

EIA Teaching at Tertiary Level Institutions in Pakistan – Baseline & Development Needs (paper ID 46)

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This paper presents some of the results of a 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 on the subject which took place in Islamabad in September and November 2012. Based on these, development needs are also established. The paper contributes to the growing literature on EIA education. Whilst some of the findings and suggestions from other professional authors are confirmed, there are also some aspects emerging that are specific to Pakistan.

1 Introduction

The Government of Pakistan and the International Union for Conservation of Nature (IUCN) are jointly implementing a National Impact Assessment Programme (NIAP - <http://niap.pk/>) which aims to contribute to sustainable development in Pakistan through strengthening the environmental impact assessment (EIA) process, and introducing strategic environmental assessment (SEA) in national development planning. The Programme has four implementation partners: 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) has an advisory role in the Programme and provides technical backstopping. The total duration of the Programme is four and a half years. It has been running since November 2009.

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 the experiences and practices in terms of strengths and weaknesses, opportunities and challenges. It is within this context that NIAP has 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 (modules), almost entirely within environmental science and engineering faculties and departments¹. Not all of the courses are fully dedicated to EIA, though, and none of the institutions is currently offering a specific EIA degree programme.

This paper presents some of the findings of two workshops in Islamabad in September and November 2012. Whilst a total of seven data collection exercises took place, the main focus here is on three of them, namely (1) a pre-workshops' questionnaire survey with 20 representatives of tertiary level education institutions; (2) an anonymous survey conducted during the first workshop, using an audience response system (Genee World) to which 21 workshop participants contributed; and (3) group work conducted during the first workshop.

2 Pre-workshops' questionnaire results

The pre-workshops' 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 20 representatives of tertiary level education institutions that were contacted, 17 responded, i.e. the response rate is 85%. These represent 16 public institutions (universities).

The 16 institutions were found to offer 30 degree programmes in which EIA was taught (four were offering 3 related degree programmes, six were offering 2 and another six were offering 1 related degree programme). 15 programmes were of an undergraduate and 15 of a post-graduate nature. In total, 35 courses were identified that were fully or partly dedicated to EIA. Of these, 29 had 3 credit hours (one credit hour is the equivalent of one classroom contact hour over a 16 week teaching semester²), four had 4 credit hours and one had 2 credit hours.

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%.

² 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.

Furthermore, one course was offered, in which the EIA part was said to represent less than 1 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 2-1 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 four years.

Regarding the extent of EIA teaching, in 11 institutions EIA was said to be covered in one module only and in five institutions EIA was said to be covered in two courses. Furthermore, representatives of six institutions said that EIA coverage can be extended further through e.g. specific individual coursework or related dissertations. Whilst in undergraduate degree programmes, EIA courses were taught mostly in 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-conference 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 1 shows 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 13 of the 16 institutions (i.e. 80%) include '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, whilst 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. Whilst it might be the case that some technical knowledge is taught in other courses, there is clearly a need to make connections with what might be taught elsewhere and EIA clear.

