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ENVIRONMENTAL JUSTICE AND PROJECT DEVELOPMENT: THE SRI LANKAN EXPERIENCE

by

Liana Anoushka Pullenayegem

BSc. Environmental Science, York University, 2006

A thesis

presented to Ryerson University

in partial fulfillment of the

requirements for the degree of

Master of Applied Science

in the Program of

Environmental Applied Science and Management

Toronto, Ontario, Canada, 2008

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Master of Applied Science, 2008

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ABSTRACT

Despite large contributions from academia, there is a significant lack of indicators against which to measure environmental injustice, particularly with regard to project development in developing countries such as Sri Lanka. Indicators and methodological approaches that have been developed and are being used in the West are mostly irrelevant since the types of environmental injustices experienced in the two regions are different. This study presents an "environmental justice matrix", a tool consisting of selected indicators that represent a variety of issues that have the potential to cause environmental injustice and that are encountered during the different phases of project development in Sri Lanka. The matrix is designed to evaluate the degree of environmental injustice that may arise during project development and should serve to keep environmental justice front and centre of every stage of the project, especially during the assessment and decision making processes. The value of this tool is illustrated by assessing two large infrastructure projects against the matrix.

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iv

Dedicated to my family

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TABLE OF CONTENTS

CHAPTER ONE

1.1.	Introduction		1
1.2.	Background and	Literature Review: Environmental Justice	3

CHAPTER TWO

2.1.	Project Development in Sri Lanka	
	2.1.1. Sri Lanka	14
	2.1.2. Environmental Impact Assessment	17
2.2.	Factors Contributing to Environmental Injustice during Project Development in	
	Sri Lanka	
	2.2.1. Lack of Technical Resources	27
	2.2.2. Unhealthy Reliance on Foreign Aid Donors	30
	2.2.3. Lack of Public Participation	32
	2.2.4. Lack of Political Will, Bad Governance and Corruption	34
	2.2.5. Poverty	36
	2.2.6. Ineffective Environmental Impact Assessment Process	38
2.3.	Lessons from Northern Canada	43
	2.3.1. Berger Inquiry/Mackenzie Valley Pipeline Inquiry	44
	2.3.2. Great Whale Hydroelectric Project	47
2.4.	Case Studies: Sri Lanka	49
	2.4.1. Upper Kotmale Hydropower Project	50
	2.4.2. Southern Transport Development Project	55
	2.4.3. Factors Contributing to Environmental Injustice: UKHP and STDP Case	
	Studies	60

CHAPTER THREE

Measuring Environmental Justice	70	
The Environmental Justice Matrix: Rationale, Scope and Utility		
Environmental Justice Matrix Guidelines		
Evaluation of UKHP and STDP Case Studies	103	
3.4.1. Upper Kotmale Hydropower Project	106	
3.4.2. Southern Transport Development Project	109	
3.4.3. Discussion: Evaluation of UKHP and STDP	112	
	Measuring Environmental JusticeThe Environmental Justice Matrix: Rationale, Scope and UtilityEnvironmental Justice Matrix GuidelinesEvaluation of UKHP and STDP Case Studies3.4.1. Upper Kotmale Hydropower Project3.4.2. Southern Transport Development Project3.4.3. Discussion: Evaluation of UKHP and STDP	

CHAPTER FOUR

4.1.	Summary and Conclusions	 114

REFERENCES

LIST OF TABLES

Table 1: EIA Stages in Sri Lanka

- Table 2: Evaluation of Upper Kotmale Hydropower Project against Japan Bank for

 International Cooperation's Guiding Principles
- Table 3: Factors Contributing to Environmental Injustice during Project Development in Sri

 Lanka and Corresponding Indicators
- Table 4: Categorization of Direct, Indirect and Inferential Indicators
- Table 5: Environmental Justice Matrix Template
- Table 6: Indicator Scores for Upper Kotmale Hydropower Project Evaluation
- Table 7: Evaluation of the Upper Kotmale Hydropower Project
- Table 8: Indicator Scores for Southern Transport Development Project Evaluation

 Table 9: Evaluation of the Southern Transport Development Project

LIST OF FIGURES

- Figure 1: Diagram of EIA Process in Sri Lanka
- Figure 2: Factors Contributing to Environmental Injustice in Sri Lanka during Project Development
- Figure 3: Relationship between Poverty, Lack of Development and Environmental Degradation
- Figure 4: Map of Sri Lanka and Approximate Location of the UKHP and the STDP
- Figure 5: Diagram of EIA Process in Sri Lanka and EJT Role
- Figure 6: Potential Members of the Environmental Justice Team
- Figure 7: Model for Setting Numerical Thresholds for Indicators in the Environmental Justice Matrix

ABBREVIATIONS

ADB	Asian Development Bank
CEA	Central Environmental Authority
CEB	Ceylon Electricity Board
CECB	Central Engineering Consultancy Bureau
CEJ	Centre for Environmental Justice
CIA	Central Intelligence Agency
DCSS	Department of Census and Statistics Sri Lanka
EA	Environmental Assessment
EFL	Environmental Foundation Limited
EIA	Environmental Impact Assessment
EJSEAT	Environmental Justice Strategic Enforcement Assessment Tool
EJT	Environmental Justice Team
EMP	Environmental Management Plan
IFI	International Financial Institution
JBIC	Japan Bank for International Cooperation
MDB	Multilateral Development Banks
MFP	Ministry of Finance and Planning
MSE	Madras School of Economics
NCHS	National Center for Health Statistics
NEA	National Environmental Act
NGO	Non-governmental Organization
OED	Operations Evaluation Department
PAA	Project Approving Agency
PP	Project Proponent
RDA	Road Development Authority
SLASS	Sri Lanka Association for the Advancement of Science
SLWG IFIs	Sri Lankan Working Group on Trade and International Financial
	Institutions
STDP	Southern Transport Development Project
TEC	Technical Evaluation Committees
TEK	Traditional Ecological Knowledge
TOR	Terms of Reference
UKHP	Upper Kotmale Hydropower Project
UN	United Nations
UNDP	United Nations Development Programme
US EPA	United States Environmental Project Agency
USDS	United States Department of State
WB	World Bank
WHO	World Health Organization



CHAPTER ONE

1.1. Introduction

Environmental justice has captured the attention of many scholars and activists alike. Environmental injustice which is deeply ingrained into our social system has emerged as one of the leading social justice issues of our time and has consequently created an increased zeal to better understand its causes and implications. Concerted efforts are being made to ensure that policies and procedures are being developed and implemented to bring relief to poor and minority communities who often bear disproportionate levels of environmental ills.

In spite of huge contributions from academia and community initiatives, environmental injustice continues to exist, especially with regard to development initiatives in the Third World. Hence, integrating principles and policies that promote environmental justice as a priority into the planning and decision making process of any development project and implementing these will help, at least in part, alleviate or at least lessen the injustice faced by those who have not been "dealt a fair hand" to begin with.

This thesis acknowledges that no single mechanism or policy can eliminate issues of environmental injustice. It also recognizes that having several mechanisms in place and having them work together, backed by a strong commitment from individuals and agencies implementing them, can at least partially solve and mitigate issues of environmental injustice. This thesis explores various environmental injustice issues, particularly those associated with project development in Sri Lanka and suggests ways to lessen or remove some of the effects by evaluating projects against an environmental justice matrix.

Objectives and assumptions

The objectives of this thesis are threefold:

- to identify environmental justice issues that may arise during project development and the extent to which they are prevalent in Sri Lanka;
- 2) to examine and discuss factors contributing to environmental injustice during project development in Sri Lanka, and provide two case studies that describe the manifestation of these issues in reality; and

3) to present a method of evaluating whether a project has the potential to, and the degree to which it may, cause environmental injustice. It allows for mitigatory steps to be taken during the initial stages of project development so that principles of environmental justice are maintained during project development in Sri Lanka.

There are several assumptions incorporated into this study. First, it is submitted that there are significant differences between environmental justice issues faced in developed and developing nations. Many policies and procedures developed to fight environmental injustice in the West are not applicable and incapable of tackling environmental justice issues in a developing country such as Sri Lanka.

Second, development places a severe burden on marginalized and already disadvantaged communities. There is an unequal distribution of risk among the poor while benefits associated with projects are shared by a different population; persons burdened with project risks rarely profit from development. Third, although there is strong commitment to environmental justice at an administrative level, these intentions are not always realized nor implemented throughout the lifetime of a particular project. While policies may be thorough in their construction, and be presented as ideal "paper" documents that address environmental justice concerns, in reality there are many discrepancies between desired and actual outcomes.

Chapter overview

Chapter one provides background information and a literature review of the various meanings, descriptions and definitions of environmental justice. It also attempts to distinguish between terms such as environmental justice, equity, inequality and racism. It examines the concept of global environmental justice (particularly between the developed and developing world), as well as intergenerational environmental injustice. It explains how the forms of environmental injustice faced in the West are very different to those in the non-West and acknowledges the fact that policies used to address environmental justice issues should consider this factor in creating and implementing environmental justice policies.

Chapter two presents a discussion on the various factors contributing to environmental injustice in Sri Lanka during project development. They include: lack of technical resources; unhealthy reliance on foreign aid donors; lack of public participation; lack of political will, bad

governance and corruption; poverty; and an ineffective environmental impact assessment process.

Chapter two also presents two case studies from Northern Canada. Comparing and contrasting the Berger Inquiry and the Great Whale Hydroelectric Project, in Northern Canada to the Sri Lankan cases provides lessons that are relevant and valuable. The Canadian case studies provide insight into how environmental justice, particularly as a result of effective environmental assessments and public participation is achievable.

Finally, two case studies from Sri Lanka, the Upper Kotmale Hydropower Project and the Southern Transport Development Project are presented. The case studies were chosen since they best represent and demonstrate environmental justice issues associated with project development. Further, these projects are recent and therefore issues identified reflect the current situation experienced in Sri Lanka.

