

**ENABLING ENVIRONMENTAL JUSTICE THROUGH EDUCATION AND  
CONSERVATION: THE STATUS OF EXISTING UNIVERSITY CURRICULA  
RELATING TO ENVIRONMENTAL JUSTICE (DISCIPLINE – ENVIRONMENT)**

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**ABSTRACT**

The intent of the exercise was to have a comprehensive status paper on Environmental Justice(EJ) education available on one hand and desirable on the other to be prescribed in graduate and undergraduate levels of university education in Nepal. The present evaluation reports results of a review of existing syllabi of environmental science and environmental management taught at the three major universities namely Tribhuvan University (TU), Pokhara University (PU) and Kathmandu University (KU) at Undergraduate (UG) and Postgraduate (PG) levels. A simple evaluation scheme was designed to assess the representation of topics and subtopics under the selected categories of Environmental Justice. This central information of the report is supplemented by introductory account of EJ in Nepal as an academic discipline and review account of courses provided by other universities and other considerations in design and development of EJ curriculum. Notable among the conclusions are firstly to conceive and frame the syllabi affixing EJ as an independent subject of 3 credits each or in total about 50 hours of teaching in UG and PG levels; while the UG course should be more oriented towards theoretical inputs related to scope, philosophy, definitions etc., the PG course should focus on national and international perspectives and issues along with policies and plans. A professional approach in framing PG level syllabus is suggested with a provision to take up dissertation work related to EJ. In Nepal, it is time to sustain the participatory-based judicial dispensation with an intention of effective and useful implementation of policies by stakeholders. There is an essentiality of introducing the issues related to international environmental which are not only contextual but also futuristic. The report concludes by reiterating to consider the opinion and expertise to judicial officials at the time of framing the syllabi for teaching at graduate and undergraduate levels facilitating inclusion of essential components in an adequate and appropriate measure.

**INTRODUCTION**

Environmental justice is inadequately prevailing to the socially and economically backward ward groups and communities of the people. Environmental discrimination also exists due to gender, ethnicity, and origin etc. too. They are deprived of the equitable share of the benefits of the environmental activities, but are taking larger share of the burden of environmental degradation. The environmental justice movement advocates for the equal right of all the people, irrespective of their social and economic status, for the sharing of both benefit and burdens emerging out from the environment and also tries to assure safeguarding of these rights through awareness, participation and judicial protections. Similar inequalities also exist among the rich and poor or developed and developing nations.

## **OBJECTIVES**

To infuse the concept of environmental justice and it's related topics into the existing curriculum of B. Sc. and M. Sc. in the domain of environmental science

Specific objectives are:

- Analyze the curricula to identify the linkages of environmental justice concept with the concerned subject/discipline
- Identify the areas within the curriculum where there is a possibility of incorporating environmental justice
- Suggest possible ways and means to incorporate the components of the environmental justice in the existing curriculum
- Give a brief description of the identified components of the environmental justice to be inserted in the curricula.

Approach:

- Review of the current curricula of environmental science of all universities in Nepal (Bachelor's level and Master's level)
- Review of the environmental science program design and curriculum of international universities
- Identification of gaps and content in the existing curricula with respect to EJ
- Development of EJ as an independent subject of study or incorporation of EJ in the existing curriculum in Bachelor and Master level in environmental science

Expected output:

- Prescription of comprehensively represented EJ related curriculum document on the environmental science discipline
- Presentation of outcome of the study in a workshop to facilitate the discussion and dissemination the findings

## **Method**

This report is mainly based on the literature review from printed sources and internet sources. For evaluation of the courses, a very simple numerical method was designed; the official and published syllabi related to Environmental Science and Environmental Management courses was collected from three universities namely, TU, PU and KU and scrutinized for the environmental justice components. The publications provided brief course summaries representing the coverage of the topics under different categories.

