of a project to climate change – a flexible design for risk management.

8.8 Conclusions and Recommendations

Pakistan has a chance to consider climate change from the early stages of screening and scoping, to the final stages of EIA and SEA including management plans, and to build climate change into the mindset of all key stakeholders and all relevant tools. This presents a chance to enhance adaptive management. In the context of the country's high vulnerability, application should be guided by the precautionary principle and realistic expectations need to be applied, in particular with regard to funding constraints and scarce analytical capacity.

Overall, awareness of climate change issues needs to be raised among project proponents, EIA consultants and policy-level decision-makers alike. Integration of climate change in EIA and SEA requires building bridges between the scientific community and the aforementioned stakeholders. Together they should research and analyse which elements of a project are relevant to climate variables. Also, the opportunities of integration and the innovations possible through EIA and SEA need to be communicated. As a result, EIA and SEA may become less deterministic and more concerned about uncertainties and risks related to the occurrence of climate change related impacts, as well as more transparent to the range of stakeholders.

Considering that Pakistan has not even reached the initial stage of climate change integration into EIA, a possible next step could be to analyse which policies, processes and guidance can facilitate such an integration, looking in particular at the NCCP and its upcoming action plan and any available EIA guidance. EIA through its participatory and localised process has the potential to take climate change out of its slow, diplomatic enclaves towards the demands of civil society and project developers. Integration of climate change impacts and aspects in EIA cannot by itself achieve full mainstreaming of climate change across sectors or comprehensive risk reduction. Yet it is a very important step for a large scope of development projects to contribute to a more resilient future.

9 EIA in Pakistani Road Planning: The Lahore Experience

By Obaidullah Nadeem

Development of new roads, flyovers, underpasses and remodelling of existing roads is taking place at a rapid pace in the metropolitan cities of Pakistan. Public sector organisations are responsible for monitoring its planning and development. Owing to the potential environmental, social and economic repercussions of transport infrastructure development, environmental impact assessment (EIA) is a mandatory requirement for such projects costing Rupees 50 million and above. Lahore metropolitan is expanding at a rapid pace and so is its road network along with other transport related infrastructure. This chapter provides a critical analysis of the EIA practice in road planning based on review of several EIA reports and detailed investigation of a case study project. It encompasses various stages of the EIA process right from the collection of baseline data to the environmental management plan and follow-up- monitoring. Several weaknesses and measures for improving current practice are identified.

9.1 Introduction

Transport infrastructure improvements are frequently driven by the need to facilitate better movement of people, vehicles and goods. However, the construction and operation of transport projects may cause various environmental, social and economic impacts. According to the Schedule-II of the Pak-EPA's IEE/EIA Regulations, the transport infrastructure related projects requiring an EIA (GoP, 2000) include:

- Federal or Provincial highways or major roads (except maintenance, rebuilding or reconstruction of existing roads) with total cost of Rs.50 million and above;
- Ports and harbour development for ships of 500 gross tons and above;
- Railway works; and
- Airports.

To this end, detailed sectoral guidelines for preparing environmental reports have been formulated. According to the guidelines, potential impacts of major road projects include; air and noise pollution, soil erosion, disturbance of natural drainage patterns, loss of agricultural land and wildlife habitat. Moreover, changes in land use and severance of villages/urban settlements

may lead to serious socio-economic repercussions for the residents of nearby settlements (GoP, 1997). So far, nearly 60 EIAs of major roads and other transport infrastructure related projects have been conducted in Punjab province. Most of these were executed within the Jurisdiction of Lahore Metropolitan, the Capital of the Province and second largest urban centre of Pakistan.

The current estimated population of the city is nine million. It is expected to reach 15.5 million by the year 2030. Its area spans over 2,300 sq. km and the total length of the road network has exceeded 2,000 km. Being the provincial hub of commercial/business activities, private and government offices, educational and health facilities, the city attracts nearly one million visitors every day (NESPAK/TEPA, 2012). Owing to the lack of a reliable public transport and liberal car leasing policies, the volume of road traffic has increased exponentially over the past several decades. Consequently, traffic congestion and environmental pollution are increasing at an alarming pace. Under the auspices of the City District and the Provincial Governments, the Lahore Traffic and Transport Planning Agency (TEPA) and Communication and Works (C and W) Department have undertaken several projects worth billions of rupees. They include the construction of a ring road, several underpasses, and flyovers at major junctions, the widening of roads and more recently a Bus Rapid Transit System (BRTS).

For the purpose of EIA clearance, government agencies are dividing such projects into 'packages' and separate EIAs are done for each package. For instance, the 85 km long Lahore Ring Road project was initially divided into nineteen packages, each consisting of either a part of that road or an interchange on a major junction. This raises the question on how overall cumulative impacts are considered.

The following sections provide for a critical analysis of EIA practice for such projects in Lahore. This is based on a review of six EIA reports of this sector and on discussion with concerned officials of the Punjab Environmental Protection Agency (EPA). The EIA of the BRTS project is taken as an in-depth case study. It is introduced in Box 9.1.

Box 5.1 Netherlands Commission on Environmental Assessment

The proposed bus rapid transit system (BRTS) for Lahore consists of four corridors, including:

- Gajjomatta to Shahdara along Ferozpur Road (27 km long)
- Thokar Niaz Beg to MAO College along Multan Road (13 km long)
- Thokar Niaz Beg to Mughalpura Bridge along Canal Road (20 km)
- Bhatti Chowk to Airport via Allama Iqbal Road (19 km)

The case study EIA report is based on the first corridor which has been built and is currently in operation. Estimated capital cost of the project was Rs. 8,100 million. Its design mainly includes an exclusively asphalt paved two lane fenced corridor in the median of the Ferozpur road and an 8 km long flyover as well as some split level junctions (not included in this EIA). The width of the corridor is ten metres while it increases to sixteen metres at stations. In total, 27 stations have been provided at an approximate distance of one kilometre between two stations. These are covered, providing weather protection to passengers. Access to stations is provided through pedestrian bridges and escalators.

Source: NESPAK/TEPA, 2012

9.2 Sources and Techniques of Baseline Data Collection

Baseline data are collected from secondary sources as well as through surveys of the project site. Generally speaking, the EIA reports are full of secondary data pertaining to socio-economic characteristics of the people residing in the city/near the project area, topography, geology, soil characteristics, hydrology, climatic conditions, ambient air quality, ambient noise levels, and previous traffic studies. Such studies are routinely conducted by government agencies like the Traffic Engineering and Transport Planning Agency (TEPA) and the Punjab Environmental Protection Agency (EPA). Some reports also refer to previous EIA studies for famous projects undertaken in Lahore city.

EIA consultants also conduct baseline surveys of *e.g.* ambient air quality and noise levels (24 hourly and peak hour observations) and present the findings in comparison with the National Environmental Quality Standards (NEQS) of Pakistan. Ground and surface water quality is also tested, but in some EIA reports the name of the laboratory doing so is not mentioned. The EIA guidelines require that it should be tested from a certified laboratory and that the test report should be attached to the EIA report. Traffic turning tendency at major junctions and cordon count and passenger demand surveys are also conducted, sometimes on a 24 hourly basis.

For the EIA of BRTS, the ambient air quality was measured to determine the concentration of CO, NO_2 and SO_2 at four major junctions along its corridor for 24 hours. These were found to be well within the thresholds set by the NEQS (GoP, 2010). The concentration of PM10 was found to be 253.72 $\mu g/m^3$ at Qartaba Chowk and 265.76 $\mu g/m^3$ at Shahdara Chowk against the NEQS upper limit of 250$\mu g/m^3$. Frequent traffic jams appeared to be the main reason. To justify this project, traffic delay and passenger demand surveys were conducted and projections were made up to the year 2030. For noise levels, surveys on four major junctions of the BRTS corridor with the help of a portable noise level meter were done. It was found that the noise levels were high due to hooting of horns and traffic jams. Surface and groundwater quality tests were performed by a certified laboratory. It was found that chemical parameters were well within the permissible limits set by the NEQS, while the microbiological parameters were higher than the legal limits. In addition to the primary data collection, findings of the previous studies on environmental quality in various parts of Lahore and in the project area have frequently been referred to and compared with.

EIA reports of several other transport infrastructure related projects present similar methods and scopes of the data collected to determine the baseline environmental conditions. Projects include, for instance, Kalma Chowk Flyover, Canal Bank Road Remodelling, and Garden Town Underpass projects. There are a few reports for which the EIA consultant mainly relied on secondary sources of data or EIA reports prepared by other consultants even for the baseline air quality and traffic volume, for example, construction of Flyover on Ferozepur Road-Canal crossing project (Environs/GoPb, 2012).

9.3 Identification and Assessment of Impacts

This is a key stage of the EIA process. The quality of EIA mainly depends upon the extent and coverage of potential impacts and expertise in quantitative as well as

qualitative methods to evaluate their magnitude. For the BRTS, potential environmental and socio-economic impacts of the design, construction and operation phases were identified in detail. But it appears that the assessment of impacts is based on subjective judgement of the EIA team. Matrices have been developed to evaluate the magnitude of impacts using the following scale given by NESPAK/TEPA (2012, p.6-1):

- LA = (low/short-term damage to the environment)
- MA = Medium Adverse (moderate damage to the environment)
- HA = High Adverse (severe damage to the environment)
- LB = Low Beneficial (less beneficial to the environment)
- MB = Medium Beneficial (moderate beneficial to the environment)
- HB = High Beneficial (highly beneficial to the environment)
- N/A = Not Applicable
- Insignificant/ No impact

Impact matrices were used, in line with routine international EIA practice (Sadler, 1996; Toro *et al.*, 2010). In European countries, including the UK and Italy, although qualitative judgement based on past experience of the EIA consultants and the stakeholders input play a significant role, some more quantitative and multidisciplinary methods are also used in impact analysis (Bassi *et al.*, 2012). In the case of Lahore, the former 'method' is, perhaps, the only basis for assessing the magnitude and significance of certain impacts. In addition, the national and international literature and environmental quality standards are discussed to show how certain levels of noise may lead to hearing loss, and how certain environmental pollutants may possibly cause adverse impacts on human health.

9.4 Stakeholders' Consultation and Common Concerns

Identification of stakeholders is an essential task during the EIA process in order to provide them with adequate opportunities to participate in identifying issues, possible impacts and mitigation measures (Atkin and Skitmore, 2008). Considering their genuine concerns into the project design and mitigation measures not only makes the project more widely acceptable, but is also likely to lead to a more environmentally friendly project. Public consultation during EIA of transport infrastructure related projects in Lahore is represntative for other parts of the country. There is no difference between the level and techniques of public consultation for different types of development projects (Shah *et al.*, 2010, Saeed *et al.*, 2012).

In the BRTS project, a long list of stakeholders was prepared during EIA. These stakeholders mainly belong to three groups: (1) residents, owners and tenants of shops, plazas, education and health institutions; (2) government departments dealing with road construction/maintenance, public transport, traffic management, utility services, *flora* and *fauna*; and (3) private transporters, motorised transport users, cyclists, pedestrians, drivers, and office workers. Informal meetings and group discussions were held with the stakeholders during field surveys. There is no evidence of holding formal consultations/focus groups with the representatives of the public and private offices, schools, colleges and hospitals. The report indicates the following concerns as commonly raised by the stakeholders:

- Problems related to road crossings by pedestrians;
- Dust and smoke emissions and noise due to operation of machinery;
- Nuisance due to open dumping of construction materials;
- Nuisance due to stray animals to be attracted by the solid waste produced during construction;
- Hindrance due to campsites and parking of construction machinery;
- Traffic jams during construction phase;
- Risk of traffic accidents; and
- Dismantling of existing utility services.

Stakeholders raised several other concerns during the public hearing held after submission of the EIA report. Those included, for instance, cutting of hundreds of mature trees, severance of the city and communities located along both sides of the road, increased travel distance due to closure of road crossings and others (Malik, 2012). This is mainly due to the active role of a few Lahore based pressure groups/NGOs against the environmental impacts of the transport infrastructure projects. These groups have been raising several technical objections during public hearings and various development stages of such projects. In some of the cases, they succeeded in getting their concerns considered, at least, in the EIA (Daily Times, 2011; Nadeem, 2010). Internationally, the role of stakeholders' pressure groups is considered important for the "…government accountability in terms of the project's environmental friendliness…while simultaneously comprehending dissatisfied voices from the general public" (Li *et al.*, 2012, P.341).

9.5 Consideration of Alternatives

In public sector decision-making processes, the project alternatives are considered on the basis of financial and technical feasibility, well before the EIA studies. Although environmental consequences of various options are also taken into account, such deliberations are limited to qualitative or general terms. Later on, EIAs is are used as environmental justification too for projects, because in almost all the cases of transport infrastructure related projects it is done once the construction work starts (Nadeem and Fischer, 2011; Shah *et al.*, 2010). To this end, several examples can be cited, like the Kalma Chowk Flyover and BRTS. The EIA reports of these projects were submitted when the construction work was going on (Daily Times, 2011). Despite this practice, every EIA report states that project alternatives were considered. It provides a brief account of potential environmental impacts of those alternatives while justifying the chosen one as having minimum impacts and maximum benefits for the general public. In the case of BRTS, the following project alternatives were said to be considered:

- No project option.
- Buses in mixed traffic.
- Bus rapid transit system.
- Light rail metro.

The BRTS was chosen for this chapter on the basis of being less costly and requiring less energy than the light rail metro system. But according to international good practice, consideration of alternatives should integrate participative preliminary discussion, impact analyses and definition of mitigation strategies (Bassi *et al.*, 2012).

9.6 Mitigation Measures

Mitigation measures for the design, construction and operation phases are generally proposed in the EIA reports. But design and construction phases are more important than the operation phase, since the transport infrastructure related projects usually help control environmental pollution by helping to alleviate traffic congestion. Poor design of railways, motorways and BRTS as well as inadequate consideration of the stakeholders' concerns may possibly lead to severance of communities and increased travel distances etc. This happens due to inadequate provision and improper placement of vehicular and pedestrian overhead bridges/underpasses and turning points.

Although mitigation measures are suggested for the design stage, the start of construction work before EIA studies leave a diminishing probability of making amendments in the project design. In practice, numerous mitigation measures for the construction stage are proposed. For example, the following measures have been suggested in the EIA of BRTS to mitigate possible environmental and social impacts:

- Provision of pedestrian overhead bridges in the project design;
- Sprinkling of water during the construction phase to control dust;
- Disposal of solid waste at the approved sites;
- Avoiding construction work during peak traffic flow specially the opening and closing times of educational institutions;
- Taking measures like traffic signs, road markings, lighting, traffic police at diversion points and use of barricades to maintain smooth traffic flow and safety of road users;
- Plantation of new trees during the construction phase to compensate possible loss of vegetation and to control the air, noise and dust pollution; and
- Rehabilitation of damaged utility services on priority basis.