The environmental justice matrix is presented in Chapter three. The matrix is presented as a tool that enables projects to be evaluated against environmental justice indicators relevant to project development in Sri Lanka. It responds to many deficiencies observed in the assessment processes related to environmental justice issues and is positioned as a tool that can the potential to significantly strengthen the environmental justice components of the environmental impact assessment process. One of the primary goals of the matrix is to create awareness and draw attention of stakeholders to issues that have the potential to cause environmental injustice among affected communities. The matrix serves to keep environmental justice at the forefront: at every stage of the project development, environmental assessment, planning and decision making process. It serves to highlight areas of concern and alert stakeholder of sensitive issues that need to be dealt with before proceeding with the implementation of a given project.

The final chapter of this thesis, Chapter four, provides recommendations and summary conclusions. Together the chapters explore, discuss, and evaluate environmental injustice relevant to project development in Sri Lanka.

1.2. Background and Literature Review: Environmental Justice

Mainstream society understands environmental injustice in its simplest form, as an uneven distribution of risk and benefits among people. Justice is a concept with multiple integrated meanings and there is considerable controversy with regard to the causation and

manifestations of environmental injustice (Sapat et al., 2002; Schlosberg, 2004). In addition, there is ongoing debate on how environmental justice should be defined. Developing an appropriate definition has been a concern to many scholars because they realize the implications it may have on public policy and analytical studies. Scholars have made various attempts at defining environmental justice, but according to Schlosberg (2004), most of these are "inadequate" and "have been disappointing to date." Perhaps one reason for this could be the noticeable absence of "clarity of definition around environmental justice and equity" and that such terms are used interchangeably and loosely (Petts, 2005). Moreover, such concepts of fairness are relative and subjective (Okereke, 2006). It follows that the observed controversy could be due to the varying viewpoints and the rationale offered to explain environmental injustice is to "understand different peoples' interpretation of principles of justice" (Schlosberg, 2004).

Differentiating between terms: justice, equity, inequality and racism

Some confusion exists between terms such as environmental justice, environmental equity, environmental racism and environmental inequality. While some use these terms rather loosely and interchangeably, there are others who demand that clear distinction be made between them. Pellow (2000) is a proponent of the latter and states that scholars often use these terms with little attention to how these concepts should be defined and that they are rarely used in their proper context. This thesis also supports this position since using terms loosely can cause confusion among these readers who may be unable to distinguish between the work of authors who have strict definitions for what each term means as against those who use these terms interchangeably.

According to Petts (2005), environmental justice focuses on "improving the quality of life of the poor and the socially disadvantaged" while equity suggests more "structural issues related to unequal distribution of power, resources and environmental burdens which raises questions as to when inequality becomes inequitable." Sapat et al. (2002) say that equity refers to "equal protection of environmental laws and holds that the burden of environmental pollution and health risks should be born[e] equally by all populations." According to Schlosberg, equity is simply related to costs and benefits while the term justice encompasses a much broader

meaning. Harner et al. (2002) state that environmental justice seeks to "create environmental equity", where all people "bear a proportionate share of environmental pollution and health risk and enjoy equal access to environmental amenities." Environmental inequality on the other hand is portrayed as focusing on "broader dimensions of the intersection between environmental quality and social hierarchies" (Pellow, 2000). It refers to a situation in which a specific social group (or an individual belonging to a specific social group) is "disproportionately affected by environmental hazards" (Brulle & Pellow, 2006) and it addresses more structural questions that focus of social inequality and environmental burdens (Pellow, 2000).

Environmental racism, according to Bullard (2005) refers to "any policy, practice or directive that differentially affects or disadvantages (whether intentionally or unintentionally) individuals, groups, or communities because of their race or colo[u]r." It is also a term that has more currency in the United States than in any other part of the world. It is a form of environmental inequality (Brulle & Pellow, 2006) and it differs from environmental justice because environmental racism focuses on the "disproportionate impact of environmental hazards on communities of colo[u]r." In comparison, environmental justice focuses more on alleviating "potentially life-threatening conditions or on improving the overall quality of life for the poor and/or people of colo[u]r" (Pellow, 2000). Furthermore, environmental racism is seen as an extension of racism which refers to "institutional rules, regulations, and policies or government or corporate decisions that deliberately target certain communities for lease desirable land uses, resulting in the disproportionate exposure of toxic and hazardous waste on communities based upon certain prescribed biological characteristics" (Bryant, 1995). Another difference noted between the terms environmental justice and environmental racism is that the latter is based on problem identification, whereas environmental justice is based on problem solving (Bryant, 1995). According to Schlosberg (2007) it is the movement against environmental racism (particularly in the United States) that instigated and popularized the term environmental justice.

The environmental justice movement is primarily linked to the opposition of hazardous waste sites in poor and minority communities during the late 1970s to 1980s. These events largely popularized the term "environmental justice", which is now the focus of one of the largest growing social justice movements in the United States (Foster, 1998). It was a combination of initiatives by scholars and communities that eventually advanced the movement

resulting in the demand for the creation of policies to solve issues of environmental injustice and mitigate such incidents from occurring in the future (Sapat et al., 2002).

Community activity against environmental injustice began when a hazardous waste facility firm together with the state of North Carolina and the Environmental Protection Agency proposed construction of the hazardous waste landfill in Warren County, one of the poorest counties in the state where 65% of the population were African American (Sapat et al., 2002). Residents protested the siting of the hazardous landfill for four years and argued that it was in violation of human rights (Sapat et al., 2002). Although the effort to stop the dumping of hazardous material was unsuccessful, it drew media attention nationwide to the relationship between race and pollution. The general consensus among scholars is that it was this event at Warren County that set in motion the beginnings of the environmental justice movement. It was out of this incident that the relationship between civil rights activism and environmental concern was born (Pezzullo, 2000).

The academic community also played an important role in advancing the environmental justice movement. In 1971 the report by the United States Council of Environmental Quality was one of the first reports to raise concerns about the relationship between race, environmental quality and urban poor (Sapat et al., 2002). Later, in 1987, the first comprehensive study, the United Church of Christ's Commission for Racial Justice's report, was published which revealed that race was the single best predictor for commercial hazardous waste facility siting in the nation (Sapat et al., 2002). Thus academics and intellectuals together with community activists joined forces pushing the issues of environmental justice to the forefront, creating this rapidly growing social justice movement of our time.

So far environmental racism has mostly dominated the discussion of environmental justice. Pellow (2000) agrees with the notion that environmental justice has largely focused on the racially unequal outcomes of environmental decision making than on the broader concept of what entails environmental justice. There is ample evidence to show that the majority of research of environmental justice has focused on, and concluded that, areas populated by people of colour tend bear a greater burden of environmental harm. This is perhaps largely due to the fact that "[w]ithin the English-speaking academy, the experiences of the United States, Australia and the UK have dominated discussion and theoretical development" (William & Mawdsley, 2006). In these industrialized countries, the face of environmental justice depicts a picture of

injustices witnessed among communities of colour and is thus best described as environmental racism; however, it is only a component of what is known as environmental justice.

Environmental justice is seen as a multi-faceted concept, and therefore how it is defined may have significant implications on the steps that are needed to remedy it. For example, while environmental justice issues may appear to be largely driven by environmental racism in the United States, in the Third World, the root cause of perceived environmental justice may be a result of underlying social injustices. Thus the steps needed to rectify perceived injustices as well as indicators and methodologies needed for assessing the case of environmental justice in the United States and in a Third World country will vary significantly.

Definition and meaning

Typically, environmental injustice refers to the unequal distribution of environmental costs and benefits in such a way that those already suffering from other socio-economic disadvantages are asked to bear the greatest burden (Okereke, 2006). Schlosberg (2004) argues that this simple definition is incomplete, since activists, communities and non-governmental organization call for addressing much more that just the distribution of ills. Perhaps a more comprehensive definition of environmental injustice is that presented by the Center for Environmental Policy and Law in their report Promoting Environmental Justice in Central and Eastern Europe (n.d.). According to the authors, environmental injustice exists when members of ethnic, minority, low income or other socially identifiable group of persons:

- Suffer disproportionately at any geographic or administrative level from environmental risks or hazards.
- Suffer direct or indirect racial or ethnic discrimination in environment related matters.
- Suffer disproportionately from human rights violations as a result of environmental conditions or policies.
- Are disproportionately burdened in the process of eliminating environmental risks or hazards.
- Are denied a fair share of environmental investments, benefits, or natural resources.
- Are denied access to information or participation in decision-making or access to all procedures in environment related matters, including legal remedies.

In contrast, environmental justice is defined by the United States Environmental Protection Agency (US EPA) as:

the fair treatment and meaningful involvement of all people regardless of race, colo[u]r, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this nation. It will be achieved when everyone enjoys the same degree of

protection from environmental and health hazards and equal access to the decision-making process in having a healthy environment in which to live, learn, and work.

This definition is a broad yet a comprehensive one satisfying at least the majority of viewpoints that have been expressed in literature to date. Another definition that seems to be accepted by most scholars is provided by Bryant (1995) who defined environmental justice as:

those cultural norms and values, rules, regulations, behaviors, policies, and decisions to support sustainable communities, where people can interact with confidence that their environment is safe, nurturing, and productive. Environmental Justice is served when people can realize their highest potential, without experiencing the 'isms'. Environmental justice is supported by decent paying and safe jobs; quality schools and recreation; decent housing and adequate health care; democratic decision-making and personal empowerment; and communities free of violence, drugs, and poverty. These are communities where both cultural and biological diversity are respected and highly revered and where distributive justice prevails.

According to Schlosberg (2004) global environmental justice is threefold and should include the following components:

- 1) equity in the distribution of environmental risks, -
- recognition of the diversity of the participants and experiences in affected communities, and
- participation in the political processes which create and manage environmental policy. In addition, global environmental justice needs to be "locally grounded, theoretically broad, and plural" (Schlosberg, 2004). He says that there is a direct link between justice as "equity, cultural recognition and democratic participation", and focusing on one and ignoring the others will not satisfy the threefold nature of justice demanded by the global environmental movement (Schlosberg, 2004).