The method followed for the purpose of evaluation is summarized below:

- a. University and level-wise (B.Sc. & M. Sc.) listing of all the topics which have relevance to EJ was done

- b. Basing on the TOR, the evaluation was done under 10 selected categories (the names of the categories are presented in Tables)
- c. University and level wise scores were given based on topic coverage; since it is difficult to comprehend from the brief summaries and title, the exact coverage under each topic. It is presumed that key words hinting at a particular topic were considered for affixing scores/marks. The distribution of the scores has been done with an intention to depict the representation of a particular topic under selected category; number of topics under each categories is considered as number of marks (1 topic = 1 mark)
- d. The net marks/scores were tabulated, compared and interpreted.
- e. Slight modification in grouping of topics such as EJ & Society has been introduced

## **RESULTS AND DISCUSSION**

*EJ education in Nepal:* The universities of Nepal have also shown enthusiasm to integrate environmental justice concepts in the existing graduate and undergraduate curricula. They have also considered that environmental justice is an essential instrument to foster social justice and equity and have expressed their commitment to promote environmental justice concepts through education.

Courses on environmental education, environmental science, environmental resource management etc. have been introduced in the universities of Nepal in Bachelors and Masters Level. In Nepalese context, realization of EJ content should primarily be concerned with:

1. Inclusion of eco justice components in the curriculum
2. Inclusion of the views of the affected people while conducting research.
3. Decision makers should be made accountable for the negative effects caused due to their decision
4. Researches should appraise, assess negative effects and suggest mitigation measures

The universities in Nepal offer courses related to environment and ecology at bachelors, Masters and doctoral level. In these courses issues related to environmental justice, social equity, and crosscutting themes are least represented.

***Environmental Programs of Universities of Nepal***

Nepalese universities in Environmental sector offer following academic programs:

**Table 1: Master level of Environment program offered by the universities of Nepal**

<b>Master's level program (M. Sc. Environmental Science)</b>					
S. N.	University	Academic Program			
		Name	System/ Duration	Course structure	Remarks
1	Tribhuvan University	M. Sc. in Environmental Science (2058)	Yearly/ 2 years	1000 marks 5 theories – general 2 theories –specialization 3 practical 1 field report 1 dissertation	
		M. Sc. in Environmental Engineering			
2	Kathmandu University	M. Sc. in Environmental Science (2057)	Semester/ 2 years-4 semester	Total credits – 54 cr. Basic – 18 cr. Methodic – 9 cr. Specialization– 12 cr. Dissertation – 12 cr.	2 specializations a) Natural resources b) Pollution science
3	Pokhara University	Master Degree in Environmental Management	Semester/ 2 years-4 semester	Total credits – 54 cr. Fundamental – 15 cr. Environmental mgmt. – 15 cr. Advance courses – 12 cr. Dissertation – 12 cr.	

**Table 2: Undergraduate level of Environment program offered by the universities of Nepal**

<b>Bachelor level program (B. Sc. Environmental Science)</b>					
S. N.	University	Academic Program			
		Name	System/ Duration	Course structure	Remarks
1	Tribhuvan University	B. Sc. in Environmental Science	Yearly/ 3 years	Major-600 marks Minor-600 marks	
2	Kathmandu University	B. Sc. (Hon's) in Environmental Science (1994)	Semester / 4 years-8 semester	Total credits – 146 Foundation courses – 31 cr. Basic courses – 27 cr. Environmental science– 34 cr. Specialization – 18 cr. Methodic/project/practical/thesis – 36 cr.	2 specializations a) Natural resources b) Pollution science
3	Pokhara University	B. Sc. in Environmental Management	Semester /4 years-8 semester	Total credits - 120 Fundamental knowledge – 30 Basic courses – 30 Environmental Management Tools and techniques – 30 Specialized courses, Research and application in Environmental mgmt. - 30	

***Environmental Justice (EJ) in the Nepalese University curriculum***

Based on the literature review, examination of EJ content of the bachelor level and master level programs of Environmental Science curricula derived from different universities of Nepal was done following the thematic areas identified. Some adjustments in the thematic areas and their contents was done for simplification.