Conversely, public complaints and media reports appeared during construction of this project, suggesting that the implementation of these mitigation measures was inadequate (**See**: Section 9.8).

9.7 Decision-making/Conditions of Approval

An in-house committee comprising three to four concerned officers and headed by the Director General of the Punjab EPA makes a decision on the EIA report after receiving proponent's 'satisfactory' response to the queries/objections raised by the stakeholders/EPA. Every environmental approval for transport infrastructure related projects (construction/rehabilitation of roads/under passes/flyovers) granted so far by the Punjab EPA includes a number of common/generic conditions and a few specific ones related to that project.

The general conditions mainly include: minimising hazardous soil erosion, taking appropriate measures for controlling other environmental hazards, storing raw materials in a controlled area, sprinkling water to control dust, planting trees, complying with NEQS and implementing environmental management plans and others. Specific

conditions normally relate to the nature of the project. For example, some of the environmental approval conditions of the Canal Bank Road Remodelling project included "construction of a new road from Jinnah Hospital underpass to Multan Road passing through Punjab University; and constituting an environmental management plan implementation committee comprising all potential stakeholders/agencies/departments" (Nadeem, 2010, p. 200). But no one witnessed implementation of these conditions. It probably depends upon the future plans of the Government, which can be described as being extremely 'dynamic'. In the case of the more recent BRTS project, environmental approval was granted subject to mostly general conditions pertaining to the mitigation measures for the construction and operation phases (**See**: Section 9.6). Other conditions include resettlement of the affectees and submission of monthly environmental monitoring reports.

9.8 Environmental Management Plan and EIA Follow-up/Monitoring

Every EIA report of transport infrastructure related projects includes an environmental management plan (EMP). This provides a detailed list of mitigation activities, responsibilities, and a bit sporadically, the budget estimate for environmental monitoring during construction and operation phases. To make it more 'holistic', some 'smart' consultants name it as an environmental, social and disaster management plan (ESDMP), also suggesting a generic type of hazard and emergency response system. The EIA of BRTS proposed a wide-ranging EMP to implement the mitigation measures during the design, construction and operation phases of the project. However, the news reports suggest that the public had to face a lot of inconvenience during the construction work. For instance, one of the complainant noted that the

"construction material and asphalt mixing equipment used in the construction was being stored at public parks. Residents of The Mall and Riwaz Garden Housing Society, situated between MAO College and Chauburji, had been unable to use the park near the Planetarium and the BRTS construction site between the Lower Mall and Mozang had still not been cordoned off. Deep ditches had been left uncovered and these caused a number of accidents, several of them fatal. There had also been a rise in pollution since the project began. No public safety measures were in effect" (Malik, 2012).

One of the important conditions of EIA approval was that the proponent will submit the environmental monitoring reports on a monthly basis. Reliable sources of the EPA revealed that the proponent neither fulfilled this condition during the construction phase nor during the operation phase. Thus, the EIA follow-up monitoring appears to be weak.

9.9 Conclusion and Recommendations

Several projects have been carried out in Lahore for improving its transport infrastructure. In all of those, EIA was only conducted once the construction work had started. This diminishes the possibility of consulting with those potentially affected and other stakeholders, and is a barrier to considering project and design alternatives. Consequently, such projects have been subjected to severe criticism, despite their contribution to facilitate movement of people and goods. Stakeholders are consulted

during the EIA studies, but consideration of their concerns, particularly relating to the project design and impacts arising during the construction phase, appear to be weak. The EIA reports rely heavily on the secondary sources of data. This is tantamount to, assessing possible impacts and their significance predominantly based on the experience and judgement of experts and not on the quantitative assessment techniques. Whatever the mitigation measures that are suggested, their implementation is inadequate.

To enhance the quality and effectiveness of EIA, it is recommended that the possible alternatives of transport infrastructure/roads projects should be considered in the master plan/transportation plan of the city along with its strategic environmental assessment. This should be augmented with involving the stakeholders during early stages of the decision-making process and giving due consideration to their genuine concerns, particularly in the project design. Furthermore, the EIA studies should be based on primary data and the use of quantitative assessment techniques. The pressure groups of key stakeholders should keep on persuading the EPA to ensure the implementation of mitigation measures/environmental management plans during the construction and operation phases of the projects.

10 Case Study: Ghazi-Brotha Hydropower Project

By Parvaiz Naim

The 1,450MW run-of-river Ghazi-Barotha Hydropower Project design benefitted from the recommendations of a comprehensive EIA. These included creation of an on-site Project Information Centre and a special Project NGO helping people in dealing with environmental and social issues. As a consequence, the number of relocations was reduced to less than one family for every 13MW Installed Capacity. Furthermore, unobstructed flow of ground and surface water across the 52km long Power Channel was maintained, slopes were stabilised, eroded areas were reclaimed as agricultural land, and adequate release of downstream water was ensured during the low flow period for maintaining river ecology. Over the last 10 years of almost flawless operation, the Project has paid back its cost almost four times over, and avoided Carbon Emission by over 35 million tons. Affected families of other hydropower projects are now demanding the use of same approach as was used for Ghazi-Barotha Hydropower Project.

10.1 Introduction

This paper highlights the benefits that arose from integrating environmental and social concerns in the planning of a large development, Ghazi-Barotha hydropower project. For this project, EIA was conducted as a part of the feasibility study. It helped integrate suitable interventions in the project design that eventually reduced the negative impacts while enhancing overall benefits of this mega development project.

The 1,450MW Ghazi-Barotha Hydropower Project was conceived by the Pakistan Water and Power Development Authority (WAPDA) for generating additional power from the water released by the 3,478MW Tarbela Dam. As a part of WAPDA's Least-Cost Development Plan, this project was deemed essential to meet the fast growing demand for electricity, and also to reduce the overall tariff by balancing the expensive thermal power with inexpensive hydropower.

For conducting the feasibility study of this Project, WAPDA used funds from UNDP and the Public Sector Development Programme of the Government of Pakistan, and hired the services of the Pakistan Hydro Consultants (PHC), a

joint venture of four companies (National Engineering Services, Pakistan (Pvt) Ltd; Ewbank Preece Ltd; Harza Engineering Company International LP; and Binni and Partners (Overseas) Ltd). The PHC conducted EIA in line with the Pakistan Environmental Protection Ordinance, 1983; the Antiquities Act 1975, and the World Bank Operational Directives – OD 4.00 Annex A (Environmental Assessment) Annex B (Environmental Policy for Dams and Reservoir Projects), Annex D (Wildlands: Their Protection and Management). In addition, the requirements of OD 4.30 (Involuntary Resettlement) and 4.50 (Cultural Property) were followed. At that time, the Pakistan Environmental Protection Agency had not yet developed its own guidelines, albeit it did have a 16-page "Proforma for Environmental Impact Assessment", which was duly completed by the Consultants with information that was generated by following the World Bank Operational Directives. With almost two years of field surveys and stakeholder consultations, the resulting EIA Report formed Volume 7 of the Feasibility Report (PHC, 1991). This approach helped integrate the EIA recommendations in the project design rather than making environmental mitigation measures as 'add-ons'. This EIA was one of the key deciding factors for the donors in providing necessary funding to WAPDA for implementing this project.

10.2 Key project Planning Events and Issues

Sensational highly dramatic events kept this large developmental project in the headlines for quite some time. Siting was the first big issue. It is because Pakistan's Water and Power Development Authority (WAPDA) first planned to divert part of River Indus water just seven kilometres downstream of the mighty Tarbela Dam by constructing a barrage near the town of Ghazi. The idea was to run the diverted water through a 50km long water canal (Power Channel) and then drop it from sufficient height into a powerhouse for generating electricity at a location called Ghariala. Because of these two key locations, the project was given the name, Ghazi-Ghariala Hydropower Project. However, subsequently rethinking of the design for maximising electricity generation led to shifting the powerhouse site from Ghariala to a further downstream location called Barotha, hence the new name Ghazi-Barotha Hydropower Project.

Shortly after the change in powerhouse location, some local voices were raised to change the barrage location from Ghazi to a downstream location called Khalo. This would have changed the project name to Khalo-Barotha! The people of Ghazi had felt that siting of the barrage in their town meant relocation of some houses within about a hundred meters of the Power Channel passing around the town. They suggested relocating it further downstream to the nearby town of Khalo where a water channel already existed. If that channel could be expanded and modified to serve the purpose then far fewer houses would need relocation in that stretch.

For addressing the barrage siting issue, IUCN evaluated the two sites at the request of a local non-governmental organisation, the Sungi Development Foundation. During the field survey and heated debates at the public consultations in both towns a key deciding factor surfaced, namely the possibility to use the barrage as a bridge for a river crossing. Very soon the Ghazi residents realised that if the barrage was sited in Khalo, the bulk of vehicular traffic and hence business would get diverted across the river without passing

through their town. This realisation surfacing during the public consultations was so strong that the local people unanimously endorsed the WAPDA design of using Ghazi as the preferred site for the barrage.

Later, while the Environmental Impact Assessment study was being commissioned, WAPDA staff began to put markers along the proposed power channel. This made the project look Suez Canal size like. It was made some 100 m wide, 9 m deep and 52 km long. It would be carrying 1,600 cubic meter water per second from River Indus down to the Powerhouse, and then releasing it back into the River Indus.

10.3 EIA: Recommendations that Made the Difference

The EIA study was prepared by the Pakistan Hydro Consultants over 24 months. The final document was 402 pages long. The EIA was perceived as providing a good insight into many important project issues (PHC, 1991). Generally speaking, the designing engineers themselves were conscious of the environmental matters and in fact appreciated the input provided by the EIA Team. In addition, the funding agencies set up an independent Panel of Experts for reviewing the EIA and Resettlement Action Plan. Public consultation was a continuous process that included formal meetings as well as informal impromptu gatherings where local people exchanged views and discussed issues with the EIA Team working in the area. The EIA highlighted the following key points:

1-Minimising relocation needs: This massive project spread over a stretch of about 55 km in two Provinces (Khyber Pakhtunkhwa - then called NWFP, and Punjab). The most important challenge was to strike a balance between keeping the Power Channel as straight as possible and relocating a minimum number of people. The EIA study played a key role in identifying the best possible alignment for the Power Channel in close consultations with the local communities. In some places, an interesting situation developed, namely that some people objected to placing the Power Channel alignment markers on their land. So the WAPDA staff reworked the alignment accordingly and moved the markers away. Later when the EIA Team held public consultations, the local people found out about what they perceived to be some reasonable compensation being offered. As a consequence it was a pleasant surprise for the WAPDA staff to then see that at some locations, people had put the markers back on their land of their own volition. In the end, the total number of relocated households was 110 with about 900 people. This meant that less than one household was disturbed for each 13MW installed capacity, or for every 2MW installed capacity, one person needed relocation. This ratio is far better than what often happens with many other mega projects. For example, just seven kilometres upstream Tarbela Dam displaced over 27 people for each MW installed capacity. Needless to say that without the design alternatives identified in the EIA, especially the Power Channel Alignment, the ratio of displaced people would have been similar to that of Tarbela.

2- Fostering an effective Resettlement Action Plan: As a follow up to EIA, a comprehensive Resettlement Action Plan was developed that provided market-based compensations for all affected assets, from houses to lands to crops and trees (WAPDA, 1994). The affected families participated in the committee meetings that assessed the

value of their assets. Three Resettlement Colonies were constructed not far from the original dwellings. In these colonies, adequate provisions were made for water supply and sanitation, electricity, schools, healthcare facilities, parks and play areas, mosques and others. In addition, arrangements were made for the affected people to acquire different vocational skills. Micro-credit was provided to those interested in diversifying their means of income generation. The Project also provided employment to over 13,500 local people with preference given to the members of the families affected by the project. The most 'unusual' aspect was that due provision was made to compensate the families that were affected by the nearby located Tarbela Dam - operational since 1974. This provision was recommended and co-financed by the World Bank with WAPDA.

3- Ensuring Environmental Releases: For sustaining river ecology during winter, a minimum environmental flow was calculated for the stretch of the river between the barrage and the confluence of Indus-Kabul Rivers. No consumptive use was recorded in that stretch. The river in this area essentially served as a drain. Because of being seven kilometres downstream of Tarbela Dam, there was no issue with any migratory fish. This stretch was also too far north for the Indus Blind Dolphin to be affected.

4- Facilitating surface and groundwater flow across the Power Channel: The nine metre deep concrete lined 52 km long Power Channel pathway crossed several surface water channels. At many locations, it could also obstruct groundwater flow. Two measures were proposed for overcoming these problems:

- For the surface water channels, especially those for the storm water, elevated canals over the Power Channel were added to the design.
- For groundwater flow, porous material was recommended for placement under the concrete lined Power Channel. In addition, for avoiding water-logging, water pumps were installed on both sides along the Power Channel for pumping the access water into the Power Channel.
- In total, 57 structures were added to the design for cross flow and drainage.

5- Giving people easy access across the Power Channel: The EIA Team meticulously mapped every cow path and trail, in addition to the regular roads, that traversed the proposed Power Channel. On these crossing areas, appropriate bridges were introduced in the Project Design for facilitating free movement of the people. A total of 46 such crossings allow pedestrian, motor vehicles and rail movement.

6- Reclaiming Eroded Areas for Agriculture: The spoils from excavating ground for the 52 km long, 100 m wide and nine metre deep Power Channels were used to strategically fill the eroded areas. For this, the top soil from construction areas was carefully removed and stored separately. The eroded areas were then first filled with the 76 million cubic meters of excavation spoils in a way to make the strata porous with adequate drainage. Once this piling of spoil layers reached close to the ground level, the top soil was spread on it making it a proper agricultural field. For increasing the soil fertility, first these reclaimed areas were seeded with nitrogen fixing crops. In some areas, tube-wells have been installed for irrigating the crops. Some of this 1,760 acres of land was then sold on priority to the families affected by the project. Still large tracts of these lands remain to be allotted because of pending paper processing.

In addition, wherever slopes were created by the project activities or those that exist naturally, the EIA recommended the use of appropriate mix of grasses and other plant species that eventually helped reduce soil erosion in the area. The EIA also led to the development of an Environmental Management Action Plan. The Ghazi-Barotha Hydropower Project Office on site, the Ghazi-Barotha Traqiati Idara and the WAPDA Environmental Cell jointly play their respective roles in implementing and monitoring the Plan.