According to Schlosberg (2004) it is not enough to simply limit the description of justice to the fair process of distribution of goods and benefits. Although distribution is essential to justice issues, it does not completely explain it (Schlosberg, 2004). Another part to the problem of observed injustice is the lack of recognition of group difference (Schlosberg, 2004). It is important that the "why" of inequity is looked at so that remedies for it can be understood (Schlosberg, 2004). Schlosberg (2004) notes that if "the interest is about attaining justice, rather than attaining a sound theory of justice, recognition is central to the question and the resolution – and is not simply to be assumed." According to Schlosberg (2004) the study of justice needs to

focus on the reasons and processes behind it, and the uneven distribution and recognition (or lack thereof) that exists.

Global and intergenerational environmental justice

The uneven distribution of pollution can also be viewed as a manifestation of economic stratification (Glynis & Freedman, 1999). It is well recognized that many influential nations take advantage of poorer nations, and by doing so, the latter are exposed to a greater environmental harm while the former profits from the activity in exchange for some money that does not put a significant dent in their own economy.

According to Bullard (2005) "[t]he Third World has become a global dumping ground for hazardous wastes, risky technologies, and economic expansion." Further, "[i]dustry and government, including the military, have often exploited the economic vulnerability of poor communities, poor states, poor nations, and poor regions for their unsound, risky, and environmentally unsustainable operations." In response to this cry against environmental c injustice, some defend their position by using the so called "bloody loaf argument" (Shrader-Frechette, 2002), a faulty reasoning that claims that "a bloody loaf is better than no loaf." For example, arguing that an African village may have had no school or clean water if not for the revenue generated from the storing of toxic waste from the United States. Another example would be that a Mexican asbestos worker might not have a job if he did not work in substandard asbestos production facilities. The argument here is that a dangerous job is better than no job at all (Shrader-Frechette, 2002). However, the Mexican working at the asbestos facility, although possessing a job, has it at the expense of his own health. Proponents of the bloody loaf arguments claim that activities are permissible because the benefits of the action outweigh the cost. This begs the question of whether a price tag can be attached to the Mexican workers' health. And if so, how was it calculated to show that the damage to his health was valued lower than the production of asbestos? It is important to note, however, that these examples depict only one facet of the problem since environmental injustice between rich and poor nations is far more than an issue of trade and employment opportunities.

Inhabitants in these poorer counties are trading in their long term health for short term economic gains (Bryant, 1995). The question is, is it really worth it? To a certain extent it seems as though developing countries consider the trade worth the long term impacts because

these countries are so desperate for the foreign funds to meet their basic needs. The situation is further exacerbated by heads of state in the Third World countries who are willing to exchange hazardous waste for dollars. It is an appealing exchange because money earned from hazardous waste disposal exceeds the GNP of most Third World countries (Byrant, 1995). So in essence the world has progressed to a state where this form of environmental injustice is accepted as the norm in many developing countries.

There also exists a temporal aspect of justice, a concept known as "intergenerational justice." This is closely linked with the concept of sustainability. A deficiency of natural resources in the future due to the reckless management in the present would create an injustice to future generation, thereby causing intergenerational injustice. Another example of intergenerational environmental justice is seen in the argument over "historic pollution." Some countries blame others for historic pollution and asks that it takes responsibility to correct the mistakes of the past generations (Okereke, 2006). This is contested with argument that it is unjust to punish existing generations due to the faults of previous generations. If, however, countries fail to take on responsibility for actions that have been committed in the past, it will severely compromise and weaken the idea that we owe future generations a duty to preserve natural resources (Okereke, 2006).

Regardless of the cause of inequality, whether intergenerational, within a nation, or between nations, environmental injustice exists. It is widespread and by no means a novel concept, but one that has a long history; one that will continue to be experienced as long as some humans have the "privilege of choice."

Differences in environmental justice issues: developed vs. developing world

Issues related to the study of environmental justice have largely emerged from, and focused on, those of the Western world. The strong focus around environmental justice in industrialized countries (William & Mawdsley, 2006) is also clearly reflected in the proportion of available literature devoted to the West in comparison to any other region in the world. As Shrader-Frechette (2002) note, however, "[i]n every nation of the world, poor people and minorities face greater environmental risks, have less access to environmental goods, and have less ability to control the environmental insults imposed on them." While this statement may be

true, it is also suggested that the cause and manifestation of environmental justice may differ considerably in different parts of the globe.

There are significant differences in the type of environmental justice issues faced in the West in comparison to developing nations. The environmental justice picture painted in the Western world does not represent the "complex realities of poorer countries" (William & Mawdsley, 2006). It is further suggested that although the fundamental principles of environmental justice remain unchanged in their global application, it cannot be assumed that indicators of environmental justice in the developed world could be extrapolated and used to evaluate situations in developing nations. Schlosberg (2007) confirms this by saying that "while claims are similar, it is important to note that environmental justice outside the [United States]" is "quite different from the movement within the [United States]." William and Mawdsley (2006) also agree with this and claim that a key difference identified when comparing Western and non-Western countries lies around the "nature and functioning of the postcolonial state, and its implications for injustices based in both (mal)distribution and (lack of) recognition" (William & Mawdsley, 2006).

Another way of expressing the differences between the West and non-West is by classifying the two types of nations as the "environmentalism of the poor", that represents the struggles over natural resource based livelihoods, and "Northern environmentalism", that depicts a more middle class base and concern for nature as an entity to be valued and defended (William & Mawdsley, 2006). Sapat et al. (2002) explains how the differences in the "availability of resources and the hierarchy of needs" play a large role in peoples' attitude towards the environment. Although it may seem as though individuals in developing countries do not care as much about their environment compared to their Northern counterparts, the underlying reason for this so called "lack of concern" may be explained the "hierarchy of needs" argument presented by Maslow (1954) which states that higher-order needs are met only after lower order needs are attained. For example, food, water, shelter and security are classified as basic needs, while self-actualization is rated as a higher need (Sapat et al., 2002). So, people living in poverty, struggling to meet basic needs may not concern themselves with environmental issues in the same way that they are engaged by those the top of the hierarchy. It could be that perhaps it is a different form of environmental concern that these two groups face. For example, to the poor person, it may not be the water quality that is the issue but the access to clean water.

The ultimate goal and remedy for environmental justice itself may be very different between the West and non-West. Consequently, the approach taken to remedy environmental justice issues in these nations could be expected to vary considerably. It is vital that in mitigating such issues, the context in which the environmental justice issue is considered and measured is clearly defined. According to Sapat et al. (2002) the analysis of literature suggests the following four main causes or explanations for observed environmental injustice. These include racism, economic and market factors, political and administrative issues, and attitudinal issues.

According to Sapat et al. (2002) many studies have shown that racial minorities are disproportionately impacted with higher levels of pollution in the United States. Some research has shown that in addition to racial minorities facing higher levels of environmental harm, they are also less likely to share in the benefits from more stringent environmental regulation. Others argue that race is not the primary explanation for environmental injustice but that it is predominantly the poor and disadvantaged who are subject to environmental injustice. These scholars suggest that economic and market consideration drive siting decisions of local hazardous waste facilities (Sapat et al., 2002). They argue that siting is purely driven by economic consideration and not intentional discrimination. Other researchers suggest that it is the administrative and legal process that hinders participation of disadvantaged groups and the consequent under-representation of these groups by the legal process. They state that it is structural barriers such as political and administrative issues that deliberately exclude selected groups from the planning, policy and decision making processes, which according to them, is the main reason for environmental injustice (Sapat et al., 2002). Still others suggest that environmental injustice is linked to attitudinal issues. Proponents of this argument say that racial minorities are in general less concerned about environmental issues (Sapat et al., 2002).

The extent to which these four reasons alone, or in combination, are manifested will depend on their scale and location and may explain more clearly the differences in root causes of environmental justice issues between the West and non-West. For example, many environmental justice issues in the United States are attributed to racial discrimination while in a developing nation environmental injustice is largely related to political and administrative interference. This is confirmed by the case studies presented in the following chapter (section 2.4.). The studies show explicitly the differences between the forms of environmental justice faced in Sri Lanka

compared to that experienced in the West. The incidents consequently reveal the necessity of having tools to mitigate negative environmental and social impacts that are specific to country needs. It follows therefore that employing methodologies of the West will be ineffective at remediating issues faced in the Third World.

William and Mawdsley (2006) state that although environmental justice research looks to have a "global reach", there should be responsibility toward including the ways in which it "treats the differences of the non-[W]est" and that a "close examination of differences on the context in which struggles for environmental justice are located is required" (William & Mawdsley, 2006). As well, Schlosberg (2007) states that "[i]nequitable distribution, a lack of recognition, destruction of capabilities, and limited participation all work to produce injustice, and claims for justice are integrated into a comprehensive political project in the calls for environmental justice at a global level." Perhaps the definition of environmental injustice should also include a "process that takes away the ability of individuals and their communities to fully function, through poor health, destruction of economic livelihoods, and general and widespread environmental threats" (Schlosberg, 2007). This will perhaps better depict the situation of developing nations in their struggle to achieve environmental justice.

CHAPTER TWO

2.1. Project Development in Sri Lanka

Case studies described in this thesis are situated in Sri Lanka. The country presents a typical example of a Third World country having to rely on foreign aid for development and needing to ensure that such development takes place in a socially and environmentally sound manner, paying particular attention to environmental justice issues associated with project development.

The case studies presented in section 2.4., the Upper Kotmale Hydropower Project (UKHP) and the Southern Transport Development Project (STDP) were chosen since they best describe major issues that illustrate the extent of environmental injustice faced during project development in a developing nation such as Sri Lanka.