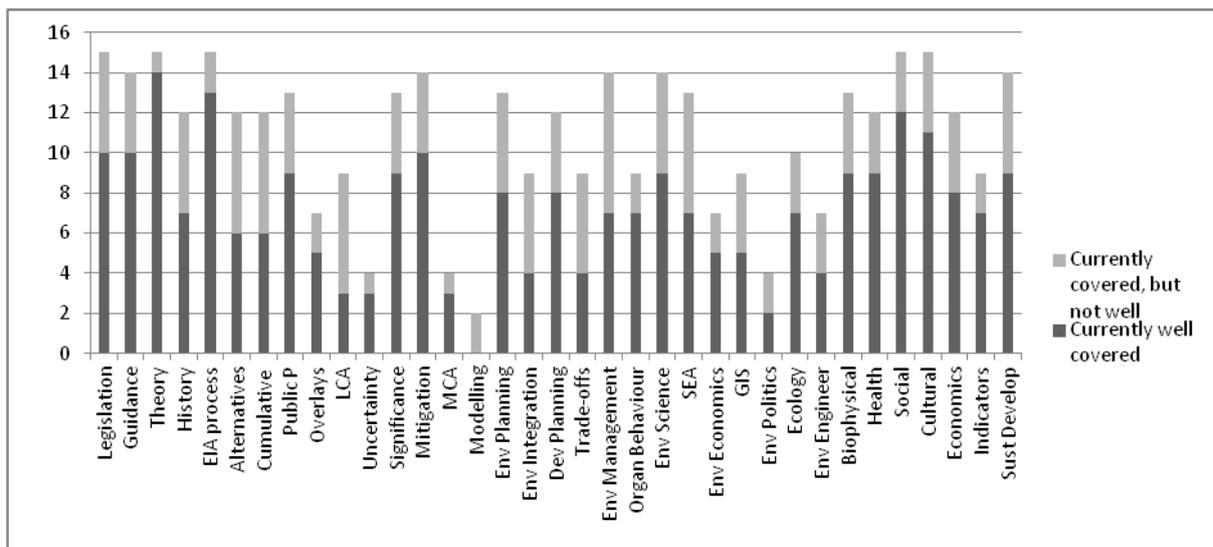


Figure 1: topics covered in EIA related teaching

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 regards to EIA teaching in 18 countries from 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 16 institutions also gave their opinions on what topics needed to be covered or should be better covered. Representatives of over 8 institutions thought that there was a particular need to cover (better) ‘overlay mapping’, ‘life-cycle assessment’, ‘uncertainties’, ‘multi-criteria analysis’, ‘modelling’, ‘environmental economics’ and ‘environmental politics’. Again, the high number of more technical topics is somewhat surprising. 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’. 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, 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 were of particular importance for improving teaching on EIA in Pakistan. Based in particular on a lack of Pakistani specific textbooks and other learning resources it was said that there was currently inadequate EIA related expert knowledge in Pakistan and that universities should play a key role in addressing this³. It was also suggested that at least one university should offer dedicated EIA/SEA degree programmes at undergraduate and postgraduate levels. Furthermore, teachers’ training was considered crucial.

3 Survey conducted during the first workshop, using an audience response system (Genee World).

30 questions were put to participants at the beginning of the first workshop, 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 ‘no’s) straight away. Fifteen out of 21 tertiary level institutions based workshop participants specified what disciplines were represented by EIA staff members. Whilst 10 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 whilst 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. *alma mater*), an equal number of respondents (i.e. 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 tertiary level institutions from elsewhere in the world with an international knowledge base accumulated amongst EIA teachers in Pakistan.

³ The key literature used in teaching EIA was mostly UK and US based and there were no Pakistani text books available. The only Pakistani literature mentioned was either legislation or guidelines.

Regarding an involvement in real life EIA practice, 13 out of 19 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 18 said that this was lecturing alone. Whilst two each said that either seminars or practical work was the main focus of teaching, 13 stated that practical work was part of the main focus in their teaching activities, i.e. there clearly is an emphasis on practice, not just 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 2). Whilst 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.

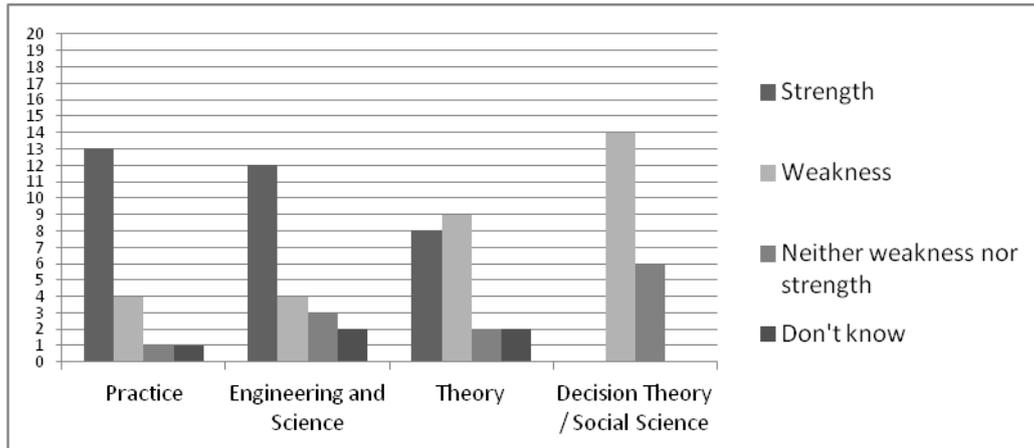


Figure 2: Strengths and weaknesses of EIA teaching

Decision theory and the social sciences were seen by most workshop participants (13 out of 17) 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, 15 out of 19 workshop participants thought that the EIA literature did not provide them with everything they needed. Whilst 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 slightly more participants actually saw creating better connections with real practice as more urgent than creating better teaching materials, even though overall the latter was still seen as a priority. Furthermore, 18 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, 16 out of 21 respondents stated EIA teaching was currently not catered towards the needs of practice. Whilst five said that it was at least partly achieving this, none said it was fully doing so.

4 Group work of workshop participants

During the first workshop day, participants were split into three groups in order to discuss questions revolving around the further development of tertiary level institutions' EIA teaching in Pakistan. The first question was about the specific training needs of EIA teachers / lecturers in Pakistan and the second question was about what initiatives may be useful to achieve effective training. Box 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 both, 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.

(a) Specific training needs:

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

(b) Initiatives for effective training

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

Box 1: Replies of participants to questions on specific training needs and initiatives for effective training

5 Conclusions

This paper 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 that 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. 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.

6 References

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