10.4 Innovative Approach to Interacting with Stakeholders

For regular stakeholder interactions, two new offices were created. The first was the Project Information Centre (PIC) set up near the Barrage site. Headed by a full time Director with a degree in Law, a team of engineers, and social workers, PIC kept copies of all relevant documents, maps and video films on the proposed project, maintained close contact with the local communities, and essentially served as a convenient hub for the people to gather and discuss all relevant issues without having to go far away to the WAPDA House in Lahore.

The second was the creation of a Non-Governmental Development Organisation called the Ghazi-Barotha Traqiati Idara (GBTI). Seed money came through the governmental channels, and the National Rural Support Programme catalysed its creation. The GBTI Board had strong representation of the elected local opinion makers. The Board served as the interface between local people and the governmental agencies for addressing all issues related to relocation, compensation, and environmental management. Such services covered the affected families of both GBHP and Tarbela.

One important factor for a peaceful settlement of many land related issues was the role of the Assistant Commissioner based in Ghazi Town. This young and dynamic lady went door to door without any police escort, visiting the to-be-affected families. She would sit with the women of the household, sip a cup of tea with them, and get an in-depth understanding of their issues, especially the land ownership. Later in official meetings, if men of the same household made any false claim, she had no difficulty in keeping the record straight by making reference to her discussions with the women of the family.

These families were then helped by GBTI in relocation, and facilitated the affected families in building their houses in the Resettlement Areas of their choice. It also arranged vaccination camps and vocational trainings. The GBTI Micro-credit programme launched with the support of the First Women Bank was well received especially by the women who took up over 45% of this financial assistance. Creation of GBTI and PIC was probably the most strikingly different approach used for the first time in Pakistan.

10.5 The Civil Society Protest

The situation took a dramatic and shocking turn when a group of civil society organisations staged a strong protest and demanded to stop the Project construction. The basis for this protest was a document put forward by the Sustainable Development Policy Institute (SDPI), which was sent to all the funding agencies along with a letter

requesting them to stop funding the Project. The title of the letter read "Ghazi-Barotha Hydropower Project: An Environmental Catastrophe for Pakistan" (Khan, 1995). By that time the EIA Report had long been accepted by all relevant institutions. The construction contractor was planning to put in place a temporary river diversion to dewater about half of the riverbed on the left bank for barrage construction. At this crucial stage, appearance of such a strong protest forced the funding agencies to rethink their financial support for the Project. Nonetheless, to ascertain the gravity of the issues raised, the lead financer World Bank requested the co-financier German Development Bank, KfW to launch a Fact Finding Mission.

In view of the urgency of the task, the Fact Finding Mission conducted field visits and held discussions with the local people during July, the hottest month. The Mission noted that much of the issues raised were either based on a misunderstanding of the ground realities or simply blown out of proportion. The Mission then discussed the findings with the author of the SDPI Report at his ancestral home at the Right Bank of River Indus. The discussion continued as he took the Mission in his boat to his island in the middle of the River Indus during high flood. Eventually the author of the report conceded that his views were based on assumptions that he felt could have been corrected. He was in fact concerned about some perceived impacts on his island and his ancestral home that motivated him to write the report for SDPI. Many NGOs just accepted it and put their signatures to support the action against the Project. It is also important to note that this was the period when the resistance to large dams in India was much talked about in the media (Narula, 2009), and had provided inspiration to some NGOs in taking a position against hydropower projects.

The Fact Finding Mission Report (Kraft and Naim, 1995) gave a new lease of life to the project. The concerned Civil Society Organisations did not pursue the matter any further. Seven years later, on June 19th, 2003, the first of the five units of 290MW each became operational.

Later the World Bank expressed concerns over non-compliance with the Resettlement Action Plan in terms of the remaining compensation payments to the affected families, and delay in constructing the Waste Water Treatment Plants, as recommended in the EIA Report. Similarly, Nizami *et al.,* (2011) expressed dissatisfaction with the implementation of EIA recommendation. Nonetheless, in its final analysis, the World Bank (2004) stated "The environmental aspects of GBHP are mainly positive, in that it obviates the need for a comparable sized (thermal) generation plant, and thereby reduces the damaging atmospheric impacts of such plants."

10.6 Conclusions

A well-conducted EIA raised the comfort level of the environmentally conscious donors in financing the project. Because the EIA was done as a part of the Feasibility Study, it helped in integration of necessary interventions in the engineering design for minimising the negative impacts, and enhancing the overall benefits of the project for the people of Pakistan. In its ten years of almost flawless operation, Ghazi-Barotha Hydropower

Project has generated enough electricity to pay back its cost almost four times over, and has avoided Carbon Emission by well over 35 million tons. In a meeting of the stakeholders of the 4,500MW Diamer Basha Dam, the project-affected families unanimously demanded that the Resettlement and Environmental issues be taken care of in the same way as it was done for the Ghazi-Barotha Hydropower Project.

11 Strategic Environmental Assessment of Hydropower Development in Azad Jammu and Kashmir

By David Annandale and Zirgham Nabi Afridi

The National Impact Assessment Programme included a range of activities aimed at introducing Strategic Environmental Assessment (SEA) into Pakistan. One of these activities focused on a pilot study of the hydropower development plan for Azad Jammu and Kashmir. The study examined the cumulative impacts of approximately 60 hydropower projects proposed by four different agencies. The study developed a new and detailed method for cumulative assessment, and resulted in conclusions and recommendations related to the ecological and social sensitivity of river segments, and institutional reforms that could improve the way hydropower projects are planned

11.1 Introduction

At the time of writing, Pakistan was facing an acute shortage of electric power. Power outages were a common occurrence, and public frustration had resulted in the issue becoming an important tipping point in the national election of 2013. With nearly 9,000MW of available capacity, the hydropower sector in Azad Jammu and Kashmir (AJK) was a natural focus of interest for Federal energy planners.

No overall hydropower development plan existed in AJK, although four separate government agencies had plans for developing a total of around 60 dams. Depending on their size and siting, these projects may not necessarily result in significant adverse environmental or social impacts when they are assessed individually. However, when looked at as a whole, their cumulative impact could be significant. Before embarking on wholesale development of these projects, some kind of assessment approach was required to enable decision-makers to fully understand the implications of such a large-scale development plan.

Through the SEA Task Force established by the National Impact Assessment Programme, the Government of AJK volunteered its de facto hydropower plan as a focus for a pilot SEA study. Because it was not exactly clear where each

of the proposed hydropower projects (HPPs) would be sited, nor were the specifics of their designs well-defined, this SEA pilot focused on the overall cumulative impacts that may result from implementation of the hydropower plan as a whole.
The objectives of the pilot SEA of the hydropower plan were to:

- develop an understanding of the current state of hydropower planning in AJK;
- assess the potential environmental and social risks associated with the current hydropower plan;
- assess the potential environmental and social benefits associated with the current hydropower plan;
- if necessary, suggest alternative plan options that better optimise economic, environmental, and social outcomes; and

assess the institutional and policy constraints to mainstreaming environmental and social considerations into AJK hydropower planning and development, and provide recommendations on how these constraints might be addressed.

11.2 Methodological Approach to the Strategic Environmental Assessment

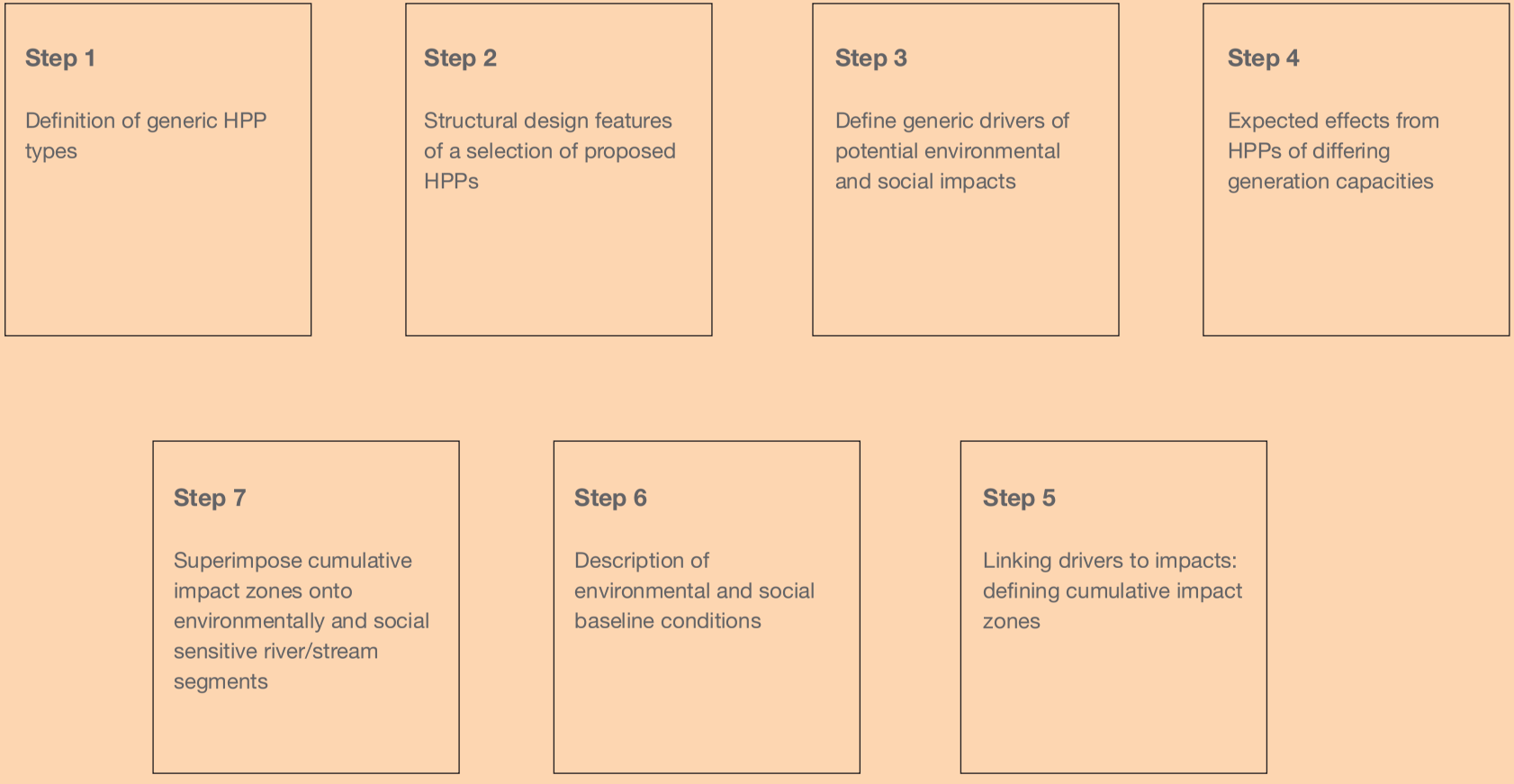
Figure 11.1 outlines the methodological approach taken in this study. In Step 1, we defined and categorised the proposed HPPs as listed in the AJK hydropower plan that was constructed from the project development plans of the Water and Power Development Authority (WAPDA), the Hydroelectric Board (HEB), the Private Power Infrastructure Board (PPB), and the Private Power Cell (PPC). In Step 2, we outlined the structural design features of a selection of proposed HPPs of differing generation capacity.

This background material allowed us, in Step 3, to define the generic drivers of potential environmental and social impacts. Categorising HPPs into different types based on the drivers of impacts helped to identify the key issues that became the focus of the study and the recommendations that resulted from it.

In Step 4 we began to make the link between drivers and actual potential impacts by outlining the expected effects from HPPs of different generation capacities. In Step 5 we extended this analysis to examine the environmental and social risks associated with planned HPP development on specific stretches of rivers and streams. Based on the geographical locations and potential cumulative impacts expected from hydropower development in AJK, river and stream sections were delineated into Cumulative Impact Zones. Based on the possible extent and severity of cumulative impacts, these zones were categorised into Moderately Critical, Highly Critical, or Extremely Critical.

With this background analysis in hand, in Step 6 we then carefully examined the environmental and social “baseline” conditions existing along the river and stream stretches that will likely see HPP development taking place. Based on ecological contiguity, the rivers and streams of AJK were divided into nine zones. The ecological sensitivity of each river zone was assessed and discussed followed by a determination of the sensitivity of river sections to the development of HPPs. A similar analysis of

Box 11.1: SEA Study Method: Connection between HPP Design, Drivers and Cumulative Impacts



socio-economic conditions was undertaken. The socio-economic sensitivity of river/stream segments was determined and rated as Least, Moderate or Highly sensitive to HPP development.

Finally, in Step 7 the Cumulative Impact Zones identified earlier were superimposed on the ecologically and socio-economically sensitive segments of AJK. This allowed the HPPs contained in the hydropower development plan to be ranked according to their overall cumulative impact potential.

11.3 Outcomes and Recommendations from the SEA Pilot Study

Cumulative Impacts in Ecologically and Socio-Economically Sensitive Zones
Superimposing the Cumulative Impact Zones onto the ecologically and socio-economically sensitive segments of rivers and streams helped to rank the HPPs based on their cumulative impact potential. Figure 11.2 and Figure 11.3 present maps of the HPPs proposed by the four AJK proponent agencies, and their ranking based on their ecological and social impact.