<b>1. Tribhuwan University - Masters Level</b>									
PHILOSOPHY OF ENVIRONMENTAL JUSTICE	ENVIRONMENTAL JUSTICE AND SOCIETY	ENVIRONMENTAL RIGHTS	ENVIRONMENTAL EQUITY	PLAN, POLICIES, STRATEGIES, LAWS, REGULATIONS, JUSTICE	PARTICIPATION	JUDICIAL PROTECTION	GOVERNANCE	INTERNATIONAL ISSUES	OTHERS
Environmental ethics and qualities  Sustainable development, sustainable earth-world view  Environmental quality as a public good  Public biodiversity conservation	Indicators of social well being  People, community dynamics and perceptions in the watersheds  Quality of life and environment, quality of urban life  Shifting agriculture, commercial exploitation of forest, man and forest Population and health	Private, public, common property resources  Advanced Informed Agreement (AIA)		Water and pollution control legislation  Air pollution and the law  Legislative aspects of solid and hazardous wastes  Environmental policies and laws of Nepal  Forest conservation policy in Nepal  National wildlife legislation  National policy of soil conservation  Mineral conservation policy  Energy policy and strategy for sustainable management  Environmental protection laws and regulations,  Water resource management policies, plans, laws  Regional action plan and biodiversity action plan  PA management strategy framework and plan  Grassland management – plans, policies, strategies  Basic approach to environmental policy  Distributive effects of environmental policy  Policy reforms and issues for better fuel wood resource management	Community mobilization in conservation, education and training  Community involvement in eco-tourism  Community forestry for rural development in Nepal, local forest user's groups  Ethno-biology – ethics and guidelines, community development	Air quality criteria and standards Legislations and bio-safety	Wild life organizations	Environmental issues in developed and developing economies  Regional and global wildlife conservation conventions, multilateral treatise  International conventions, treaties, commitments and agreements  International environmental policy Wildlife conventions – national, regional, global	Basic theory of environmental economics  Park people conflict, conflict management  Environmental and occupational health, community health and consumers' health  Education and awareness  Socioeconomic effects of water resources development  EIA of water resources projects Social impact assessment

## 2. Kathmandu University - Masters Level

PHILOSOPHY OF ENVIRONMENTAL JUSTICE	ENVIRONMENTAL JUSTICE AND SOCIETY	ENVIRONMENTAL RIGHTS	ENVIRONMENTAL EQUITY	PLAN, POLICIES, STRATEGIES, LAWS, REGULATIONS, JUSTICE	PARTICIPATION	JUDICIAL PROTECTION	GOVERNANCE	INTERNATIONAL ISSUES	OTHERS
<p>Social, economic and ecological dimensions of conservation and management</p> <p>Human dimensions of environmental issues</p> <p>Environmental movement groups</p> <p>Impact study and mitigation for sustainable development</p>	<p>Capitalism, societal and individual behavior, socio-cultural perceptions, views and norms,</p> <p>Solutions of environmental problems through social and technological approach</p>			<p>Legislation and policy of natural resource management</p> <p>Government policies on societal development and human resources</p> <p>Environment and practical aspects of water resources planning</p> <p>Legal instruments, national and international laws, treatise and conventions on biodiversity</p>	<p>Participatory integrated natural resource management</p> <p>Gender in participatory process</p> <p>PRA/RRA tools</p> <p>Role of indigenous technology and knowledge</p> <p>Indigenous management systems of NRM</p> <p>Ethno-botanical relations</p> <p>Traditional knowledge and community development</p> <p>Ethno-domestication and conservation of native resources</p>	<p>Water quality management</p> <p>Control of occupational health hazards</p> <p>Industrial safety</p>	<p>Institutional arrangements of natural resource management</p> <p>Social organizations and institutions</p>	<p>Conservation and management issues – developed vs. developing nations</p> <p>Multinational foreign investments</p> <p>Treaties and agreement on water resource management</p>	<p>Water to society and water use conflicts</p> <p>Natural resource uses and conflicts with diversity of perspectives</p> <p>Health hazards due to environmental pollution</p> <p>Capacity building, knowledge and awareness</p> <p>Principles of industrial hygiene</p>