2.1.1. Sri Lanka

Sri Lanka, home to more than 21 million people, is located south of India in the Indian Ocean (Central Intelligence Agency [CIA], 2008). The island spans an area of 65,525 sq. km and comprises of nine provinces and twenty-five districts (Government of Sri Lanka, 2008). Colombo is the political and financial capital of the country.

Sri Lanka is mainly agricultural. The average temperature is approximately 27°C in the lowlands and approximately 16°C in the hill-country (altitude of 2,000 m) (Government of Sri Lanka, 2008).

Sri Lanka's ethnic groups include Sinhalese 73.8%, Sri Lankan Moors 7.2%, Indian Tamil 4.6% and Sri Lankan Tamil 3.9% (CIA, 2008). National languages of the country are Sinhalese and Tamil, spoken by 74% and 18% of the population respectively (CIA, 2008). English is commonly used in government and is spoken competently by approximately 10% of the population. Religious composition of Sri Lanka is: Buddhist 69.1%, Muslim 7.6%, Hindu 7.1% and Christian 6.2% (CIA, 2008).

Sri Lanka is a Federal Republic governed by a hybrid Parliamentary and Presidential system, where the members of parliament and the Executive President are directly elected by the populace. However, the eruption of an ethnic civil war between the Sinhalese Government and Tamil rebels in July 1983 has caused political instability, a lack of human rights, little or no

access to information and widespread corruption unlike in most democracies in developed countries (CIA, 2008; United States Department of State [USDS], 2008).

Poverty

Establishing the level of poverty faced in Sri Lanka is important for two main reasons: it provides the basis for the need of foreign aid for development and draws a close connection with issues of environmental injustice faced by impoverished communities, as will be described in more detail in subsequent sections of this thesis.

South Asia is the world's poorest region with a per capita Gross National Product below that of sub-Saharan Africa. This region is home to one-quarter of the world's population (Thakur & Wiggen, 2004), 40% of the world's poor with over 500 million people in this region living below the absolute poverty line (Najam, 2004). The South Asian region marks an area with highest human depravation where 260 million people lack access to basic health facilities (Najam, 2004): 337 million are without safe drinking water and 830 million people are without rudimentary sanitation. As many as 400 million go hungry every day (Najam, 2004). The region is characterized by poverty, illiteracy and low life expectancy and does not compare well even by developing country standards, and is far below any global benchmark (Thakur & Wiggen, 2004). Of the South Asian countries (Bangladesh, India, Nepal, Sri Lanka, Pakistan), however, it must be noted that Sri Lanka is ranked higher than the others on the Human Development Index and also possesses the highest Gross National Income (United Nations Development Programme [UNDP], 2002; World Bank [WB], 2001). However, the country is still ranked far below those of the developed world.

Foreign aid for development

The poverty faced in Sri Lanka is reflected in its dependence on foreign aid for development. The significance of the reliance on foreign aid is displayed in the volume of transfers that have taken place over the years. According to Thérien (2002), since the late 1940's, "developed countries have allotted around US\$1 trillion to development co-operation." He further notes that foreign aid has become "entrenched as a pillar of modern North-South relations that many observers now regard it as an integral part of customary international law." Sri Lanka has a long history of relying on foreign aid for development. By 1999, the total commitments of loans and grants to Sri Lanka amounted to US \$ 706 million (Ministry of Finance and Planning [MFP], 1999). Of the prominent donor agencies in Sri Lanka, the key players are: the Japanese government, the Asian Development Bank (ADB) and the World Bank (WB). These three aid donors accounted for up to 77% of all aid commitments in 1999 (MFP, 1999).

In general, for international development projects, Multilateral Development Banks (MDB) such as the WB and the ADB go through a six stage project cycle process (Government of Canada, 2008). The first stage is "identification", where the MDB and the borrowing country work together in identifying if the project fits the priorities of the country as well as if it qualifies for Bank support. Next, the project design and feasibility studies are conducted. These are done primarily by the borrowing country. At the second stage, the preparation stage, the project is further studied and defined. The appraisal stage follows, with Bank staff conducting detailed assessment on technical, environmental, financial and economic aspects of the project. The fourth stage is the negotiation stage, where borrower and the MDB negotiate the loan agreement and implementation strategies (Government of Canada, 2008). Next, implementation and supervision of the project is conducted. This step is carried out primarily by the borrowing country with minimal assistance from the Bank. The final stage, evaluation, conducted by the MDB, is a Bank assessment of the project and the results achieved (Government of Canada, 2008).

Environmental and social impacts from development

With development, particularly of large projects (such as hydropower projects and highways as with the cases presented in section 2.4.), there is the potential for significant environmental and social impacts. Infrastructure development often requires relocation of individuals or entire communities in the vicinity of the project as well as causes major impacts on the existing natural environment. Thus environmental and social impacts become serious considerations in any proposal for large scale development projects.

Due to the adverse impacts that may result from project development there is a great need to ensure that environmentally conscious development practices are employed. In response to this need, government and foreign donor agencies have utilized several "safeguard" measures.

These safeguard measures include, and are not limited to, environmental policies, resettlement policies, anti-corruption policies, governance policies and public disclosure policies (Withanage, 2004).

Donor agencies for the UKHP and STDP include the Japanese Bank for International Cooperation (JBIC) and the ADB. The WB, although not a donor for the projects selected as case studies, plays an important role in the world of environmental safeguards and development. In particular, the WB Environmental Impact Assessment (EIA) policy and procedure is widely accepted and followed as a model by many other international financial institutions (IFIs). The EIA is one of the most important safeguard measures employed, at least with respect to the above three major donor agencies in Sri Lanka. For many large development projects that have significant environmental and social impacts, donor agencies require recipient countries to prepare an EIA before disbursement of funds for the project.

An EIA is one of the ten safeguards used by the WB to "examine the potential environmental risks and benefits associated with Bank lending operations" (WB, 2008). It aims to "improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted" (WB, 2008). Thus EIAs have significant implications on the environmental justice aspect of each development project. It functions as a safeguard to ensure that people are treated fairly and are provided proper guidance and assistance throughout the lifetime of a project. The protection of communities potentially affected by development depend on such safeguards and the extent to which environmental justice is upheld is heavily reliant on such policies. Conversely, a weak/unsuccessful EIA process may result in inadequate protection of the environment and in turn may fail to protect affected communities from experiencing environmental justice.

2.1.2. Environmental Impact Assessment

The terms Environmental Assessment (EA) and Environmental Impact Assessment (EIA) are most often used interchangeably; however, for the purpose of this study this safeguard process will be referred to as an EIA. An EIA is simply defined as a process for identifying and considering the impacts of an action (Hanna, 2005). The process provides a mode for examining social and environmental consequences of a given project prior to its implementation (Lohani et al., 1997). At the project planning level, EIA is the "primary tool for integrating environmental

considerations into project design and execution" (Lohani et al., 1997). The EIA, by incorporating social impacts associated with project development into the assessment process plays a significant role in upholding environmental justice during project development.

In general the EIA process will encompass seven stages: proposal; screening; scoping; assessment of the proposal; preparation, submission and review; decision; monitoring and compliance practice (Hanna, 2005). It functions as both a process (a series of steps that are taken in order to obtain approval for the project) as well a document (prepared by the project proponent as required by the law depending on the type of project) (Glasson et al., 2005).

An EIA is a process that: identifies possible environmental effects; proposes measures to mitigate adverse effects; and predicts whether there will be significant adverse environmental effects, even after mitigation is implemented. EIAs should ideally be conducted at the project design stage; as early as possible in the planning and proposal stages (Canadian Environmental Assessment Agency, 2007; Withanage, 2006a).

According to Sadler (1996), EIA has five main guiding principles:

- 1. a strong legislative foundation;
- 2. suitable procedures (quality, consistency and outcomes should reflect the environmental, political, and social context within which EIA operates);
- public involvement (meaningful public involvement must be present those who are affected and interested must be consulted and also their concerns should be able to affect the decision);
- 4. orientation towards problem solving and decision making; and
- 5. monitoring and feedback capability.

Two primary purposes of an EIA are to minimize or avoid negative impacts before they occur, and to incorporate consideration of the environment into the decision making process (Canadian Environmental Assessment Agency, 2007). Thus an EIA seeks to make better-informed decisions as it helps to determine the level of significance of the project and the need for mitigation measures (Briffett et al., 2003; Hanna, 2005). EIA has many benefits including (Canadian Environmental Assessment Agency, 2007):

- an opportunity for public participation,
- increased protection of human health,
- the sustainable use of natural resources,

- reduced project costs and delays,
- minimized risks of environmental disasters,
- increased government accountability.

EIAs were first employed by industrialized countries in the early 1970s, and have been adopted by many other countries since (Lohani et al., 1997). The EIA process has also become an increasingly complex policy area, as it aims to incorporate consideration of cumulative impacts, health, social and economic impacts and public participation as essential elements in its application (Hanna, 2005). EIAs are necessary because they act as an aid to decision making and to the formulation of development actions and an instrument for sustainable development (Glasson et al., 2005). It is a tool that has global applicability and continues to be used widely in many parts of the world.

An EIA possesses considerable power as it is one way to deny approval of a project. Although powerful in this respect, an EIA is not only about rejecting development but rather about making sure "development proceeds with full knowledge of the environmental consequences" (Hanna, 2005). The EIA should be viewed as a process that promotes "sustainable development" (Kodituwakku, 2004).

EIA in Sri Lanka

The EIA process has been utilized for over 30 years in most developing Asian countries. It plays an important role in resolving environmental problems "through its ability to contribute to environmentally sound and sustainable development" (Lohani et al., 1997). Developing countries in Asia have recognized this benefit of including EIAs into the development planning process and have used it as a tool to identify various impacts associated with project development (Lohani et al., 1997). It has since become an important feature especially since conducting EIAs is most often a primary requirement by lending agencies (Briffett et al., 2003). The EIA is one of the primary environmental safeguards employed in Sri Lanka during project development.