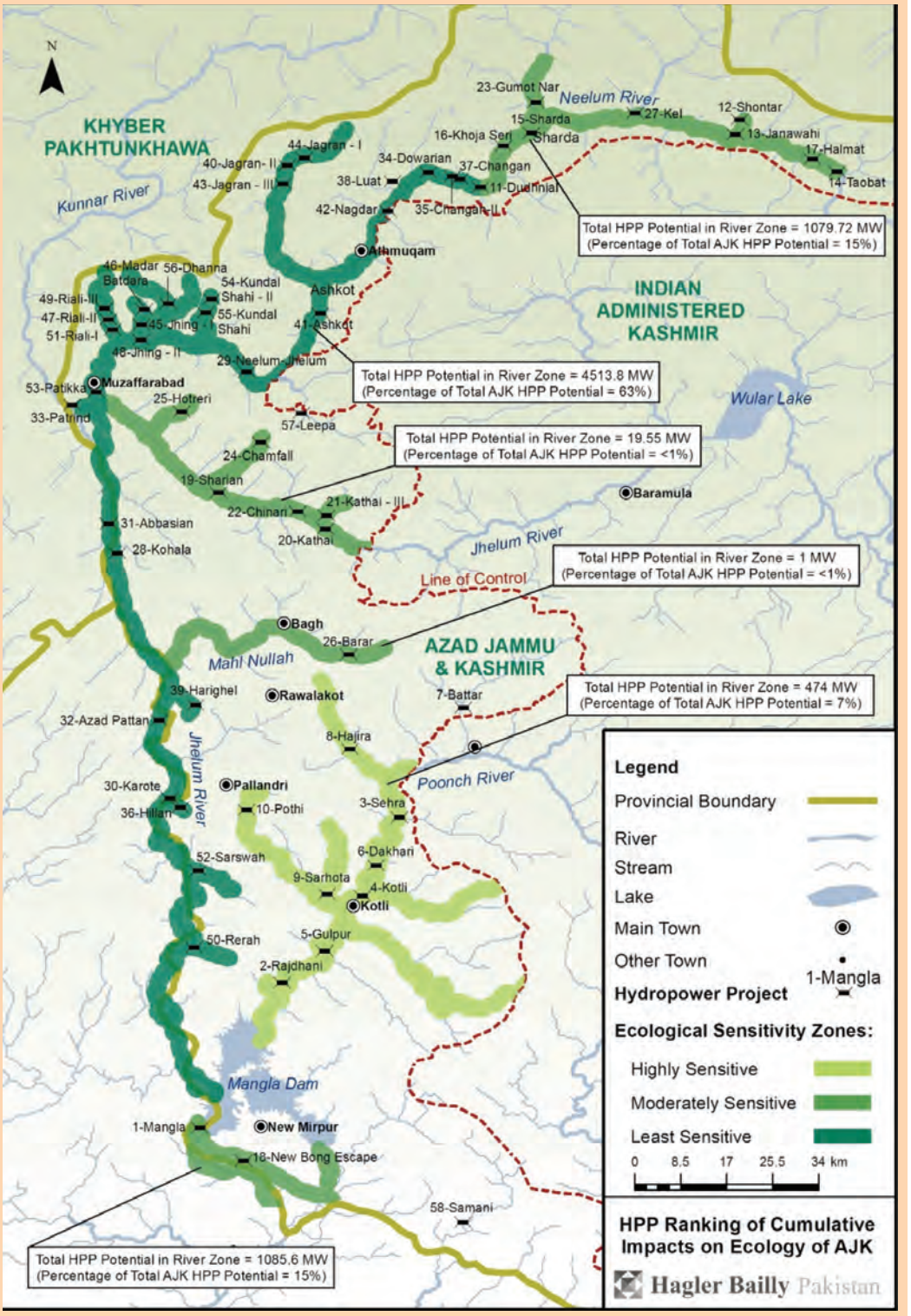
Outcomes of the HPP Ranking
A clear outcome from the cumulative impact assessment is that the area of most concern, both from ecological and socio-economic perspectives, is the Poonch River and its feed-in *nullahs* from the Line of Control down to the Mangla Dam. The nine proposed HPPs all rank highest for potential ecological and social impact. If government resources are limited, it was recommended that the main focus of environmental assessment should be the nine proposed HPPs in the "Poonch segment".

Need for Detailed Studies
River segments with threatened fish species found nowhere else should be classified as critical natural habitats and, ideally, would receive high level protection from dams or other potentially damaging civil works. The Poonch River, for example, is located in an environmentally sensitive area. It is home to an endangered fish species Mahseer (*Tor putitora*) and is a declared national park.

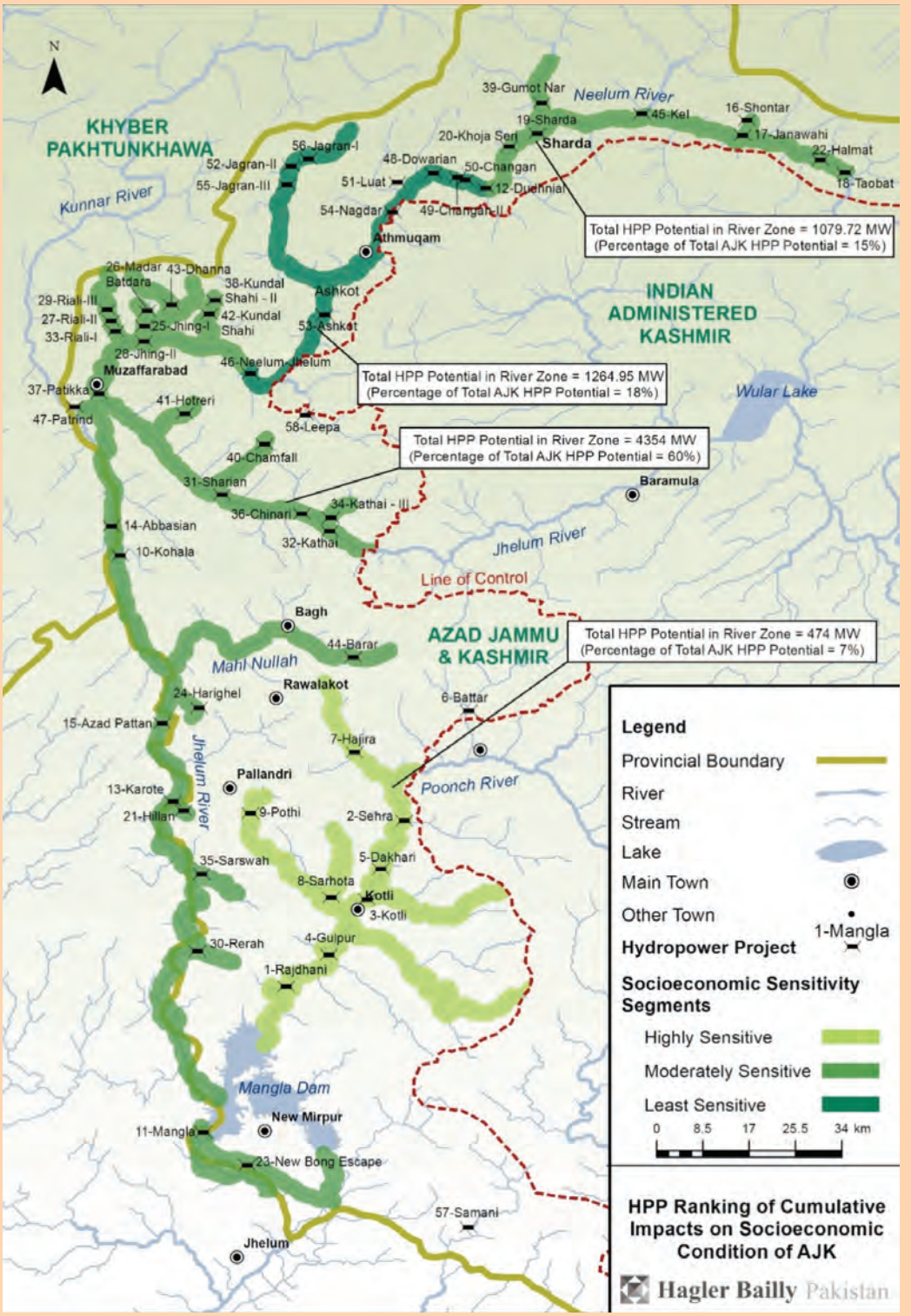
Further detailed studies should consider hydrological data at a level of resolution that is relevant to ecological communities and should consider any subsistence use of the river. In the process, thresholds should be identified beyond which cumulative change will be considered a concern. These should be expressed in terms of goals or targets, standards and guidelines, carrying capacity, or limits of acceptable change. One of the most important thresholds to determine will be the environmental flows required downstream of each diversion structure.

Keeping in view the high ecologically sensitivity of the Poonch River and its tributaries, it was recommended that all hydropower projects planned for that river should use holistic approaches for determination of downstream environmental flow.

Box 11.2: Proposed HPPs and their Ranking based on their Cumulative Ecological Imact



Box 11.3: Proposed HPPs and their Ranking based on their Cumulative Socio-Economic Impact



Maximising Synergistic Project Development

Where more than one project is being built in close proximity on the same tributary or river section, developers have the opportunity to coordinate with each other and to redesign projects based on a synergistic approach. This can help maximise positive impacts and mitigate adverse environmental impacts. For example, if there are a number of projects being planned on the same tributary, the one furthermost upstream could have a storage wall designed that would regulate flow for all of them, thereby preventing the need for each downstream project to individually store water. This may also help ensure environmental flows downstream, especially during the dry season.

Another relevant example related to transmission lines from the powerhouse to the local grid. These lines can have a significant impact on project costs. A remote site may require considerable investment in transmission infrastructure to connect the project to the local grid. However, with strategic planning, this cost can be shared over more than one project if several HPPs are developed in close proximity to one another. Similar efficiencies could be obtained with access points, construction sites and work camps.

Coordinated mitigation measures can be incorporated into the design and operation plans to mitigate expected cumulative impacts at the watershed level. It was, therefore recommended that, where there are HPPs in close proximity to each other, either on a main river, or on tributary *nullahs*, proponents should be required to consult about project design to enable synergistic development. Such consultation should be required even if project initiation schedules are not synchronised.

Institutional Coordination and Revising the Hydropower Plan

What the maps do not show is that the development of specific HPPs is not coordinated across the agencies whose projects make up the overall hydropower plan. For example, it is not possible to easily revise the whole hydropower plan to minimise negative impacts, because different agencies may be responsible for different HPPs, even on the same stretch of river or *nullah*.

In order to maximise benefits and minimise adverse cumulative environmental and social impacts from the development of HPPs, both the AJK and federal agencies should use the maps and associated ranking tables to coordinate the development of different projects. The origional hydropower plan for AJK is in a *de facto* state. It consists only as a collection of project proposals developed by the WAPDA, HEB, PPIB, and PPC.

By screening projects and their locations, the agencies should ideally propose a timetable for the development of new projects based on environmental and social considerations. If required, policies and legislation may need to be introduced and/or amended to ensure that following the timetable becomes a mandatory requirement.

Moreover, coordination between the different regulatory agencies also provides an opportunity for identifying joint capacity-building goals and objectives for managing the cumulative impacts of the hydropower plan. It was recommended that a comprehensive hydropower plan or basin development plan needs to be developed and “owned” by all four agencies. It should allow for the timed, synergistic development of individual projects.

Guidelines for IEEs and EIAs

Environmental assessment regulations currently specify that HPPs over 50 MW fall within Schedule A, thereby requiring the production of full environmental impact assessments (EIAs). Those with generation capacities less than 50 MW fall in Schedule B, requiring only initial environmental examinations (IEEs).

According to the regulations, projects in Schedule A "are generally major projects and have the potential to affect a large number of people. They also include projects in environmentally sensitive areas. The impact of such projects may be irreversible and could lead to significant changes in land use and the social, physical and biological environment". Projects in Schedule B "include those where the range of environmental issues is comparatively narrow and the issues can be understood and managed through less extensive analysis. These are projects not generally located in environmentally sensitive areas or smaller proposals in sensitive areas".

An examination of HPP rankings based on their critical cumulative impacts on ecologically and socio-economically sensitive zones shows that the majority of the top twenty HPPs in both ranking tables are less than 50 MW in size. This suggests that using the 50 MW generation capacity figure as the main determinant of environmental assessment standard is misguided. HPPs with capacities less than 50 MW but located in ecologically and socio-economically sensitive zones do not necessarily exhibit a narrow range of environmental issues, and nor can the potential individual and cumulative impacts of these projects be understood and managed by the limited scope of analysis of IEEs.

The 50 MW benchmark should not be the main screening criterion used to determine required level of environmental assessment. AJK EPA should use Figure 2 and Figure 3, along with associated ranking tables, to determine whether a HPP should require an IEE or EIA. It was recommended that AJK EPA should develop "zone specific" guidelines for IEE and EIA studies that are not tied to installed capacities of HPPs. This could be of significant benefit to proponents. In addition, Terms of Reference for full EIA studies associated with relevant HPPs should include cumulative assessment requirements.

Provision of Information

Due to limited government funding and resources, AJKEPA could examine the possibility of sharing some of its monitoring responsibilities with the people most likely to be affected by the HPPs. Local representatives may be made a permanent part of the monitoring body of the AJKEPA.

Activities could be planned with nearby schools and universities to monitor the HPPs during the construction and operation phases. One example of a monitoring activity is the periodic review of environmental flows downstream of diversion structures. It was also suggested that Figure 2 and Figure 3, along with other maps contained in the final report, could be digitized and hyperlinked, so that interested proponents and members of the public could click on the name of a HPP, or a general location, and obtain information about the sensitivity of the area and required guidelines.

11.4 Conclusions and Lessons Learned

The SEA pilot study resulted in a number of important outcomes. First, it took project development plans from four different government agencies and mapped all proposed short-and medium-term proposals for the first time.

Second, it applied a rigorous method to the assessment of the cumulative impacts emanating from 62 proposed projects. The outcome of this work was a set of easy-to-interpret maps that enables decision-makers to understand the relative ecological and socio-economic sensitivity of different river and tributary stretches. It is now possible for government officials to think holistically about the planning of specific projects across river basins in the State. Zones that are most sensitive may require a greater focus from proponents during EIA study. In addition, regulators may now be able to encourage proponents to plan their projects in a synergistic fashion. Third, due to a combination of initial "situation analysis" and cumulative assessment study, it was possible to develop a series of recommendations that could help to improve the way hydro-power planning is undertaken in AJK.

A number of "lessons" were learned from this pilot SEA that may be of value for future initiatives. The first relates to public participation. The original plan for the SEA allowed for a limited programme of public participation. However, due to the delicate security situation in AJK, it was not possible to undertake anything like a comprehensive consultation programme. Instead, the consulting team produced a detailed "stakeholder mapping" exercise which at least pointed to the interests and values held by different groups.

The second lesson learned from this pilot relates to the importance of baseline data. The pilot did not have a budget for primary data collection. Fortunately, the consulting team had access to excellent primary environmental and social data from previous impact assessment studies undertaken in the State. Without this information, the pilot SEA would not have been able to produce the river sensitivity and hydropower project ranking that was a crucial outcome of the study.

Finally, it is worth noting that the maps produced during the study were of significant value. The two main maps that superimposed cumulative impact zones onto environmentally and social sensitive river/stream segments (Figure 11.2 and Figure 11.3 in this chapter) were used as the focus for discussions with public officials in AJK, who often do not have enough time to read long, technical reports. At consultation meetings with government officials, the maps engendered spirited engagement that clearly led to real organisation learning.

12 Planning for the People: Introducing Strategic Environment Assessment in Pakistan

By Parvaiz Naim

Pakistan appears well-poised to make use of Strategic Environment Assessment (SEA) in formulating policies, plans and programmes leading to sustainable development. The main reason is the presence of well-established institutions specialising in planning, and providing baseline data on virtually all natural resources, and Climate Change. Three decades of EIAs for projects have increased support for environmental screening of developmental activities by civil society, media, and judiciary alike. This support should help take the next step towards integrating environmental concerns into policies, plans and programmes with the use of SEA. The Government of Pakistan's new "Vision 2025" envisages "Sustainable and inclusive Higher Growth" that includes creating large water reservoirs and new medium size cities. Such mega-plans have high potential of benefitting from SEA use in earning better acceptance from the target communities. For institutionalising its use, SEA has been made a requirement in provincial laws. A clear set of guidelines and continuous series of SEA Training Workshops are recommended for success.