### 3. Pokhara University - Masters Level

PHILOSOPHY OF ENVIRONMENTAL JUSTICE	ENVIRONMENTAL JUSTICE AND SOCIETY	ENVIRONMENTAL RIGHTS	ENVIRONMENTAL EQUITY	PLAN, POLICIES, STRATEGIES, LAWS, REGULATIONS, JUSTICE	PARTICIPATION	JUDICIAL PROTECTION	GOVERNANCE	INTERNATIONAL ISSUES	OTHERS
<p>Environment &amp; development - sustainability</p> <p>Tragedy of the commons</p> <p>Emerging issues in environmental policies and laws</p> <p>Environmental ethics</p> <p>Sustainable development in policy context</p>	<p>Anthropology and concepts of culture, cultural ecology</p> <p>Interrelationships of populations and resources</p> <p>Role of culture in conservation and management</p> <p>Culture and biodiversity conservation</p> <p>Reconciling conservation and development</p> <p>Social/ community structure, cast and cast like systems, ethnic groups and boundaries</p> <p>Mountain environment – social aspects, cultural properties</p>	<p>Intellectual property rights</p> <p>Property right and environmental right</p>		<p>Regulatory instruments of pollution reduction</p> <p>National environmental policies, plans, strategies and laws</p> <p>Role of judiciary in the protection of environment</p> <p>Policies of forest management</p> <p>NPWLR and Conservation Area act, policies and regulations, other relevant acts, policies and regulations</p> <p>Water resources policies and water resources act</p>	<p>Participatory development and environmental management</p> <p>Peoples participation in development</p> <p>Participatory management of the resources</p> <p>Evolution of peoples participation in environment related laws</p> <p>Wild life management and public participation</p> <p>Participatory community development</p> <p>Indigenous knowledge and its importance for conservation and development</p> <p>Indigenous people and conservation</p> <p>Concepts of gender, gender and development, women and natural resource management</p> <p>Ethno-science (Ethno-ecology, ethno-botany)</p>	<p>Standards, compliance and enforcement – national and international</p> <p>Environmental monitoring and quality management</p>	<p>Community organizations, traditional socio-economic organizations</p> <p>New organizations and groups – forest user groups and other groups</p> <p>National and international environmental institutions and their role in environmental conservation</p> <p>NGOs, Cobs, Cogs and roles of VDC and DDC in environmental protection</p> <p>IUCN, CITES and NRD</p> <p>Traditional water use systems, local organizations and institutions</p>	<p>North south co-operation</p> <p>International environmental laws</p> <p>International environmental instruments</p> <p>Trans-boundary declarations and other updated information</p>	<p>Economic values of environment and non-marketed valuation methods</p> <p>Trade and environment</p> <p>Strategic planning, conflict management and consensus building</p> <p>Resource accounting; its development in Nepal</p>



3. Tribhuwan University - Bachelors Level									
PHILOSOPHY OF ENVIRONMENTAL JUSTICE	ENVIRONMENTAL JUSTICE AND SOCIETY	ENVIRONMENTAL RIGHTS	ENVIRONMENTAL EQUITY	PLAN, POLICIES, STRATEGIES, LAWS, REGULATIONS, JUSTICE	PARTICIPATION	JUDICIAL PROTECTION	GOVERNANCE	INTERNATIONAL ISSUES	OTHERS
Major human impacts on ecosystems and their implications			Land reform policies and practices in Nepal	Pollution and water quality legislation Pollution control policies and guidelines Mineral laws of Nepal Nepalese food policies and practices Environmental policies in Nepal, national legislations		Pollution standard index Water quality standard	International and national environmental organizations	Global agricultural policy and food aid International treaties and conventions related to environment	Environmental limits of economic growth Environmental impacts of economic growth Mineral and energy economics Environmental education EIA
Man environment interactions and its effects									
Origin and development of sustainable development									
Environmental crisis on planet earth									