In 1980, the *National Environmental Act* (NEA) was enacted to serve as enabling legislation for environmental protection in Sri Lanka (Parliament of Sri Lanka, 1980). Along with this was the establishment of the Central Environmental Authority (CEA) (Zubair, 2001). In 1988, an amendment to the NEA mandated that the CEA require "prescribed" development

projects to be subjected to an EIA. The CEA is the State agency responsible for the implementation of the EIA requirements under the NEA (United Nations, 2003). The NEA is in general comparable to environmental statutes in developed countries (Atapattu, 2001).

According to the NEA, approval of a project requires the submission of two types of reports (depending on the significance of the anticipated impacts): 1) the Initial Environmental Examination (IEE) report and 2) the Environmental Impact Assessment (EIA) report (CEA, 2003; Kodituwakku, 2004). If an EIA is not required because the project is deemed less damaging, then an IEE report is requested. An IEE constitutes a checklist of potential social and environmental impacts that may arise due to project development (Kodituwakku, 2004; Withanage, 2006b).

Project activities under the "prescribed projects" list are chosen based on the sensitivity and magnitude of the project and its undertakings. The list includes projects that have the potential to cause adverse impacts on the environment (United Nations [UN], 2003). The list consists of three parts. Part 1 includes 31 types of projects and undertakings if located wholly or partly outside the coastal zone as defined by the *Coast Conservation Act* of 1981. The projects represent infrastructure and large scale development projects (CEA, 2003; Ellepola, 2007). An example for one of the projects falling under part 1 of the prescribed list would be the "[c]onstruction of [h]otels or holiday resorts or projects which provide recreational facilities exceeding 99 rooms or 40 [h]ectares, as the case may be" (CEA, 2003).

Part 2 consists of projects if located partly or within an environmentally sensitive area. These projects include 20 industries and all part 1 projects, irrespective of magnitude, that fall within a declared environmentally sensitive area (Ellepola, 2007; Kodituwakku, 2004). Part 3 comprises of a list of environmental sensitive areas (Ellepola, 2007).

The prescribed projects are specified by the Minister in charge of the environment and the EIA is implemented by the Project Proponent (PP) through the designated Project Approving Agency (PAA) as prescribed by the Minister (Kodituwakku, 2004; United Nations, 2003). The NEA specifies that all "prescribed projects" must receive approval from the PAA. The PAA is responsible for the administration of the EIA and must be "concerned with or connected with such prescribed projects" (CEA, 2003; Ellepola, 2007). The determination of the appropriate PAA for a given project is chosen based on the government body having the largest jurisdiction over the project area, and having jurisdiction over the diverse and unique environmental impacts

likely to occur. There are 22 state agencies designated as PAAs, representing various government bodies who possess statutory authority to licence or otherwise approve prescribed projects (Ellepola, 2007; Kodituwakku, 2004). A PAA which is also a project proponent is disqualified from approving the project (CEA, 2003). Examples of PAAs include the Department of Coast Conservation, the Department of Wildlife Conservation and the Central Environmental Authority (Ellepola, 2007).

In general, the EIA process in Sri Lanka includes the following: screening, scoping, examination of alternatives, impact analysis, impact mitigation and management, preparation of EIA report, information dissemination and public consultation, and EIA review (Table 1) (Withanage, 2006b).

Once an EIA is submitted, the NEA provides public inspecting and comment on the report for a mandatory 30 day period (CEA, 2003). Following this, a public hearing may be held to provide opportunity for any member of the public to be heard in support of his/her comment, if the project approving agency (PAA) deems it to be in the best interest of the public to do so (as jt is not a mandatory requirement under the NEA). Following this a decision is made on whether or not to approve the project (CEA, 2003, Atapattu, 2001).

If the project is not approved then the project proponent (PP) may appeal the decision and the public "may have the opportunity to participate [in] the appeal hearing" (Withanage, 2006b). However, if the project receives approval, the public is not given the opportunity to appeal against the decision (and concerned individuals or groups must take the issue to courts) (Withanage, 2006b). Figure 1 is a flow chart displaying the general EIA process undertaken in Sri Lanka.

2.2. Factors Contributing to Environmental Injustice during Project Development in Sri Lanka

This thesis highlights several factors that contribute to environmental injustice during project development in Sri Lanka. These factors are identified and discussed in sections 2.2.1. to 2.2.6. and are also described using two case studies, namely, the Upper Kotmale Hydropower Project (UKHP) and the Southern Transport Development Project (STDP) in section 2.4.

Table 1: EIA Stages in Sri Lanka

Stage	Description
Screening	 Determine whether or not a proposal should be subjected to a full EIA Donor agencies categorize projects at this stage based on the significance of potential impacts or risks that it might present
Scoping	 Conducted by PAA Determine whether the project proponent should prepare an IEE or EIA, and the significant issues to be analyzed in depth in the IEE/EIA Determine reasonable alternatives that should be addressed Terms of Reference (TOR) for the IEE/EIA is prepared (a TOR is a list of guidelines and also describes the impacts that should be addressed, provides a work plan, directs the EIA to comply with existing laws, regulations, policies, and administrative processes, and provides a time frame and describe the specifics actions needed)
Examination of alternatives	 Alternatives are examined based on preferred or most economically, environmentally and socially sound option for achieving project objectives
Impact analysis	 Identifies and predicts the likely environmental, social and other effects of the proposed project Evaluates project scale and significance, taking into account both technical information and stakeholder views
Impact mitigation and management	 Determination of the measures necessary to avoid, minimize or offset significant adverse impacts
Preparation of EIA report	 Documents are required to: Clearly and impartially report the impacts of the proposed project Recommend measures for mitigation, the significance of residual effects Reflect the concerns of communities affected and other interested parties
Information dissemination and public consultation	 EIA results are required to be available in a timely manner and in location(s), format(s) and language(s) that allow relevant stakeholders to form an opinion and comment on the proposed course of action The document is open for a mandatory public commenting period
EIA review	 Appropriate authorities determine whether the report provides a satisfactory assessment of the proposed development activity and contains the information required for decision-making Project Approving Authorities usually appoint a Technical Evaluation Committees (TEC) to perform an expert review on the report

Source: Withanage (2006b)







Figure 2 is an illustration of the relationship that exists between the factors contributing to environmental injustice arising from development projects in Sri Lanka. Of these factors presented, effective EIAs seem to play a major role in protecting affected communities and maintaining environmental justice. Preceding sections have highlighted the important role this safeguard can assume; however, the experience in Sri Lanka is that it is largely failing in protecting the environment and affected communities, as will be explicitly demonstrated through the case studies described in section 2.4.

An ineffective EIA, although a large contributing factor, is only one part of the complex problem of environmental injustice in Sri Lanka. As illustrated, many other factors are interconnected and are dependent on the EIA process which further exacerbates the effects of environmental injustice. They include: 1) lack of financial and technical resources, 2) unhealthy reliance on foreign donors, 3) lack of public involvement, 4) corruption and bad governance, and 5) poverty. It is submitted that these factors alone and in combination largely contribute to environmental injustice experienced among affected communities during development.

Figure 2 illustrates how these factors work inter-connectedly with each other to cause the environmental injustice that is suffered by the affected communities. Each factor is impacted by, or contributes to, one or more of the other major factors.

Lack of technical resources

The lack of technical resources significantly impacts the quality and accuracy of the EIA. It also places a higher and unhealthy reliance on expertise of foreign donor agencies that may not necessarily understand country specific issues and needs, resulting in incorrect conclusions and unhelpful advice. A factor contributing to the lack of technical resources available in Sri Lanka is the phenomenon of "brain drain." The migration of qualified individuals to developed countries results in a deficiency of much needed expertise in Sri Lanka and an unhealthy reliance on foreign resources which is the more costly option. For example, experts brought in from countries such as Japan are paid wages commensurate with jobs in their own countries. Using foreign experts and paying them wages that are disproportionate to the cost of living in Sri Lanka directly affects the amount of money available for funding other areas of project development. Therefore, using local expertise will not only better suit project needs but will also lower costs

considerably, allowing more of the financial aid allocated towards development to be directed towards strengthening other technical resource needs.



Figure 2: Factors Contributing to Environmental Injustice in Sri Lanka during Project Development

Reliance on foreign donors

Poverty drives the need for foreign aid. Poverty stricken countries such as Sri Lanka simply do not have sufficient financial resources to fulfil their development needs. Also, as discussed, the lack of technical resources requires reliance on foreign donor agencies. This unhealthy reliance, however, may subsequently cause an ineffective or weak EIA due to the lack of traditional insight and/or the lack of country specific knowledge reflected in the assessment, which may result in inaccurate and incomplete assessments and conclusions.

Lack of public involvement

The lack of public involvement is a major contributor to an ineffective EIA process. As noted previously one of the main features and goals of an EIA is to incorporate the public in the assessment and decision making process. Non-inclusion of the public in the assessment process
i.e., inhibiting affected communities to voice their concerns about a project that may affect them, is a direct contributor to environmental injustice.

A major contributor to the lack of public involvement is poverty. Those who are poor and marginalized are not always recognized and given a chance to voice their concerns and may not have the wherewithal to participate. Political interference and bad governance also contributes to the lack of public involvement. Development may be pressured by political agendas and deny fair public involvement in the assessment and decision making process.

Corruption and bad governance

Corruption and bad governance contributes to poverty, and according to Attapattu (2003), "[s]ocieties in which governments are corrupt and do not respect the rule of law or fundamental rights of peoples can further marginalize the poor" (Atapattu, 2003). This consequently results in environmental injustice since already disadvantaged communities may be thrown deeper into poverty due to corrupt governments. Political interference can also result in a weak EIA process. According to Atapattu (2001), although the national environmental legislation in Sri Lanka mandating EIAs is comparable to environmental statutes in developed countries, there are issues related to its implementation due to political interference. Kodituwakku (2004) adds that the EIA process is also often hurried due to political pressure.