12.1 Introduction

Pakistan has a well-established institutional setup for policy-making and planning at all levels. The success of their policies and plans can be measured by the fact that over the last little over half a century, the country has progressively developed to become the 28th largest economy of the world. Much of this economic growth has been made possible by exploiting the natural resources of the country. Unfortunately, in the development process, the natural resources have suffered heavy losses affecting their productivity, as well as the health of the population. These losses have been estimated to yearly cost up to 6% of the total economy (World Bank, 2006).

In addition to over-exploitation, the natural resources are also coming under stress from gradually mounting Climate Change. Glacial melt and sea level rise and extreme episodes of heavy precipitation all have affected the overall economy of the country. In fact, according to the Climate Change Vulnerability Index (Maplecroft, 2011), Pakistan is categorised as one of the most

vulnerable (extreme risk) countries in South Asia. These and other factors affect the majority of the people, hence on the Human Development Index, Pakistan has already gone down from 125th in 2010 to 145th position (UNDP, 2013).

This situation points to the urgency of giving due attention to the natural resources in formulating policies, plans and programmes hence the need for using the Strategic Environment Assessment (SEA). SEA can be described as:

> "*Analytical and participatory approaches that aim to integrate environmental considerations into policies, plans and programmes, and evaluate the inter-links with economic and social considerations*." (OECD, 2006)

Traditionally, the SEA process is similar to the EIA process – Screening, Environmental Evaluation, Public Consultation, Approval by an officially designated competent authority, and of course, subsequent monitoring and learning from experiences (Dalal-Clayton and Sadler, 2005). Given Pakistan's experience of managing the EIA process for many years, it appears feasible to pass the policies, plans and programmes through a similar environmental evaluation and public consultation process for achieving the long term sustainability goals of such efforts. Here is an outline of Pakistan's Policy Formulation and Planning Process.

12.2 Formulating Policies, Plans and Programmes

National Policies are essentially developed by the concerned Federal Ministries. The first draft is often prepared by attached departments. This draft is then circulated to concerned institutions, and is finally placed before the Economic Coordination Committee of the Cabinet for approval. The Cabinet has several Sector-Specific Cabinet Committees to examine and approve the relevant policies.

For example, the first draft for the prevalent Power Policy was developed by the Private Power and Infrastructure Board for the Ministry of Water and Power. This draft was circulated to all relevant ministries and institutions. After making necessary changes, the Ministry of Water and Power presented it to the Cabinet Committee on Energy, headed by the Prime Minister. It was also debated in the Council of Common Interest where the provinces had an opportunity to comment. After Cabinet approval, the document was published as Pakistan's National Power Policy, 2013.

Provincial Policies used to take overall guidance from National Policies. For example, the Hydropower Policy of Khyber Pakhtunkhwa 2006 was developed within the limits defined by the National Power Policy of 2002. This situation has, however, changed since the implementation of the 18th Amendment in Pakistan's Constitution gave more autonomy to the provinces. Now provinces have the liberty of formulating their own policies that may or may not be fully in line with the National Policies. For example, contrary to the National Policy of auctioning hydropower sites to bidders offering the lowest tariff, the Khyber Pakhtunkhwa's Power Policy allows giving such sites either on first-come-first-served basis or to the bidder offering highest amount of money for leasing a given site.

Provincial Policies are drafted by the concerned line department, often with support from its attached departments. For example, the Hydropower Policy of Khyber Pakhtunkhwa (KP) was drafted by the Pakhtunkhwa Hydel Development Organisation (PHYDO), and approved by the KP Provincial Cabinet.

National Planning is the main task of the Planning Commission of Pakistan. Within the Commission, a given sector plan is normally drafted by the Chief of the relevant section. For about half a century, 5-Year Plans were prepared. After the ninth 5-Year plan, such an exercise was given the title "Medium-Term Development Framework 2005-2010". After that, the Commission produced Annual Plans only. Recently, the Commission resumed the 5-Year planning activity.

For developing the Medium-term Development Framework 2005-2010, the Planning Commission had set up 32 Working Groups. These Groups included experts from the Federal and Provincial Governments, public, private, and civil society organisations, *academia*, and research institutions. For developing the Annual Plan 2010-2011, the Planning Commission staff completed the task and had it approved by the National Economic Council. The Planning Commission now appears to be well poised to resume the five-Year Planning exercise with the 11th five-Year Plan covering the period 2013-2018. This Plan is a part of the long-term national development plan called Vision 2025. The key features are discussed separately at the end of this chapter.

The **Public Sector Development Programme** (PSDP) is the principal planning document developed by the Planning Commission. For this, the basic planning essentially originates from the ministries and the provincial line departments. The Planning Commission sends out a call to the ministries and provinces for projects every year in October/November.

In the line departments, the Chief Planning Officers are the lead persons who develop the draft of such programmes and projects. These drafts are first discussed at the Departmental Development Working Party (DDWP). Then they go to the Department of Planning and Development, and come under discussion at the Provincial Planning and Development Working Party (PDWP). After provincial approval, the PSDP proposals then reach the Planning Commission, and come under discussion at the Central Development Working Party (CDWP). The autonomous bodies, like WAPDA, send their proposals for PSDP funding through their relevant ministries to CDWP. The next step is to go for approval of the National Economic Council. After that, the PSDP is integrated into the National Budget and presented to the National Assembly for approval.

The **provinces** have the authority to approve plans, programmes and projects costing up to a specified amount. For example, the Punjab Planning and Development Commission can approve proposals costing up to Rs 5,000 million. Following the 18th Amendment to Pakistan's Constitution, the Federal Government devolved seventeen Ministries, and passed on their responsibilities to the provinces. These devolved ministries include the Ministries of Environment, Health, Education, Population Welfare, Women, and Youth. Two of the main Ministries that remain under the federal control affect the natural resources the most – the Ministries of Water and Power, and Petroleum

and Natural Resources. For managing the provinces' added responsibilities, the National Finance Commission approved a much higher allocation of funds to the provinces. Accordingly, the size of the Federally-controlled PSDP was significantly reduced.

This means that the provinces have much larger Annual Development Plans. Already these plans are approved by the Departmental Development Sub-Committees headed by the secretaries of the line departments in consultation with the representatives of Finance and Planning and Development Departments. These Sub-Committees can approve proposals costing up to Rs 200 million. This limit is likely to be increased. Similarly, the provinces are likely to empower the heads of the attached Departments for approving proposals costing more than the present limit of Rs 1.5 million.

At the District level, the District Development Committees (DDC) can approve projects costing up to Rs 50 million. The DDC is chaired by the District Coordination Officer (DCO). Others on the Committee include the Executive Development Officers from Works, Planning, Finance, and additional relevant officials. All these plans and project proposals originate from mid-level officials, pass through rigorous process causing some modifications, and eventually are approved for implementation. The Local Body Elections are designed to give an effective role to the elected representatives of the people in local level planning.

During the course of implementation, the Monitoring and Evaluation role is performed by the Planning Commission at the Federal Level, and Planning and Development Department at the Provincial level in addition to the relevant ministries and departments and their attached institutions. These Monitoring and Evaluation exercises allow for any further changes in the design, scope or duration of the activities for achieving the desired output.

12.3 Public Participation in Formulating Policies, Plans and Programmes

At the project level, stakeholder consultations are a legal requirement in Pakistan for all significant development activities (PEPA, 2000). At the higher levels of planning, often different ministries form advisory committees involving relevant experts from both, public and private institutions in formulating policies and plans. Nonetheless, at the higher level of planning, stakeholder consultations are done as exception rather than as standard practice. It is because by definition, stakeholder consultation is not a required element for the higher level planning process in Pakistan. For the possible issues related to SEA, it would be useful to take stock of the lessons learned from public consultations conducted for EIAs.

Public consultation process related to EIA in Pakistan has often been criticised for a variety of reasons (Nadeem and Fischer, 2011). In general, public consultation is conducted with the understanding that people will engage in an honest exchange of ideas and use reasoning when propelling any counter argument or demands. Nonetheless, more often than not, the process does not proceed in such a manner. In a society with a plethora of political, cultural, religious and ethnical affiliations, some

dissenting voices at times tend to dominate the discussion and even hijack the process to the disadvantage of the majority of people who might have actually benefitted from the proposed effort.

The most powerful motivation for causing an uproar in public consultations is the issue of compensation to the potentially affected families; some families feel that a melodrama staged at the public consultation would help fetch them maximum possible compensation packages. Other factors for such uproars could include business competition, conflicting interests in the use of the proposed site, or simply political or family rivalries that manifest in creating local unrest against an otherwise beneficial project for the local communities. It is not uncommon thus, to see heavy presence of police for maintaining peace at the site of public consultation or hearing related to a proposed developmental project (Naim, 2004).

A rare but real problem arises when a given community or its segment is coerced to stay away, silent or offer a polite no to the proposed project. This makes it difficult for those leading the public dialogue to judge the real value of consulting such a community. An even more complicated yet not uncommon problem is the bias introduced by the experts conducting consultations. Experience over the years in the field suggests that the basic problem is not the lack of formal training but the personal inclination that compels an expert to deviate from the norms of staying on neutral grounds. The temptation could cause a heated debate between an expert and the people being consulted. The worse cases are those where an expert succeeds in ventriquolising his thoughts through the general public. Such efforts negate the very purpose of public consultations.

Probably the largest consultation process ever undertaken in Pakistan for a project was for the Kala Bagh Dam. Running for many years, the public consultation process had intense involvement of the media, civil society organisations, government institutions, and political parties. The consultation process generated heated debates and strong polarisation of view that at times led to violent protests. In the end, this most studied mega-project meant for large scale irrigation water storage, flood protection and hydropower generation had to be abandoned.

Pubic consultation process in a SEA could well face the same bumpy ride. Nonetheless, in some cases, it is likely that some of the Policies, Plans and Programmes may not be affected by the compensation factor. It is because a Policy, Plan or Programme might not require any foreseeable involuntary relocation. In general, many other factors, especially the political inclinations of target audiences will mostly dwell on the negative aspects of any proposed Policy, Plan or Programme, irrespective of the mitigation measures proposed for minimising the negative impacts.

Two key factors can help change the situation and make conditions more favourable for minimising biased interferences in SEA Public Consultation Process.

1. First, national consensus on development goals: More often than not, an elected government plans just for its mandated five-year ruling period, and hence,

formulates policies for achieving those short-term gains. It is also not uncommon to see one political government not too keen on completing any developmental plan initiated by its rival party. This leads to a large wastage of national resources and also discourages political parties from embarking on long-term developmental planning. National consensus on developmental policies of national interest is a rather utopian goal, nonetheless, mutual consultations among all political parties should help achieve certain levels of consistency in policies, plans and programmes.

2. Second, devolution of decision-making powers to the local levels: The local level planning gets far more active public participation with the re-introduction of Local Body Elections. The elected representatives are expected to be more receptive to the voice of the people in their small constituencies and plan activities with equitable benefits for all. A good example was seen a few years ago when Karachi City affairs were managed by the locally elected representatives. Plans developed through public consultations and executed under the close watch of the people led to rehabilitation and creation of parks and other recreational facilities, and an immensely improved traffic system that brought ease to the lives of millions of people.

Revival of the Local Body Election system should also lead to better self-evaluation by the opinion leaders, especially in view of the five-year election cycles. In spite of the prevalent problems in holding fair elections, the election results in general show a growing trend that all people cannot be fooled all the time. Success goes to those leaders who introduce better policies, plans and programmes that reflect the desires of the majority of the people. The gradual strengthening of democratic institutions especially at the local level is thus the most significant step the Pakistani society is taking, paving way for effective public consultations in formulating policies, plans and programmes.

12.4 Vision 2025 and its Realisation

The present government has begun the process of developing a long term national development plan for “Sustainable and Inclusive Higher Growth” in the country under the title, “Vision 2025”. The Approach Paper for the Plan states that “Pakistan needs to move to higher growth trajectory of 7-8% on sustained basis for longer duration to improve quality of life of its citizens and absorbing massive additions to its job market in near future” (Planning Commission, 2013).

The Approach Paper recognises that Climate Change and population growth have put a severe constraint on the water availability in the country that needs to be mitigated by increasing water storage capacity. The Paper also takes stock of the deteriorating civic amenities in existing large cities, and emphasises the need to develop new medium-sized cities well integrated with the surrounding villages for better productivity. The Paper envisages making appropriate policy interventions for achieving the desired results. Vision 2025 is also the guiding light for the eleventh five-Year Plan covering the period from 2013 to 2018. The five-Year Plan will then be operationalised through Annual Development Plans and the Public Sector Development Programmes. In summary, the Vision will lead to the formulation of new policies, plans and programmes that will decide the future course of development in the country.

Introduced in democratic ambiance, the Vision has to be evolved by using the manifesto of the ruling political party as the basic building block. In addition, it has to take into consideration the views of different segments of the society for eventually enlarging the ownership of the Vision. This is where the SEA approach would help in bringing together all streams of thoughts on to a common platform, helping to achieve a general acceptance and hence ownership of the Vision. The full use of SEA potential would, however, be seen when applied to the subsequent process of formulating policies, plans and programmes. For this, the country has four strong elements that will help make it happen. These are subsequently explained.

12.5 Using SEA in Formulating Policies, Plans and Programmes

For making use of SEA, Pakistan has the following four strengths:

1. In general, ministries and line departments all have qualified and experienced staff who draft policies, plans and programmes, essentially based on the perceived needs and available resources. At times, private sector professionals are co-opted, or consultants are hired to do the job (Planning Commission, 2008);
2. The Provincial Environmental Protection Agencies are generally capable and experienced in examining a wide variety of project proposals using the EIA approach (Post and Schijf, 2011). Their staff can be trained in SEA relatively easily, enabling them to examine the Policies, Plans and Programmes;
3. A wide range of knowledge and expertise exists in a large number of academic, scientific and technical institutions both in the public and private sectors to provide the baseline information needed for ascertaining the likely impacts of policies, plans and programmes; and
4. A vibrant cohort of civil society organisations, deeply concerned about environmental issues, a vigilant media ready to widely publicise the plight of those being or likely to be affected by a policy, plan or a programme, and of course the judiciary that is known to have taken *suo moto* notice on environmental issues.