**2. Kathmandu University - Bachelors Level**

PHILOSOPHY OF ENVIRONMENTAL JUSTICE	ENVIRONMENTAL JUSTICE AND SOCIETY	ENVIRONMENTAL RIGHTS	ENVIRONMENTAL EQUITY	PLAN, POLICIES, STRATEGIES, LAWS, REGULATIONS, JUSTICE	PARTICIPATION	JUDICIAL PROTECTION	GOVERNANCE	INTERNATIONAL ISSUES	OTHERS
Human dimensions of environmental problems, values and judgment  Introduction to environmental ethics and environmental law  Environmental challenges,  Sustainable development  Public interests in ecological problems  Conservation movements and national and international initiatives	Human society and its organizations  Relationship between private and social incentives for economic activities  Waste management as an environmental, social and political subject  Social aspects in water quality and quantity			Natural resource management policies and sustainable management  Incentive compatible regulations  Energy policy in Nepal  Environmental legislative framework, policies  Environmental policies  National perspectives of environmental laws and policies  Rules and regulation of forest acts of Nepal  Air pollution regulation and legislation  Legal and economic aspects of noise pollution  Laws related to watershed management	Peoples participation in natural reserve and wild life management  Buffer zones  Social forestry, community forestry, agro forestry  Training and orientation in participatory forestry			International conservation policies	Valuation of environmental amenities  Links between economic activities and environmental degradation  Occupational health risks and hazards  Public and occupational health issues and management approaches  EIA  Social impact assessment

3. Pokhara University - Bachelors Level									
PHILOSOPHY OF ENVIRONMENTAL JUSTICE	ENVIRONMENTAL JUSTICE AND SOCIETY	ENVIRONMENTAL RIGHTS	ENVIRONMENTAL EQUITY	PLAN, POLICIES, STRATEGIES, LAWS, REGULATIONS, JUSTICE	PARTICIPATION	JUDICIAL PROTECTION	GOVERNANCE	INTERNATIONAL ISSUES	OTHERS
Environmental ethics/religions/traditions	Introductory environmental sociology		<b>Green taxes</b>	Environmental policies, laws	Community participation in local planning	Environmental qualities and standards	Good governance	International treaties, conventions and obligations	Decision making and conflict resolution
Poverty and environment	Culture and environment			Public policy and environment	Social forestry		Environmental institutions – national, regional and global		Environmental economics and green accounting
Sustainable development	Socio economic aspects of mountain ecology			Forest management regulations		Cleaner production , ISO 9000			Valuation of environmental goods
	Eco-tourism and ethnic culture								Environment and human health
	Sociology and human ecology								Decision making in environmental health
	Social problems and cultural heritage of Nepal								Environmental health and sanitation
									EIA, Environmental assessment techniques

(Note: Contents are grouped as per the themes irrespective of the course categories and types)

***Evaluation of the EJ component and linkages with concept in the curricula***

The university-wise and topics in the syllabus according to selected categories relating to Environmental Justice is presented in Table-1 (M.Sc. Level). It can be observed that overall in the master level the coverage of number of topics according to key words relating to EJ is almost equally represented by TU and PU however the representation by KU is comparatively less.

The common finding was that any university not at all represents relating to category under Equity; feebly represented category was Environmental Right.

It appears that there is an imbalance representation relating to category of Plan, Policies; while this is over-represented by TU, it is almost of similar representation with respect to KU and TU. Regarding participation, Gender, Indigenous Knowledge, people are all grouped under this category. KU and PU have an overrepresentation in this category. PU has higher representation on governance too.

Relating to JP and International Issues, there is similar representation among all the Universities. The categories ‘Others’ include health issues – occupational, public, environmental including conflicts impact assessment etc. Here, good representation appears in TU’s programme.