Poverty

Poverty is a major development issue (Atapattu, 2003). As discussed previously, poverty contributes to a lack of involvement in the assessment and decision making process and the lack of technical resources. It is also a major driving force for the reliance on foreign aid. Further, poverty both acts upon and is acted upon by corrupt governments. According to Atapattu (2003) poverty is a major cause and effect of environmental problems. Atapattu (2003) adds that it is pointless trying to deal with environmental problems without understanding the factors that underlie world poverty and inequality. Although engaging in the issue of poverty and its effects in its entirety is well beyond the scope of this study, this thesis acknowledges the huge implication it has on project development.

Ineffective EIA process

As previously noted, an unhealthy reliance on foreign donors, a lack of technical resources, lack of public involvement, and corruption and bad governance may all contribute to a weak/ineffective EIA process. A weak EIA process in turn may result in weak control measures and safeguards. Since one of the goals of an EIA is to ensure the maximum protection possible of the environment and affected communities, it follows that a weak/ineffective EIA process will be unable to protect the environment and people as intended, consequently precipitating environmental injustice.

Eliminating or mitigating environmental injustice as a result of poorly planned and executed development projects therefore requires paying attention to these factors as a whole and not in isolation. The solution, albeit large and complex, is essential to working towards ensuring environmental justice with respect to development projects. Improving the EIA process and implementing pro-poor policies are suggested as the most appropriate starting points in this arduous task of ensuring environmental justice. Since many other factors such as lack of technical resources, heavy reliance on foreign donors, bad governance and corruption and lack of public involvement are closely related to poverty and/or the ineffective EIA process, tackling these primary factors will also consequently result in a comprehensive effort to mitigate (at least in part) the effects of injustice and inequity arising from development projects.

2.2.1. Lack of Technical Resources

Lack of skill

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One of the major issues faced in the Third World is the considerable lack of technical resources needed to successfully operate and manage the EIA process. There is a need for highly technically competent people to perform these tasks, and according to Lohani et al. (1997), even "ideal institutional arrangements will be ineffective if human resources are inadequate." Lohani et al. (1997) in their report Environmental Impact Assessment for Developing Countries in Asia note the following:

EIA teams charged with the preparation of an EIA require expertise in project management and environmental engineering. The project manager must be an expert in EIA methodology and have an understanding of all the environmental aspects involved. The project manager must also be capable of producing a work plan designed to integrate activities and work products of the numerous EIA specialists. An environmental engineer is needed to ensure environmental protection measures are incorporated into the project design to make it

environmentally sound. It takes an engineer to understand how to modify the design to reach the environmental goals.

Many EIA teams in developing countries lack critical expertise in both these areas and are thus "creating a large barrier to the implementation of an effective EIA process" (Lohani et al., 1997).

It is submitted that although there are many people trained in the physical and engineering sciences in these countries, few of them have any specific training in the area of environmental protection (Lohani et al., 1997). In general, there is a notable shortage of qualified environmental engineers, ecologists and socio-economists in these countries (Lohani et al., 1997). Specifically, there is a lack of trained professionals in the "ecological and socioeconomic impact assessment" which constitutes a key weakness in any EIA process (Lohani et al., 1997). If safeguarding communities from possible environmental injustices hinges on the successful implementation of an EIA process, then the lack of the technical resources and skills to complete the EIA could result in considerable injustice to those affected by these projects.

A further contributor to the lack of skill is the lack of effective communication of EIA results and recommendations to decision makers (Lohani et al., 1997). This shortcoming could result in valuable and pertinent information from EIA findings never reaching appropriate parties. Of related importance is also the insufficient commitment given to the follow-up process. This drawback results in little or no action taken when significant EIA findings and recommendations are noted during the process (Lohani et al., 1997).

An outcome of this lack of skills is found in the fact that the scientific and technical information on which EIAs are based on is often inadequate (Lohani et al., 1997). For instance, a review of EIAs submitted to the Asian Development Bank was evaluated for both compliance and substance and the results concluded the following: EIAs were weak in "1) assessment of ecological impacts; 2) analysis of alternatives; 3) economic analysis of environmental impacts; and 4) public participation" (Lohani et al., 1997). Also, environmental management plans proposed for implementation of the recommendations made in the EIA report, were more often than not, "inadequate both in terms of the institutional arrangements proposed and the funding allocated" (Lohani et al., 1997). The United States General Accounting Office (1992), in a report on International Agreements, indicated that while both developed and developing

countries submit incomplete and late reports, "reporting is particularly a problem among developing countries, where it is part of a larger problem related to the financial and technical capability of these countries." Therefore no matter how theoretically solid an EIA is, developing nations, more often than not, are simply unequipped to successfully implement it.

Brain drain and civil war

One of the reasons for the lack of technical resources such as skilled professionals in developing countries is attributed to the loss of many qualified individuals to other nations due to the "brain drain" phenomenon. This has been, and continues to be a significant issue in countries such as Sri Lanka. Some leave the country in order to avoid the political unrest in the nation and seek refuge elsewhere. Others desire to start a new life in a country that will be able to offer them better opportunities than those available at home. They move to countries where they foresee themselves using the skills and abilities that they possess in a meaningful and economically beneficial way. Unfortunately for the source countries, many who emigrate are those that already possess significant financial resources and educational qualifications that are needed in their own countries.

In this manner Sri Lanka loses qualified individuals to other countries – and unless they return to Sri Lanka and serve their place of origin, emigration will continue to be a chief contributor to the lack of technical resources in the country. In addition, the 25+ year long conflict between the government and terrorists has significantly exacerbated the process of losing qualified professionals to other countries. As the situation in the country worsens and fear of instability is brought on by political unrest, Sri Lankans who meet the criteria and qualify to migrate will continue to find alternate places to live, work and bring up their children.

Lack of infrastructure and funding

In addition to the lack of skill facing these countries, is the lack of infrastructure to monitor and enforce environmental regulations (Zubair, 2001). According to Lohani et al. (1997), environmental management plans proposed for implementation arising from the recommendations of the EIA reports are usually "inadequate both in terms of the institutional arrangements proposed and the funding allocated." For example, in Sri Lanka, many Project Approving Agencies (PAAs) often do not have full-time staff, their own space, funds or

equipment to carry out such tasks. According to Zubair (2001) the Central Environmental Authority itself is often understaffed.

2.2.2. Unhealthy Reliance on Foreign Donors Lack of understanding of country specific issues

As discussed in section 1.2, there is a considerable difference between the manifestation of environmental justice in the West and non-West nations of the world. Moreover, types of environmental injustice among non-West nations themselves may not be the same. Consequently, it is important that issues of justice are handled with appropriate remedies, i.e., country specific solutions. One of the major advantages of public participation is the fact that affected community have valuable insights into potential environmental impacts and can thus make significant contributions to the EIA process in offering solutions to mitigate potential environmental injustice resulting from project development. Conversely, using a team of individuals who do not understand country specific needs may result in incorrect or incomplete analyses. It may also result in false conclusions being made that may go undetected until irreversible damage has been done and its effects are felt after development.

There is no doubt that foreign trained individuals are a valuable asset in the EIA and decision making process. Countries such as Sri Lanka depend on foreign aid to improve, build and help compensate for the deficiencies in technical resources that are needed to obtain approval for a project. However, it is important that such foreign aid is directed towards long term benefits such as training (in conducting) and proper guidance (in executing) EIAs successfully, and funding initiatives that promote and expand this field. Foreign funding that simply finances technical support for the project will only result in a short term gain. Moreover it could negate any potential long term benefits that could otherwise have resulted had proper EIAs and other project preparatory instruments been used.

Empty safeguard principles

ADB is a key player among the International Financial Institutions (IFIs) in Sri Lanka (MFP, 1999). This is illustrated by the fact that Sri Lanka was ranked as the seventh largest borrower of ADB in 2002 (Withanage 2004). ADB is also a donor agency of the Southern Transport Development Project (STDP), one of the two case studies chosen for this thesis.

Therefore it is especially relevant to discuss this agency's environmental and social policies and outcomes of their implementation.

Although Sri Lanka is a leading borrower for development projects, Withanage (2004) is highly critical of the success of all the projects financed by the ADB. He explains that the Operations Evaluations Department (OED) that evaluated the performance and rate of success/failure of completed projects funded by ADB, suggests that up to 78% of projects are "unlikely to produce lasting economic or social benefits", and these "unsustainable and/or failed projects are potentially the equivalent of \$1.2 billion of Sri Lanka's debt to the ADB."

ADB claims that they are "very accountable to their funds and activities." They have many policies such as Involuntary Resettlement policies, Governance policies, Anti-corruption policies and Environmental polices – all in attempt to ensure protection of the environmental and affected communities during development (Withanage, 2004). However, ADB's accountability and transparency has consistently been questioned (Withanage, 2008). The Asian Development Bank was "accused of the inability to control corruption in the region and of supporting undemocratic regimes" (Withanage, 2008). For such reasons the "effectiveness of ADB lending on development has been questioned" (Withanage, 2008). On paper, ADB's safeguards are some of the best among other IFIs. However, these policies have been criticized for nonimplementation (Withanage, 2008).

The lack of dependability on safeguard policies of lending agencies severely impacts borrowers in their quest for ensuring that development occurs in an environmentally and socially sound manner. Since borrowers largely lack sufficient resources to successfully implement processes such as EIA, they are heavily reliant on donor agencies to provide support through proper implementation of their policies to ensure all areas of development are handled in a responsible way. Unreliable safeguard policies severely weaken the EIA process that ultimately functions as an avenue to ensure that affected communities are considered throughout the development process; that environmental justice is upheld.

There are a number of examples of how projects financed by ADB have resulted in environmental and social destruction in many parts of the world such as Thailand, Bangkok, Philippines, Bangladesh, Pakistan and Sri Lanka as well (Withanage, 2004).