The strength of a draft policy, plan or programme depends on the technical competence of the mid-level officials normally entrusted with the task. At times, the official making the first draft spends adequate time in looking at the proposed plan from many different angles and presents a quality draft to the higher officials. It is unfortunate that in some cases some higher officials who may not have had sufficient time to examine the proposed plan from different angles, or who may be biased by their previous experiences, end up making some 'misfit' modifications in the draft, often in the name of "keeping it simple". There have been incidences that while the proposed main target got achieved, the 'misfit' modifications caused some 'side-effects' that led to some undesirable consequences. It happened because the higher level official did not have the benefit of any decision-aiding tool that could have helped him in evaluating the significance of a proposed component of a plan. One stark example is that of a Social Forestry Plan in Swat Valley. For distributing the community share, the criterion used was the number of males in a family. As a consequence, the target communities experienced increased polygamy and a substantial increase in population growth.

It must be noted that in spite of the 18th Amendment, most of the provincial policies, plans and programmes would continue to be influenced by the earlier or prevalent

policies, Acts, and Ordinances formulated by the Federal Government. It will take a while for the provinces to work with the Federal Government in formulating policies, plans and programmes that do not contradict the prevalent national policies and laws.

One such example is the equal share allowed by the 18th Amendment to the provinces in exploiting oil and gas reserves. Earlier, the Federal Government had full control on it. Nonetheless, for benefitting from the 18th Amendment, the provinces would need to work with the Federal Government in changing the in-vogue law related to Oil and Gas that does not allow any such sharing with the Provinces.

This and other emerging issues require appropriate changes in the legal and policy structures both by the federal as well as the provincial governments for effectively benefitting from the changed situation. This is where the use of SEA can play a constructive role in updating the policies, plans and programmes. The output should make it easy to formulate appropriate legislation for covering the required changes. This process should give the resulting laws wider acceptance by the target groups.

For the success of the entire process, the Planning Commission through its National Impact Assessment Programme (NIAP) has supported the provinces in adopting SEA as a part of their respective environmental laws. The provinces of Sindh and Balochistan have already promulagted such laws while others are at various stages of doing the same.

Re-Birth of Provincial EPAs and legalisation of SEA

SEA has now become a legal requirement in the provinces of Sindh and Balochistan. Other provinces are at various stages of doing the same. This significant development owes its emergence to the provincial efforts of bringing the Environmental Protection system under the respective provincial laws. This legal restructuring is a part of the the post-18th Amendment Devolution Plan.

The new legal structure gives a new legal basis for the provincial Environmental Protection Agencies, and establishes associated institutions like the Provincial Environmental Protection Council and Environmental Tribunals etc. This process received appropriate support from the Planning Commission of Pakistan through its National Impact Assessment Programme (NIAP), leading to the inclusion of SEA as a legal requirement.

According to the proposed SEA Procedure, a government institution (Proponent) is expected to take the following steps in making use of SEA in the formulation of Policy, Plan or Programme (PPoP):

1. The Proponent develops the draft PPoP;
2. The Proponent hires a Consultant (the terms “Consultant’ refers to one or more professionals or a company);
3. The Proponent and the Consultant jointly send a five-page Scoping Brief to the EPA highlighting the expected adverse environmental impacts, alternatives and mitigation measures etc related to the Draft PPoP developed by the Proponent;
4. After receiving EPA’s approval of the Scoping Brief, within ten working days, the Consultant begins SEA. This includes providing both expert and public comments.

After that, the Draft PPoP along with the SEA Report and Environment Statement are submitted to EPA;

5. EPA posts the Proponent's Draft PPoP along with the SEA Report and the Environment Statement on its website and also makes printed copies for public comments. The documents along with the comments received during the next 30 days are then presented to the Environmental Protection Council for approval;
6. After the Council's approval, the documents go to the Minister for Environment. The Minsiter has the descretion of attaching any legally binding conditions to the PPoP; and
7. After that, the Minister submits all these documents to the 'competent authority' (for example the Provincial Parliament) for final approval.

While this proposed procedure could work for some PPoPs, chances are that it would need modifications for increasing its utility. The most critical task would be for the Proponent (Government Institution) to accept critique by its own hired Consultant, and also make the critique public. It would be more acceptable for the Proponent to hire relevant experts for commenting on the first draft of PPoP, improving it in the light of the comments, and only then submitting the Scoping Brief to EPA.

An institutional challenge would be to maintaning the decorum of official business. Discretionary powers given to the Environment Minister for adding legally binding conditions in a Draft PPoP approved by the Environemnt Protection Council could attract criticism.

Key challenges for effectively using SEA

Making SEA a legal requirement opens up a new highway of possibilities for PPoP formulation. For making effective use of these opportunties, the first challenge for the EPAs is to develop clear Screening Guidelines, providing the basis for subjecting a given PPoP to SEA process. This step would be needed along with a comprehensive set of guidelines for environmentally evaluating a PPoP. It must be noted that the Planning Commission does have an Environmental Check List that closely resembles the Danish Guidance of Environmental Effects of the Bill or any other Governmental Proposal. So far, the Planning Commission uses it as an annex to the Project Planning Document called PC-1. It should be possible to use this check list for a starter, until proper SEA Guidelines become available.

Institutions routinely requiring SEA for their PPoPs would need to create new staff positions for developing in-house capability of inculcating environmental concerns right from early stages of PPoP development, thus minimising the risk of attracting negative comments from EPAs and general public. Value added to the SEA process would be an effort to not just avoid any potential conflict but to develop synergy with other PPoPs.

For capacity-building of government offficials, many government institutions can accommodate SEA as a subject in their training programmes. The challenge is for the private sector professionals. By 2014, this challenge had been met to an extent by NIAP. There is a need to explore ways of continuing SEA Training Programmes beyond the life of NIAP.

For increasing SEA acceptance, NIAP has taken a concrete step in the form of a SEA Pilot Project. This Project aims at showing the effectiveness of SEA in strengthening the institutions engaged in electrical power related matters in Azad Jammu and Kashmir (AJK). This Pilot Project and others following it should give acceptance to SEA as a credible tool in facilitating the PPoP formulation that eventually lead to sustainable development. With appropriate institutional interventions, Pakistan should be able to benefit from using SEA in PPoP formulation ensuring sustainable development with equitable distribution of benefits to all.

12.6 Summary

Pakistan's institutional strength in formulating policies plans and programme over the years has greatly contributed to its economic growth. This growth has nonetheless occurred at the cost of serious damage to its natural resource base that take up to a 6% toll on Pakistan's economy. This situation calls for using Strategic Environment Assessment as the tool for integrating environmental concerns in the formulation of policies, plans and programmes. Since Pakistan has over three decades of experience of using EIA for projects, the awareness on development-related environmental issues is fairly high in the civil society, media and the judiciary. The overall situation in Pakistan thus seems quite conducive to using SEA. Already, the provinces of Sindh and Balochistan have made SEA a legal requirement. Other provinces are at various stages of doing the same. Nonetheless, for making effective use of SEA, there remains a need for developing clear guidelines for screening and subsequent SEA procedure including public consultations. The existing EIA guidelines and checklists can be appropriately modified to serve the purpose. Additionally, a format for writing the SEA Report and the Environment Statement would be needed. The guidelines must emphasise the need to not just avoid conflict but expolre ways of promoting synergy with other PPoPs. The key to the success of the SEA process remains with the concerned government officials – the planning staff in the ministries and departments, and in EPAs who would need to be trained in SEA application. In addition, arrangements are needed for training the consultants. Given the new Vision 2025 of the Pakistan Government, the operationalising of the vision into appropriate policies, plans and programme would certainly benefit from SEA in realising the stated Vision "Sustainable and Inclusive Higher Growth" .

13 Outlook: Future Development of EIA in Pakistan

By Hamza Khalid Butt and Ahmad Saeed

The starting point of EIA in Pakistan can be traced back to the early-1980s with the promulgation of the Pakistan Environmental Protection Ordinance (PEPO '83). Since then, there have been many significant developments at the policy, legal and implementation levels that have led to the strengthening of the tool in the country. This chapter outlines key characteristics of the EIA system in Pakistan and gauges their implications for the future development. With the passing of the 18th Amendment, the institutional framework now faces challenges and opportunities that will play a major role in strengthening EIA. This chapter also explains how a well-trained community of impact assessment professionals is key to the future of EIA along with the implications on quality control of EIAs. Finally, this chapter proposes the use of new tools such as Strategic Environmental Assessment, Rapid Environmental Assessment and Cumulative Environmental Assessment. Recommendations and conclusions are offered that policy makers should consider implementing to ensure the functioning of a well-rounded EIA system.

13.1 Introduction

Earlier chapters have provided for a detailed overview of the status of EIA in Pakistan, including strengths and weaknesses, challenges and constraints, and case studies, thus helping to understand the evolution of the EIA regime in the country. As noted at various points, significant improvements have been made since EIA was formally introduced and new challenges have emerged that have to be overcome in order to develop a well-functioning EIA system in Pakistan. This chapter includes an introduction of SEA to enhance the readers' understanding of SEA's evolution, which at the moment is in its infancy in Pakistan. A holistic view of the future of EIA in Pakistan is brought forward, putting the debates surrounding EIA and SEA into perspective. The impact of the 18th Amendment to the Constitution of Pakistan has brought about challenges as well as opportunities for the further strengthening of EIA in the Country through development of province-specific institutions and legislation.

Following the 18th Amendment, provinces have been drafting their own environmental legislation, strengthening the EIA regime and introducing SEA.

NIAP has assisted provinces in this process and and in strengthening supporting tools and mechanisms such as the EIA curriculum for higher education institutions (http://niap.pk/docs/Knowledge%20 Repository/ Reports/Draft%20EIA%20 Curriculum%20for%20Tertiary%20Level%20Institutions%20in%20 Pakistan.pdf), EIA consultants' accreditation and EIA review mechanisms, EIA and SEA rules. The next step is to support the federation and the provinces in implementing the legal framework and support mechanisms to ensure EIA is strengthened and SEA takes root in the country.

The discussion in this chapter focuses on the existing needs, while keeping a focus on the future. References have been made to national priorities and international best practices in order to suggest the future course of action. As the most current and significant intervention in impact assessment in the country, NIAP provided for numerous examples of recent developments, outlining implications for the future. Key NIAP milestones are depicted throughout this chapter. Special attention is paid to the implications for the EIA institutional and legal framework, EIA training for professionals and students and tools for the next generation of Impact Assessment.

13.2 Setting the Context

To strengthen the capacities of the newly established EPAs, the World Bank funded the EPRC project. This project was quite successful in enhancing the capacities of staff and providing material resources - laboratory equipment, computers etc. It not only helped in establishing EPAs, but was also instrumental in making them technically competent. Staff was trained, keeping in view the technical competence required by each EPA. Once the project ended and the second phase of the project did not materialise, the momentum created and good work undertaken by the Project was feared to be lost. Realising the importance of the initiative, the Government of Pakistan (GoP) absorbed a significant number of staff hired under the project, to keep teams intact. However, due to financial constraints faced by the GoP in the post-1998 nuclear experiment era, the progress made could not be built upon for continued benefits.

Although the EPAs continued to function to the best of their abilities, despite financial and capacity constraints, the overall implementation of the EIA process suffered in the country.

13.2.1 -Trends in EIA Practice

In the late 1980s, most of the EIAs were of donor-funded initiatives in the oil and gas sector and were of generally high quality. EIAs were of international standards as most of the companies involved in on and off-shore exploration were foreign companies, following either their own safeguards or the safeguards of the countries of their origin, resulting in higher quality of EIAs conducted. With the downturn in the economy in mid-1990s, especially in the aftermath of the 1998 nuclear tests, there was a decrease in the overall number of projects being developed both, in the public and private sector, thus the numbers of EIAs decreased.

The Kirthir National Park EIA in the late 1990s was a landmark case, which created a

domino effect through bringing EIA to the forefront as a tool for decision-making. This led to an increase in the number and quality of EIAs being conducted for large projects. Pakistan witnessed another surge in EIA quantum after 2005 when the post-earthquake rehabilitation work began in Khyber Pakhtunkhwa and Azad Jammu and Kashmir. However, due to the high frequency and the requirement for a rapid response to contain the disaster, the EIA quality was somewhat compromised, but the monitoring and follow-up of Environmental Management Plans was rather strong, due to the requirement of compliance by the ADB and other international financial institutions of their environmental and social safeguards. With the onset of the energy crisis in Pakistan, a significant number of EIAs being currently carried out are now of energy projects such as dams and power plants. This trend is likely to continue with a shift towards coal-fired power generation. This corresponds with the policy shift governing the energy mix in the country with coal being the primary input. With the plans of the government to install transboundary gas pipelines from Turkmenistan and Iran, high-quality EIAs will have to be carried out for these large scale projects. In the context of the relative stability after the restoration of democracy in 2008, there is further reason to believe that the number of EIAs conducted in Pakistan will increase due to increased public sector works with a focus on infrastructure development and improvement such as Lahore – Karachi and Faisalabad – Multan motorways, Kashghar – Gwadar highway, and Islamabad – Muzaffarabad railway.

13.2.2 Where we are - EIA Mapping Exercises 2010 and 2014

In 2010, an EIA Mapping exercise was conducted to give a snapshot for the EIA landscape in Pakistan. The exercise was using the tool developed by the Netherlands Commission for Environmental Assessment (Post and Schijf, 2011; see also chapter 5). The study concluded that the coverage is currently too low. In some provinces, it seems that only 5% of the projects that should undergo EIA actually do. Two constraining factors for enforcement stand out in the mapping results; one being the lack of capacity, and the other the limited accountability and transparency in decision-making. It was recommended that these two issues are addressed in the revision of the EIA regulation, including requirements for actively publishing decisions. Secondly, about 90% of the projects that should undergo EIA are developed in Punjab and AJK. In comments on the draft of this report, participants pointed out that the level of activity recorded in the EIA map for AJK could be influenced by post-earthquake reconstruction activities, and may not reflect the average development level (NCEA, 2011).

In 2014, another mapping exercise was conducted in all provincial jurisdictions of Pakistan to gauge whether there had been a marked change in the EIA system in the country. The method focused on assessing the baseline EIA Legal Framework in the country, *e.g.* the Provincial Environmental Law and IEE/EIA Rules. Parallel to this, the EIA practice level in the country was assessed, and departure of practice from law was documented. Results of the 2014 mapping exercise will shed light on the impact of the four and a half year NIAP intervention to judge where NIAP has led to improvements. Finally, the repeat exercise also identified future needs of the EIA system in Pakistan that can be addressed through a second phase of NIAP.