**Table – 3: Comparison of representation of university-wise and topics in the syllabus according to selected categories relating to Environmental Justice (M. Sc. Level)**

No.	Category	University		
		TU	PU	KU
1.	Philosophy of environmental justice	4	5	4
2.	Environmental justice and society	5	7	2
3.	Environmental rights	2	2	-
4.	Environmental equity	-	-	-
5.	Plan, policies, strategies, laws, and regulations.	17	7	4
6.	Participation	4	11	8
7.	Judicial Protection	2	2	3
8.	Governance	1	6	2
9.	International issues	5	4	3
10.	Others	7	4	5
	<b>Total</b>	<b>47</b>	<b>48</b>	<b>28</b>

**Table – 4: Comparison of representation of university-wise topics in the syllabus according to selected categories relating to Environmental Justice (B.Sc. Level)**

No.	Category	University		
		TU	PU	KU
1.	Philosophy of environmental justice	4	3	6
2.	Environmental justice and society	-	6	4
3.	Environmental rights	-	-	-
4.	Environmental equity	2	1	-
5.	Plan, policies, strategies, laws, and regulations.	5	3	10
6.	Participation	-	2	4
7.	Judicial Protection	2	2	-
8.	Governance	1	2	-
9.	International issues	2	1	1
10.	Others	4	7	6
	Total	20	27	31

Table- 4 provides the comparative representation of topics under selected categories. Overall it can be seen that there is good representation of topics by KU compared to the rest of the universities; TU has relatively poor representation. The three categories namely Environmental Right, Environmental Equity and Governance are not or represented in a small measure. KU has overrepresentation on Plans and Policy category. In other categories, the representation appears to be similar in all the three universities.

## CONCLUSIONS

The evaluation suggests a notable feature in that EJ as a subject of discipline appears to be still a subservient field and hence there are no concrete efforts of considering EJ as a mainstream independent taught subject in both B.Sc. and M. Sc. levels. This is evident since the scrutiny of the syllabi of all the university probably has refrained to use the word EJ. However, the perusal indicates that there are topics and subtopics that could be linked and considered under the domain of EJ. These particular linkages have been identified and the evaluation has been done to understand and bring out the representation. However, it can be concluded that there were not discrete efforts to frame syllabi with an intention of dispensation of Environmental Justice as a theme.

Most strikingly missing components of EJ in the existing curricula included among others, EJ- scope, components, principles, definition (philosophy), Rights and equity – procedural, geographical and social in relation to EJ, institutional arrangement for EJ, Environmental accountability, sharing of benefits and burdens, Globalization and environmental consequences and its implications to EJ etc. Additionally methods and approaches for the delivery of EJ were also very limited.

1. Equal and direct representation of EJ is absent in all the present curricula among all the three universities. It is therefore an essentiality to conceive and frame the syllabi affixing EJ as an independent subject of 3 credits each or in total about 50 hours of teaching in UG and PG levels is desirable. The UG course should be more oriented towards theoretical inputs related to scope, philosophy, definitions etc. where as the PG course should focus on national and international perspectives and issues along with policies and plans.
2. More professional oriented approach is suggested while framing PG level syllabus; some true case histories; Pills- their analysis and discussion over judgments related to EJ could be prescribed for study. Moreover, there should be also provision to take up dissertation works related to EJ by PG students, which will facilitate deep and focused studies in this field.
3. With respect to Nepal, it is an opportune time to sustain the participatory based judicial dispensation like protection, promotion and sustenance of IQ and technology, gender, participation decision making leading to policies and legislation. This is suggested in the background of effective and useful implementation of policies.
4. For facilitating a comparative treatment of EJ component, especially with respect to air, water issues, trans-boundary movement and translocation of pollutants as well as global effects arising out of environmental degradation should also be administered.
5. More specific environmental but impact inducing practices nuclear waste disposal management, toxic and hazardous waste disposal and management, global warming and climate change and the like under EJ is to be incorporated for studies in the PG level.
6. A detail of the EJ curriculum design framework worked out based on the literature review has been described in chapter 8.

As per the framework, and strength and gaps identified, each university may frame their curriculum. However, It would be ideal to consider the opinion and expertise to judicial officials at the time of framing the syllabi for teaching at graduate and undergraduate levels. This will provide much needed contextual components in an adequate and appropriate manner to be integrated in the EJ curricula.

#### **ACKNOWLEDGEMENTS**

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