2.2.3. Lack of Public Participation

Public participation

"One of the tenets of a good EIA system is public participation and broad consultation with those likely to be impacted by the proposal" (Hanna, 2005). Public participation in EIAs has been a regular practice since the beginning and is central to many new management initiatives connected with local resources, federal, state and provincial programmes (Global Environment Outlook, 2000). It has also become a mandatory component of most projects supported by multilateral banks (Lohani et al., 1997).

Within the context of an EIA, public participation is defined as "a two-way communication between the project EIA team and the targeted and/or affected peoples" (Lohani et al., 1997). One of the main objectives of the public participation process is to promote public understanding and acceptance "by minimizing perceived impacts of the project through education and open discussion" and in return obtaining "public feedback can be used as constructive input into improving the project design" (Lohani et al., 1997). Since public consultation is one of the only means of providing information to the public about likely environmental impacts of a development project, inadequate implementation of this process may result in significant environmental injustices to the communities affected by the project.

The Madras School of Economics [MSE] (2008) suggests four basic reasons for why the public should be involved. First, it is the "proper, fair conduct of democratic government in public decision-making activities." Second, it is widely accepted as the way to ensure projects are suitable and meet the needs of citizens. Third, if the affected parties can influence the decision-making process then the project consequently carries more "legitimacy, and less hostility", and last, it is simply considered a better alternative when "local knowledge and values are included and when expert knowledge is publicly examined."

A primary reason for public participation is to ensure that the best decision is made with the available information (Glasson et al., 2005). It further ensures the "quality comprehensiveness and effectiveness of the EIA" (Glasson et al., 2005) and that various groups' views are adequately considered in the decision making process (Glasson et al., 2005). Public participation according to Lohani et al. (1997) goes beyond simply "defining the public's concerns." Further, "[s]olutions to the major issues should be developed though joint efforts so that they will be acceptable to both the project proponents and the public." Affected

communities should be able to suggest measures to mitigate disruptive socioeconomic effects of the project. They should also assist in the development of environmental protective measures. Healey (1997) postulates correctly when he states that the power of public involvement is assessed by whether or not it has the capacity to affect the decision of a given project.

Advantages and limitations of public participation

Meaningful public participation and consultation is a method for providing valuable information about development, clearing up misunderstandings, and a means of providing some clarity on relevant issues and how they are expected to unfold (Glasson et al., 2005). It helps identify and deal with areas of controversy in the early stages of the project cycle. Early involvement will largely pre-empt the potential for "escalation of frustration and anger" (Glasson et al., 2005). Past experiences show that the implementation of projects occurs more smoothly when there is agreement and support from local residents. There is evidence to prove that the total benefits of openness can exceed its costs, even with the additional expenses associated with delays and full-scale public participation (Glasson et al., 2005).

Project proponents will also profit from considering the potential long term benefits associated with building co-operative relationships with citizens (as alienated citizens tend to delay the implementation of the project) (MSE, 2008). As well, there is an advantage to proponents when considering the contributions local communities have to offer concerning "values, impacts, innovative solution and alternatives" (MSE, 2008) which can prove extremely beneficial in the decision-making process. Glasson et al. (2005) confirms this, and suggests six stages at which public consultation and participation can be useful, namely in (Glasson et al., 2005):

- determining the scope of an EIA;
- providing specialists with knowledge about the site;
- evaluation the relative significant of likely impacts;
- proposing mitigation measures;
- ensuring that the process is objective, truthful and complete; and
- monitoring any conditions of the development agreement.

In general, public participation is not favoured by developers, largely due to the fact that it presents the risk of giving the project a high profile that may result in elevated costs (Glasson

et al., 2005). Also, there is evidence to show that public participation can often result in "connotations of extremism, confrontation delays and blocked development" (Glasson et al., 2005). Further, including public consultation in the development process may not constitute a conclusive resolution as there may be different concerns and priorities that arise (Glasson et al., 2005).

Public participation was a novel concept that was introduced to project planning in Sri Lanka through the EIA process (Zubair, 2001). However, it has not always proven to be as effective as intended. There are many shortcomings associated with the manner in which public consultation is employed in the country. Although donors such as the World Bank (WB), the Japan Bank for International Cooperation (JBIC) and the Asian Development Bank (ADB) have what seem to be stringent policies and safeguards on what public participation should entail, the development of projects usually proceeds without adequate information dissemination to affected communities. For example, according to Davis and Rukuba-Ngaiza (1998), despite the existence of operational directives put forth by the WB, the Bank's second EIA Review found that "many [EIAs] are still characterized by...weak public consultation."

A major criticism of public participation is that it often occurs very late in the decisionmaking process, usually after major decisions have already been made. In many cases in Sri Lanka, concerned citizens as well as those directly affected by the project do not know about the project until it is implemented (Atapattu, 2001). Seeking public input at the eleventh-hour, often leads to proponents simply defending a decision that has already been made (Madras School of Economics [MSE], 2008) rather than genuinely obtaining input from concerned public. Also, information made available through the EIA process that serves to assist people in understanding the purpose and objectives, is often inadequate (MSE, 2008). The documents are written in technical language and are not always comprehensible to the general public (Kodituwakku, 2004). Such inadequacies contribute to the affected communities being "left in the dark" regarding development projects that have the potential to harm them.

2.2.4. Lack of Political Will, Bad Governance and Corruption

Although South Asian nations in general constitute supposedly "democratic societies", there is evidence of states captured by the "elites, whereby public policy and the allocation of public resources are biased in favour of the rich and powerful" (Pasha, 2004). The system of

governance particularly in this part of the world is viewed as "corrupt, exclusive and bankrupt and economic development is denied democratic legitimacy" (Pasha, 2004). The over centralization of decision making and the non-involvement of stakeholders are key reasons for problems with economic governance, which has also allowed for powerful special interest and high levels of corruption (Pasha, 2004).

Many of those who have attained material prosperity and social advancement have most likely done so because of "political patronage or a particular power configuration" rather than making use of solid institutional foundations (Pasha, 2004). The prosperous, more often than not, have "succeeded by virtue of social class" (Pasha, 2004). Also, environmental security usually "encourages powerful groups to capture valuable resources and prompts marginal groups to migrate to areas that are already ecologically sensitive" (Pasha, 2004). The poor on the other hand seem to be double-disadvantaged, as citizens and persons (Pasha, 2004). There is earnest demand for policies that protect the socially and economically disadvantaged. However, the experience is that these pro-poor economic policies are not likely unless the process of governance is more pro-poor (Pasha, 2004). According to Pasha (2004), the choice and implementation of pro-poor policies clearly depend on the political economy implications of the process.

The lack of political will, bad governance and overt corruption are major factors contributing to environmental injustice in Sri Lanka. Environmental injustice is further exacerbated when weak political support is combined with the lack of coherent overall objectives, poor identification of priorities and inappropriate methods and policy tools (Williams & Mawdsley, 2006). Unless there are effective policies, supportive legislation and a committed government to ensure proper implementation, monitoring and enforcement, change cannot be expected. There must be a combined effort for ensuring communities are treated fairly and do not bear the brunt of environmental ills.

It is no secret that the Sri Lankan government has on many occasions "attempted to simplify or dilute legislation and procedures" (Zubair, 2001). According to Kodituwakku (2004), "politics and bureaucracy [can] play an undue influence" on the grant approval process of projects. When environmental regulations appear to bottleneck and stall projects that are important to the government, it seems that politicians are quick to use their power to benefit their own needs regardless of the disaster it may cause in the future and to the non-suspecting public.

Thus widespread corruption and lack of transparency have interfered with South Asian countries such as Sri Lanka from achieving sustainable development (Atapattu, 2001).

Recommendations have been offered in attempt to combat corruption and bad governance in countries like Sri Lanka. Pasha (2004) suggests that independent accountability institutions have to be set up to detect and punish worst examples of corruption. The question is, what might guarantee these agencies conducting activities in a just way?

Also suggested is the development of an appropriate legal and fiscal framework that will provide a "suitable enabling environment for the emergence of a strong movement of non-governmental organizations" (Pasha, 2004). However, if existing legislation, policies and frameworks have been adjusted, diluted and simplified to suit various agendas of the politicians, it begs the question if developing other "legal and fiscal frameworks" will prevent environmental injustice

A civil society can play a major role in "articulating the concerns of the poor" and nongovernmental organizations can be "effective in targeting and delivering services to the unreached segments of the population." Pasha (2004) also states that a "free and vibrant" press can contribute to "greater transparency and accountability in the system." NGOs such as the Centre for Environmental Justice in Sri Lanka continue to fight for the rights of the poor and marginalized, but to date, they seem to have been unsuccessful at making any major changes.

The above recommendations seem to be straightforward and legitimate. However, the fact is that adopting and implementing these suggestions are foreseen as complex in reality. If the best prediction of future behaviour is past behaviour, then there is very little that nations such as Sri Lanka can hope for. The experience has been that corruption has leaked its way into every area of the social system; therefore adopting the above suggestions demand rectifying every part of the social structure.

2.2.5. Poverty

Injustice due to circumstance

Experience shows that environmental ills generated by development projects are often disproportionately distributed among the poor and already disadvantaged populations. It is understood that poverty can be linked to a lack of sufficient clean water, food and appropriate shelter and fuel and access to healthy air, i.e., environmental ills (Adeel & Piracha, 2004).

Interestingly, the "circumstance" of these individuals (i.e., poverty) itself seems to be a contributor to the uneven distribution of environmental injustice. It seems that the attributes associated with those who are underprivileged, i.e., lack of resources, low economic and social status, lack of opportunities, lack of access to services and so forth, become the very factors that promote injustice.

The poor are excluded both politically and culturally (Jeffery, 2000). They remain unrecognized. They are viewed by the affluent as having very little to offer or contribute to society. They are provided with little or no opportunities for advancement. Their voices and complaints are overlooked and undervalued. So it comes as no surprise that it is the poor who often suffer the most as a result of development projects. The poor are rarely involved in the decision making process in any significant way, and even if they are, their voices are hardly heard. Furthermore, they are ill-treated and are often relocated to places of worsened conditions. This is environmental injustice – injustice directly related to a person's status, the very circumstance that makes them what they are.