13.3 Policy and Legal Framework

The EIA policy and legal framework in Pakistan has undergone drastic changes in the past four years since the passing of the 18th Amendment. Readers should note that this is perhaps the most important aspect impacting EIA's future development. The devolution of the environment as a provincial subject under the Amendment has exposed gaps in policy, law as well as implem-entation. This transition comes with its challenges that have to be overcome, but also provides opportunities for innovation and further strengthening of the system in a decentralised manner.

Under the 18th Amendment, provincial governments are now solely responsible for the environmental pollution and ecology under their jurisdiction. Prior to that, PEPA 1997 governed all operations and activities that had the potential to cause environmental degradation. This included subjects such as nuclear power for which only the federal government may legislate. Based on the amendment, federal government retains exclusive authority over various subjects under the Federal Legislative List (FLL) that should be regulated by the Federal Government but the ambit of that law will now no longer extend to the provinces (Pastakia, 2012).

Under the proposed changes, the Pakistan Environmental Protection Agency (Pak-EPA) now has reduced jurisdiction, limited to the Islamabad Capital Territory and certain federally administered areas and matters such as international protocols etc. but the ambiguity still exists regarding the jurisdiction of Pak EPA. In contrast, the provincial EPAs have enhanced powers over their respective jurisdiction. A number of challenges have to come to light as a result.

The post-devolution transition period has left grey areas, like jurisdictional conflicts between provinces and federal authorities and federal laws overlapping with laws governing other sectors. One example of this is the Pakistan's Exclusive Economic Zone which is located between twelve and 200 nautical miles off the coast of Pakistan. While the Environmental Protection Agencies of Sindh and Balochistan are responsible for their respective provinces including twelve nautical miles off the coast, their jurisdiction does not cover the Exclusive Economic Zone.

With the geographical mandate of Pak EPA now reduced, there is limited inter-provincial coordination on issues of national significance. There is no formal mechanism for effectively handling inter-provincial and trans-boundary environmental issues. One such example which will become significant in the coming years will be the coal-fired thermal power plants being set up under the Government of Pakistan's new power policy in Punjab, Sindh and Balochistan. Trans-boundary impacts of these projects will be seen in the adjacent provinces. However, there is no existing mechanism through which this problem can be addressed. Development projects that are being implemented in more than one jurisdiction, such as the trans-boundary natural gas pipeline between Iran and Pakistan and running through Balochistan and Sindh will also need a coordination mechanism which the Pak-EPA used to provide. Another example of this is the Metro Bus System being developed in Rawalpindi and Islamabad. Along with the above mentioned challenges, there are opportunities for strengthening the EIA system in

Pakistan. Pastakia in an extensive review of PEPA'97 in 2012 noted certain areas that were not covered by PEPA 1997 and could be included in specific provincial environmental bills:

- Limited public participation in EIA procedures;
- Ensuring access to information, minimising situations where information is withheld;
- Introduction of SEA into legislation;
- A regime of environmental audits and post-EIA monitoring for all sectors and project sizes;
- Better implementation of the 'polluter pays' principle; provincial EPAs now have the sole authority to make their EIA legislation more context-specific and account for the vastly different environmental realities under their jurisdiction. Some provinces have been quick to capitalise on these opportunities by drafting their provincial environmental bills through assistance of NIAP. The provinces of Sindh and Balochistan have already got their provincial Acts passed through the parliament. The bills for KP and GB are in their final stages as well.

The devolved structure allows for greater innovation since it is easier to implement pilots and other useful mechanisms and tools in coordination with the provincial governments. As NIAP has seen in the case of two pilot SEAs in AJK and GB, there is more room for learning and replication after a pilot has been successfully run in one province. NIAP had a similar experience with the implementation of an online EIA Database and Tracking System, which AJK has agreed to pilot. The other good example is of the framing of provincial environmental legislation in the post 18th Amendment scenario. Both, Sindh and Balochistan have introduced SEA as a legal requirement in their respective provinces which in the federal setup could have faced significant difficulties, requiring unanimous support of all provinces. In addition, all provinces have included some provision for SEA, suiting their specific needs. For instance, KP has included a SEA clause in its bill but did not make it an umbrella requirement. SEA is only required if the KP Environmental Protection Council approves a certain policy, plan or programme for SEA.

Even though the changing legal and policy frameworks have been leading to context-specific instruments being developed, a certain level of standardisation should be maintained across jurisdictions in order to ensure similar approaches and quality. In the case of trans-boundary pollution issues and litigation, for example, comparable environmental quality standards should exist. One of the key reasons for involving NIAP in the formulation of provincial legal framework was to bring some level of uniformity to the newly developed legal instruments, especially with regard to administrative penalties. There is a concern among the provinces that a lenient penalties structure in one province would result in moving of polluting industries to that province. The other reason was to synchronise the legal instruments for environment of provinces to foster cooperation in the post 18th Amendment scenario.

13.4 Institutional Setting and Transformation

The history of institutional development for EIA can be traced back to the 1980s and early 1990s when the federal and provincial EPAs were established. The Pakistan

Environmental Protection Ordinance laid the foundation for the establishment of Environmental Protection Agencies (EPA) in Pakistan. The Government was taking the momentum forward from the Earth Summit in 1992 in Rio de Janeiro and adopted the National Conservation Strategy as the official policy of the Government of Pakistan on environment. This established and later strengthened the provincial EPAs. With the assistance of the World Bank, the Government of Pakistan launched EPRC projects, mentioned in the sections above, providing the necessary support for the strengthening of EPAs through the establishment of systems and capacity-building. Later the promulgation of Pakistan Environmental Protection Act of 1997 provided further legal support for the strengthening of EPAs by defining their roles and responsibilities more clearly.

While institutions such as the Pak EPA and Provincial EPAs came into existence around late 1980s and the federal and provincial governments provided the necessary support for the establishment of the institutions, their strengthening began with the EPRC in the early 1990s. The Project's support was crucial for infrastructure development (*e.g.* laboratories), the development of systems (*e.g.* rules and regulations) and capacity-building (*i.e.* staff recruitment and their training). However, after the end of this project in the late 1990s, the continuity could not be maintained and the EPAs lost a significant number of trained staff, mainly due to resource constraints and unclear retention policy of the Government for the project staff. This is an ongoing problem with those projects that are being implemented by EPAs with both, the Government and donor funding. Under NIAP, Federal and provincial partners obtained extra staff for project implementation and EPAs also received technical support. However, at the end of the Project, only one EPA (Sindh) staff was regularised out of a total of fifteen staff of the Project. Project staff was well trained and provided very useful support to EPAs in delivering their mandate. The departure of trained staff may result in serious capacity issues for the EPAs.

The continuity in leadership is key to the effectiveness of an institution. In EPAs, lack of continuity of leadership has considerably affected their performance. Only three EPAs have Director Generals of their technical cadres who have been with their respective institution for some time. The performance of those EPAs is relatively better than others. On the other hand, elsewhere, frequent transfers and appointment of Director Generals with no technical background has not only affected morale of staff, but has also resulted in a lack of continuity in the functioning of institutions.

The situation of Environment Sections of the Planning and Development departments is of greater concern than EPAs. Most sections have very few staff that are usually non-technical. Furthermore, these sections are mostly marginalised and struggle with their workload. However, the Environment Section of the Planning Commission, the oldest of all, despite being inadequately resourced, has been able to assert its mandate and is represented on all the important forums, such as CDWP. It provides a useful service to the Planning Commission which is visible in its role in the preparation of five-year plans and input in the EIAs of large development initiatives. However, it also struggles with capacity issues and only after passage of almost twenty years was finally approved as a full-fledged section of the Planning Commission. Again, staff retention is a major issue

and project staff has continuously struggled to prove their relevance even after serving the section for a number of years.

If the existing situation continues, the EPAs and P & D departments will continue to struggle with capacity issues and it is unlikely that they will ever have the required strength necessary to effectively implement its mandate, especially with regard to the EIA process. In order to address this issue, two possible solutions are proposed. Although the existing policies of the federal and provincial governments adequately address staff retention on completion of projects, the process is rather lengthy and cumbersome and puts considerable constraint on departments that are already working with inadequate staff numbers to initiate it and follow. It is, therefore, important that the policy for resource retention of both the federal and provincial governments should be revisited and made simpler without compromising the recruitment policy and merit in staff hiring. Federal and Provincial Public Service Commissions may be involved for at least two years before the project completion for regularisation of staff. The policy should be clearly reflected in the project document and should be considered a project output.

The second possible solution is that project staff may be appointed against an existing but vacant position at an EPA. The Terms of Reference of the position and of the project position may be synchronised to avoid any issues later at the time of project completion. However, EPAs are also partly responsible for their existing conditions. Despite the availability of resources, they have not been able to fill positions and the funds lapse every year. Some of the progressive EPAs like Khyber Pakhtunkhwa have used their resources very efficiently and have managed to overcome the capacity constraints to a considerable extent. They have used PSDP funded projects for capacity enhancement and other key functions. Similarly, the Punjab EPA has also managed to use the government funds for strengthening its resource base. The two EPAs mentioned above have also opened district offices to facilitate their operations. This proves that if EPAs want, they can find ways to meet their organisational goals.

The overall outlook of EPAs looks promising post 18th Amendment. There are no more expectations of provincial EPAs to the federal government, resulting in focused provincial approaches. EPAs know that they will have to manage their institutions with the resources provided to them by their respective governments and through PSDP funds. The provincial governments also know that the environment is a devolved subject and additional resources are required by the EPAs and P & D departments for their effective functioning. This has already resulted in an increase in EPAs' budgets. In addition, EPAs have the flexibility to improvise and evolve in the current scenario. It is also expected that the EPAs will engage in a healthy competition with the other EPAs in the delivery of their services, especially the implementation of EIA regimes. It is evident from the preparation of provincial environmental protection bills where the provinces have used the opportunity to address some key issues quite innovatively, especially the introduction of SEA and use of the EIA review fee. KP is a trend setter in using devolution to improve its EIA implementation. SEA has been introduced in the draft Environmental Protection bill but for only including those policies, plans or programmes approved by the proposed Environmental Protection Council. Similarly, KP EPA has

proposed an Environmental Improvement Fund which will be used for depositing EIA review fees and later its use for paying reviewers. Therefore, the future outlook for the institutional setup in provinces looks quite promising and it is expected that this opportunity will be used by the EPAs and P & D departments to strengthen their respective institutions, especially technical capacities.

The world over, where EIA has taken root, the lead has been taken by respective line and sector ministries rather than environmental agencies. These ministries play a significant role in the promotion and uptake of EIAs, delivering a higher rate of EIA implementation. The same is suggested for Pakistan, where the EPA cannot improve EIA numbers on its own. NIAP has focused on including EIA as a topic in the curriculum for the Civil Services Academy. However, there is a further need for including it in the provincial services as well.

Under NIAP, an inter-provincial coordination committee was created to support the implementation of the project. Over time, it evolved as a forum for sharing ideas and learning from each other. However, since the environment has been devolved to the provinces, this committee could not be institutionalised. In the future scenario, such a committee would be quite useful for EPAs and even P & D departments to share ideas and also to resolve any inter-provincial issues pertaining to trans-boundary EIAs and other similar matters. However, it needs to be decided who should take the lead and house the committee at the federal level. One option could be to notify the committee in each province and hold meetings on a rotational basis, with the host province chairing the meeting. In this way, the issue of the chair and its notification will be resolved without creating any friction.

Perhaps the most important factor for a lasting institutional transformation would be a strong political will behind it. As representatives of the public voice, politicians are a vital to improve widespread implementation of EIA as a tool for sustainable development in the country. NIAP organised two major events that focused on involving politicians in the debate. In April 2013, NIAP organised first-of-its-kind roundtable dialogue titled: “Highlighting Environment on the Election Agenda in Pakistan”. The dialogue was organised against the backdrop of the General Elections held in May 2013. The dialogue brought together prospective leaders from the foremost political parties to share their thoughts and commitments towards the environment. The dialogue provided an opportunity for civil society to evaluate the vision of mainstream political parties on environment and sustainable development in Pakistan. The seminar was attended by senior government officers, civil society representatives, media, academia and eminent experts. As a follow up of the event, another dialogue of politicians was organised in 2014 to evaluate how politicians are addressing critical environmental issues by integrating SEA and EIA into development planning and assess how much weightage is being given to environment in their party manifestos. This time politicians from major political parties had now assumed their new roles. The panelists shared their vision and ideas in front of a diverse audience of eminent experts, prominent media personalities and civil society representatives.

13.5 Building a Professional Community

The future of EIA in Pakistan depends on the continuous development of a professional community with a current knowledge base and skill set. The professional community in Pakistan can be broadly divided into three categories; (a) fresh graduates, (b) public service officials and (c) experienced professionals. Diversified strategies have to be implemented to cater to the needs of these categories of professionals to have a well-functioning professional community.

EIA was once a minor topic and very few universities were offering this as part of a degree programme. However, the situation has changed quite significantly with EIA being taught as part of different courses in many major universities of Pakistan. In a NIAP research mission, conducted on practices in tertiary-level academic institutions, it was found that sixteen universities offered 30 degree programmes in which EIA was taught. Of the 30 degree programmes thus offered, fifteen were undergraduate and fifteen post-graduate degree programmes. In total, 35 courses in which EIA is taught were offered. Of these, 29 courses had 3 credit hours, four courses had 4 credit hours and one course had 2 credit hours (Fischer, 2012). As a follow-up of this mission, and taking into account research findings a state-of-the art EIA curriculum for tertiary-level educational institutions was developed (Fischer and Nadeem, 2013). This standardised curriculum is at par with international best practices and has been approved by the Higher Education Commission (HEC). Released in September 2013, it has not developed as a stand-alone instrument. The importance of training the right people for delivering the curriculum was realised and in early 2014, training was conducted on how to deliver the curriculum.

Engaging civil servants is vital in developing a professional community which sustains into the future. Government officers make critical decisions *vis à vis* development projects and including environmental thinking in these decision-making processes is very important. Under NIAP, a review of the Civil Services Academy curriculum is being undertaken to incorporate EIA as part of the overall environmental curriculum. Under an Asian Development Bank (ADB) Technical Assistance, efforts are also being made to train civil servants on the environment so that when they join their respective departments, they can address environmental concerns effectively.

There are a large number of qualified and experienced environmental professionals conducting and reviewing EIAs in Pakistan. The quality of experienced professionals varies greatly but between them, there is a wealth of hands-on experience that needs to be used effectively. In a landscape where technology and knowledge are rapidly changing, experienced EIA practitioners must continuously strive to develop their skills.

Different cohorts of environmental professionals have different training and educational needs. Consultations under NIAP noted that when fresh graduates enter the work force, they have the proper academic knowledge but severely lack practical knowledge. Furthermore, in a national consultation on developing an accreditation system for Pakistan, it was noted that experienced environmental professionals rarely put in an effort to keep their knowledge up-to-date.

A combination of traditional and innovative training methods can help Pakistan achieve its target of a high-quality professional community. Traditional methods of learning like workshops, training sessions and refresher courses are important, because they serve as ideal refreshers for experienced professionals. For fresh graduates, introducing innovative methods of teaching is essential. Modern techniques such as the case method and learning-by-doing can be used to address the practical knowledge gap noted in fresh graduates.

At the university level, a system of 'approved electives' with a pre-defined course outline can be taught across all major universities, even if these universities do not offer a full range of environmental degrees. This will offer students of multi-disciplinary fields, *e.g.* business management, architecture and civil engineering students the opportunity to obtain rigorous academic training in EIA. These students can not only benefit from learning about tools, but can also bring interesting and fresh perspectives to the field of EIA. There is also a need for links with international academic institutions and professional bodies. A greater focus on research collaborations between faculty and exchange programmes for students can improve the delivery of EIA knowledge from the start.

International bodies like the International Association for Impact Assessment (IAIA) can act as channels through which EIA best-practice can be transferred to Pakistan in the coming years. There is much benefit for the EPAs to associate with bodies like IAIA to develop capacity. In order to foster this relationship, an international conference titled "South Asian Environmental Assessment Conference 2013" was organised in December 2013 by NIAP. This was the first IAIA supported conference in the region. Its main objective was to develop links between IAIA and institutions in Pakistan and in South Asia for cross fertilisation and promotion of international best practices in impact assessment. The conference was promoted as the first conference in South Asia but needs to be held annually in other South Asian countries, mainly in order to promote regional / South-South cooperation.

13.6 Oversight and Quality Control

EPAs cite the poor quality of EIAs as one of the major challenges in making EIA a well-functioning tool in Pakistan. The most common issues with poor quality reports submitted in the country are plagiarism, weak method, lack of baseline data, weak assessment and lack of expertise in carrying out specialised EIAs. Quality control in Impact Assessment can be achieved through two major processes or tools: a strong EIA review process and accreditation mechanisms for EIA consultants.

Having a strong EIA review process can help to keep the quality of EIA above a minimum threshold. The review stage is critical in determining whether the information is sufficient and adequate for the decision-making by the regulator. A strong review not only makes the EIA report credible but also adds value to the whole EIA process. Under NIAP, a paper on EIA review mechanisms was developed which reviewed existing approaches and identified weaknesses. On the basis of the review, changes were suggested to existing practice, as per international best practices (GoP and IUCN, 2013). Generally speaking, the review process is carried out through a combination of a

"review body", comprising experts, specifically constituted for this purpose and a regulatory body (EPAs). Although this approach is the most effective, it presents a set of challenges, mainly associated with low capacity at the regulator stage and lack of mechanisms and funds to pay for the external reviewers. In practice, EPAs do not have the required staff and technical capacity to deal with the large number of EIAs that are submitted annually. This is leading to problems, such as lengthy review times and dependence on external resources *i.e.* Expert Committee, to assess an EIA on a voluntary basis. Since the external experts are not paid, they have lost interest and do not undertake quality review. Hence, a change in the existing system is required, boosting technical strength of EPAs further and also realising cost implications of quality reviews, paying reviewers for their time and expertise.

A strong EIA system is essential for assuring quality of EIA reports. However, a quality EIA review is only possible if the regulatory institutions are well-resourced and credible. This is somewhat difficult in a developing country like Pakistan where EPAs and P & D departments lack technical capacity and are underresourced. The alternative is a combination of a moderately strong review mechanism and an accreditation mechanism for EIA consulting firms and individual consultants. An accreditation system certifies consultancy service providers based on their qualification and experience in conducting EIAs or similar studies. Several stakeholder consultations conducted under NIAP suggest that an accreditation mechanism in combination with an EIA review mechanism would address the issue of weak EIA quality in the country. Under NIAP, a study was conducted to identify and evaluate relevant accreditation systems, present key options to stakeholders and develop a proposal for the establishment of an accreditation system for EIA consultants in Pakistan. The study explored options for an accreditation mechanism for EIA consultants in Pakistan after studying different options from other parts of the world, especially South Asia. India has a well-established accreditation mechanism for EIA consultants and has proved to be effective in addressing quality of EIA reports to a certain extent (QCI, 2011). Standards should be set both, for the consulting firms and individual consultants involved in conducting environmental assessment (EA) studies. A certification scheme for individual consultants is proposed. According to recommendations provided in the scheme, evaluation will be based on academic qualification, professional consultancy experience, written examination and an interview with senior professionals. Three categories of professionals involved in conducting EA include the EA experts, subject specialists and other professionals who contribute to the EIA by reviewing or regulating the process. The major problem faced by NIAP was where to anchor the accreditation mechanism.

Choosing the right body to carry out the accreditation mechanism is vital to the relative success or failure of this system. The overwhelming majority of professionals feel a professional body like the Pakistan Environmental Assessment Association (PEAA), a registered but dormant organisation, is best suited to house an accreditation system. However, since PEAA is dormant and still has to establish its credibility as the best option, the process has stalled and no further movement could be made during the life of NIAP. Nonetheless, the option of PEAA is still there and viable to anchor the accreditation system.

A major point of debate in Pakistan has been whether an accreditation system should be voluntary or mandatory. In the rest of the world, most such systems are voluntary and market forces provide a natural incentive to both, individuals and companies to accredit themselves. Stakeholders in Pakistan also believe that this system should be completely voluntary and there is a high probability that, if implemented, such a system would have a voluntary enforcement mechanism. However, since market mechanisms are not that well-developed in Pakistan, the same market-based incentives might not be produced. One creative solution to this challenge could be to add the requirement for an accreditation mechanism in the EIA rules; *i.e.* making them mandatory where applicable. There is a realisation among the relevant quarters in Pakistan that the quality of an EIA report can only be ensured through a combination of strong review and voluntary or involuntary application of accreditation mechanisms. Trends suggest that sooner or later an accreditation mechanism will have to be put in place to address the current issues with the quality of EIA reports.

13.6.1 The Pakistan Environmental Assessment Association (PEAA)

The Pakistan Environment Assessment Association (PEAA) is a not-for-profit network of EIA experts, educators and practitioners. Created in 1999, PEAA was formed as an open forum for debate and discussion on impact assessment in Pakistan. The goal was to have an organisation with sufficient recognition to be the driving force behind EIA improvement in the country. A business planning exercise conducted under NIAP established the reasons for its dormancy (Khalid, 2013). While lack of funding was partly responsible, the primary reason was a lack of interest from stakeholders, including government (Khalid, 2013). Members were not interested as they perceived that 'nothing useful' was on offer. Government was reluctant to extend support as the legal standing of PEAA was unclear and Pak EPA felt that the scope of PEAA was not well defined. Environment professionals and consultants supporting the establishment of a professional body did not want to bear the cost of being part of such an organisation. This is mainly because of the lack of exciting benefits offered to them by PEAA. The value that can be offered by PEAA is networking, knowledge dissemination and professional development opportunity for its members. Networking opportunities can be provided through a PEAA online portal and annual conferences. Industry knowledge and updates through *e.g.* a newsletter, magazines and field surveys, while professional development can be enhanced through training and accreditation services. Several consultations on PEAA during the course of NIAP have resulted in an increased realisation among the EIA community that a forum such as PEAA is essential for a vibrant and effective EIA regime in the country. The interest for housing PEAA has been expressed by government, academia and consultants. They all see a benefit in their own way in such an organisation but someone will have to champion it to make it functional and effective.

13.6.2 Third Party Monitoring

The previous chapters made it clear that EPAs in Pakistan are currently not the strongest institutions in the country. They are short of staff and funds. Such circumstances are not very conducive for effective monitoring. In order to make up for these constraints, innovative monitoring options must be considered such as third party monitoring (TPM). TPM has been used worldwide with considerable success. Pakistan also has some

experience with TPM. Sindh EPA used a private consultancy firm Hagler Bailly as Independent Monitor for gas exploration in Kirthar National Park with reasonably good success (PKP, 2002). After the earthquake in 2005, the Asian Development Bank engaged IUCN Pakistan as a third party monitor for its Emergency Earthquake Assistance Programme in KP and AJK (ADB and IUCN 2008). The experience so far with TPM has been encouraging and can be considered to make up for the staff shortage in EPAs. Self-monitoring is another option which has been experienced in Pakistan in the past. Pak EPA developed Self-Monitoring and Assessment Reporting Tool (SMART) for industries. However, the system worked for a short while with mixed results. For such measures to be successful, a strong follow-up and oversight by EPAs is a must.

13.7 Impact Assessment – The Next Generation

The world over, SEA has begun to gain importance as a tool for sustainable development and Pakistan is no exception. Next to Bhutan, Pakistan is the only country in South Asia where SEA is a legal requirement. In the Provincial Environmental Protection Acts of Balochistan and Sindh, SEA has been made a legal requirement. KP and GB are all in the final stages of getting their environmental bills and AJK the amendment to the existing Act passed, and have all included SEA as a legal requirement.

Under NIAP, a high-level task force was constituted and notified by the Planning Commission of Pakistan which has met regularly since 2010. The Task Force had representation from the federal government, provincial governments, AJK government, academia, civil society, private sector, industry and subject experts. The objective of this task force was to guide the process of introduction and implementation of SEA in the country and oversee the development of the two pilot SEAs being conducted in AJK and Gilgit-Baltistan. Although the Task Force met regularly and reviewed and discussed the introduction and SEA in the country during the life of NIAP, the challenge will be to keep it functional after the closure of NIAP.

However, making SEA a legal requirement is only a small part of the job of implementing it effectively. At present, despite the willingness of provincial governments, the challenge is to carry the momentum created during NIAP. The integration of SEA into planning processes still has to be decided and the capacity of the originators of the policies, plans and programmes will have to be built. Similarly, capacities of private consultants that will undertake the SEAs will have to be enhanced to enable them to meet expectations. Although the task is enormous and expectations are high, the challenge is manageable due to a strong commitment of provincial governments. Recognising this as a challenge, NIAP engaged an international consultant to develop SEA Rules which are adapted from global best-practice. In addition, SEA guidance for hydro power and spatial planning has also been developed to facilitate the implementation of SEA in the respective sectors. Later, more guidance will also have to be developed as the introduction of SEA progresses in the provinces.

A pressing need of the EIA system in the country is to simplify implementation and to break with the perception that EIA is difficult, costly and complex. At its current stage,

Pakistan's objective should be to bring more projects under the net of impact assessment. This can be done through carefully designing screening criteria for EIAs and to see how smaller initiatives could be handled through simpler mechanisms, such as rapid assessments and checklists. For instance, construction of large buildings in settled areas governed by master plans should be dealt with through municipal by-laws. This will not only bring more initiatives under the SEA umbrella, but also reduce pressure on EPAs and facilitate development activities. In addition, it will also bring other institutions into the EIA fold, thus spreading responsibility to go beyond EPAs and P & D departments. However, this will require a review of municipal by-laws and the introduction of impact assessment mechanisms as appropriate. The smaller initiatives such as gas stations and poultry farms should be dealt with through checklists as was proposed by KP EPA in early 2000 (NWFP EPA and IUCN 2005). More guidelines for small initiatives should also be developed and one window operation should be introduced for quick review and approval.

Another much needed development is to move out of EIA as the only tool for impact assessment and start implementing cumulative impact assessment (CIAs). For example, the construction of small hydel projects on the Poonch River system requires EIAs/IEEs. However, due to the multiple hydel projects being set-up, the cumulative impact is substantial but difficult to measure with EIAs/IEEs, which only aim at individual projects. Therefore, CIA would be appropriate for evaluating how the overall physiology of the river system would be altered as a result of these developments. CIA is being increasingly used worldwide and has established itself as a useful tool. In Pakistan, CIA has been used once for the Dasu Hydro Power Project where other developments on Indus River were evaluated. A similar study was also undertaken as part of SEA of hydro power plan of AJK under NIAP for Poonch River (Annandale *et. al*., 2013). It is wise to consider it as a future tool for multiple developments in a geographical area. The SEA rules developed under NIAP have included CIA as a complementary requirement for SEA.

Development of sector-specific guidance can also help simplify the EIA process and make it more effective. Three EIA Sectoral Guidelines have been developed on trans-boundary natural gas pipelines, large hydropower projects and coal-fired thermal power plants. These set precedence for other sectors.

13.8 Conclusions

Pakistan has come a long way since the introduction of EIA in the early 1980s. However, the business as usual model is not suited to further improve the system over time. Development pressures are now much greater than they were a few years ago. The population of the country has almost doubled in the last twenty years. This requires a strong leadership from the respective institutions to address associated environmental problems. The political parties will have to be engaged to improve the political will for EIA and SEA in the country. This will require awareness raisings seminars, guest lectures and involvement in other environmental activities in the country.

The health of EIA and SEA is contingent upon the health of the institutions. It is imperative that the institutions are strengthened for effective delivery of EIA and SEA in

the country. Funding will have to be consistent and improved. In addition, the responsibility for EIA and SEA implementation will have to be diversified and should not only remain the responsibility of EPAs and P & Ds. Especially for SEA, the respective departments will have to take the lead. The coordination between EPAs, P & Ds and other departments will have to be improved. Dedicated technical staff for EPAs should be hired and filling positions with transfers from other departments of non-technical staff should be discontinued.

The institutions can only be effective if they have the backing of a strong legal framework for EIA and SEA. Although NIAP helped in the development of a legal framework for the environment with a specific focus on EIA and SEA, in the post 18th Amendment scenario, it is important that the remaining rules and guidance must be developed to facilitate implementation. At the same time, the focus should now be more on implementation and less on additional legal instruments. It has been observed in the past that despite a relatively good legal framework, the implementation remained weak mainly due to focusing more on what is missing and less on what is already there.

Making SEA a legal requirement is a job half done. Implementation of SEA should not be linked to the implementation of EIA – both are separate tools and applicable at different levels. The focus should now be on the other non-traditional partners such as water and power and petroleum ministries to bring them in the SEA fold. Overall, the future outlook is promising and things have started to fall in place. Despite concerns expressed by some quarters on the 18th Amendment, it has after a long time made the regulators and professionals think how to avail this opportunity in order to bring about positive change. It has raised confidence of the institutions and given them space for innovation which is quite evident when looking at the way provincial environmental laws have been drafted. NIAP has provided the necessary support to the provinces in the development of necessary infrastructure and have prepared them well to control their destiny from here on.

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House No. 2, Street 83
Embassy Road, G-6/4, Islamabad
Tel: +92 (51) 2271027-34
Fax: +92 (51) 2271017
Email: niap@iucn.org
Web: www.niap.pk

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