Poverty, development and natural resources

Environmental injustice among the poor may also be caused by the destruction of natural resources for project development. Development threatens natural resources; in many cases natural resources are completely destroyed to pave the way for development. Poverty forces people to depend on and overexploit natural resources; for such people it is necessary for survival (Atapattu, 2003). But when development removes, or limits access to these resources, then the poor are thrown deeper into poverty. This relationship between natural resources and development is especially significant in developing countries such as Sri Lanka where "40% of the people are engaged in activities directly depended on the environmental resources base" (Kodituwakku, 2004).

There also exists a relationship between poverty, environmental degradation and the lack of development. Adeel and Piracha (2004) use the following diagram, a simplistic one, in an attempt to display the cyclical connection between these terms (Figure 3).

According to Adeel and Piracha (2004), South Asia is "caught in a vicious cycle of poverty, environmental resource depletion and lack of development", which are all linked and

Figure 3: Relationship between Poverty, Lack of Development and Environmental Degradation



Source: Adeel & Piracha (2004)

interdependent. The conflict between environmental degradation and development will continue to escalate as the population increases and natural resources grow scarce. Those in power will continue to find ways to access available resources leaving those less fortunate with little opportunity. Noteworthy is that "both lack of development and the development process itself have caused – and continue to cause – environmental degradation" (Lohani et al., ^C1997).

Development may serve to "alleviate poverty and lead to a higher quality of life [if] properly planned, it may also reduce pressure on the environment and stem to environmental degradation" (Lohani et al., 1997). The problem arises when these development projects aimed at poverty alleviation are: not implemented as intended, are preceded by competing projects, and/or sabotaged to favour other agendas.

2.2.6. Ineffective Environmental Impact Assessment Process

Limitations of EIA

Although extremely valuable in the decision-making process, EIA is a tool that is far from being perfect. As discussed below, weak legislation, ignorance of the scope of its implementation and exploitation of the EIA tool to suit the needs of project proponents are some ways in which the EIA process can very easily be reduced to an ineffective procedure that results in nothing but wasted time and money.

The degree to which an EIA is conducted, and is effective, largely depends on the legislation that supports it and how that legislation is enforced (Briffett et al., 2003). Legislation

that appropriately supports the EIA process therefore will, at least in part, facilitate the successful application of the tool and consequently help protect the environment and affected communities.

Briffett (2003) says that although EIA is used as a decision making tool it basically "reacts to development proposals rather than proactively anticipating them." Moreover, EIAs usually take place after many other strategic decisions about the project have been made which results in only a limited range of alternatives been considered (Briffett et al., 2003). In many cases irreversible decisions (such as land acquisition) have already been made which limits the alternatives that could have potentially been considered (Briffett et al., 2003). Often mitigation measures are added after decisions on location, type and scale of project have been finalized (Glasson et al., 1999). Therefore the actual value that the EIAs possess is minimized due to the late utilization of the tool.

Another criticism of EIAs is that they usually do not take into account cumulative impacts of the project (Briffett et al., 2003). This has significant implications especially if the ultimate goal is to protect the environment in its entirety.

Although EIAs are used widely across the globe, there is no method for ensuring quality of EIA documents (Withanage, 2006a) and hence there is no set standard for how effective an EIA process performed in a country is. The quality of an EIA report is therefore highly variable (Lohani, 1997). Also, in some cases EIAs are usually completed in a short period of time, which has significant implications on the quality of analysis that can be undertaken (Briffett et al., 2003).

Lohani et al. (1997) highlight several limitations associated with the implementation of EIAs in Asia. They include: "1) insufficient procedural guidance; 2) inadequate baseline data upon which to base analyses; 3) the cost of EIA study preparation; 4) potential delays in project implementation; 5) the lack of expertise for assessing impacts; 6) inefficient communication of EIA results to decision makers; 7) lack of inter-agency coordination; 8) limited capacity for review of EIA reports; and 9) insufficient commitment to follow up on the implementation of environmental protection and monitoring requirements." These limitations are not specific to Asia, they are prevalent among developing countries in the region.

Hemantha Withanage, founder and executive director of Centre for Environmental Justice (a non-governmental organization and leading advocacy group of environmental justice in Sri Lanka) discusses some key weakness with EIA in his report titled Sri Lankan EIA Process

- Theory and Practice (2006a). He notes that there is a lack of understanding about the EIA process in the country. Further, project EIAs have been completed in a matter of a few weeks. He states that although the Sri Lankan EIA process is one of the oldest in the region, it is becoming largely unpopular among stakeholders. Withanage (2006a) suggests that there are many issues that need to be considered and revisited in the EIA process such as, ensuring that the EIA process does not hinder development but that the document is used as a tool to improve projects; ensuring the quality of the documents and proper environmental governance; protecting it from political pressure and ensuring public participation in development decisions.

Brifette et al. (2003), Zubair (2001) and Kodituwakku (2004) highlight the following as major issues faced in Sri Lanka with regard to the proper implementation of EIAs: loopholes with regards to "prescribed project"; weak enabling legislation; consideration of unreasonable alternatives; conflicts of interest; shortcomings in provision for public participation; lack of baseline data, problems with environmental data; inadequate monitoring and evaluation; apprehension of EIA violators; and lack of staffing and experience. All these factors act to limit the effectiveness of the EIA process in the country. Some of these issues and relevant examples are presented below.

Some project proponents (PP) completely bypass the EIA procedure by designing their project to be constructed just below the thresholds specified in the "prescribed list" (section 2.1.2.). For example, hotels have been constructed with 99 rooms because the requirement for hotel construction to require an EIA is for hotels with over 100 rooms. It is not surprising that extensions to the 99-room hotels are made shortly after approval is granted. Such loopholes allow entrepreneurs to completely bypass the EIA procedure (Zubair, 2001).

EIA legislation is rather weak in that it does not possess a means for assessing cumulative impacts of many projects in a given region. There are examples in Sri Lanka of multiple industries that were evaluated and passed independently, but in running their operation simultaneously have caused significant environmental damage (Zubair, 2001).

Used correctly, consideration of alternatives acts as a powerful feature in the EIA evaluation process. However, there have been instances when the "best alternatives were deliberately avoided" (Zubair, 2001). This was clearly evident in the case of the Upper Kotmale Hydropower Project (UKHP) (section 2.4.1.). According to both the Sri Lankan *National Environmental (Amendment) Act* (1988) and the donor agency's (Japan Bank for International

Coorperation [JBIC]) environmental and social considerations guidelines, considerations of alternatives is a requirement (JBIC, 2002; Parliament of Sri Lanka, 1980). However, alternatives for this project were not seriously considered. Moreover, nonviable alternatives were examined on a superficial scale so that the UKHP was posited as the "better and only viable" alternative (Zubair, 2001).

Sri Lankan EIA regulations state that the project proponent cannot perform the functions of the project approving agency (PAA) (CEA, 2003) but in many cases, this regulation is not enforced. Again, the UKHP serves as an example in displaying conflict of interest. The PAA in this instance was also the parent ministry of the Ceylon Electricity Board (PP) (Zubair, 2001).

Although providing an opportunity for public participation is a positive feature of an EIA, there are several ways in which the procedure needs to be strengthened in order to be reliable and trustworthy. The period open for public comments is 30 days, but this is deemed insufficient. Affected communities usually do not know of the EIA until it is too late. Also communication is generally in English, which is not the official language in the country nor one that is familiar to most individuals in affected communities (Zubair, 2001).

Environmental tolerance standards provided by the Central Environmental Authority (CEA) are not comprehensive. This inadequacy is at times used as an excuse to avoid the need for treatment. Also, environmental data are often not available or inaccessible, which has led to fabrication of data (Kodituwakku, 2004; Zubair, 2001). Further, the lack of information has been used by project proponents to "short-circuit the EIA process" (Zubair, 2001).

Some developers bypass the entire EIA process (Zubair, 2001). For example, a majority of prawn farms along the coastal regions in the north-western provinces are illegal (Sri Lanka Association for the Advancement of Science [SLAAS], 1995). These farms, however, continue to operate due to factors such as political interference (Zubair, 2001).

Another major issue with the EIA process in Sri Lanka is that most of the environmental teams of the PAA responsible for providing guidance to the EIA process do not have "full-time staff, space, or allocations of funds and equipment" (Kodituwakku, 2004).

According to Kodituwakku (2004), "[i]n Sri Lanka the EIA process is often just a paper one." Briffett et al. (2003) comment that the EIA process has been "ineffective in protecting natural resources." Further, there is poor correlation between the level of commitment to EIAs and the state of the environment in a given country (among most developing nations in Asia) (Briffett et al., 2003). Duinker and Greig (2006) say that "in theory EIA is about environmental protection" but "in practice it is about project approval." Given such criticisms, one wonders if incorporating an EIA component into project development is indeed a worthwhile undertaking. If generating EIAs for approvals means that it must simply "go through the motions", it seems only logical to transfer the time, money and expertise spent on the EIA to other components of project development that may need it. Why support a mechanism that seems to bring about little or no change at all? Notwithstanding these arguments, however, the fact remains that having the EIA in place is better than not having any safeguard at all. There is no doubt about the potential and power this tool holds. How well the tool is applied and the extent to which it can ensure environmental justice, however, ultimately rests in the hands of those who use it.

There is an obvious duty by all to protect our environment and ensure development takes place in a sustainable way. The question is, how can society ensure sustainable development and guarantee environmental justice for affected communities simultaneously? According to Thakur and Wiggen (2004) the "development paradigm will have to shift from growth *per se* to growth with equity." How might this be achieved in a developing country such as Sri Lanka? It is submitted that this might be achieved when all issues discussed in sections 2.2.1. - 2.2.6. have been appropriately dealt with. Thus, growth with equity may be possible when:

- sufficient technical resources are available and utilized;
- foreign donors abide by safeguards and assist in development projects with a vision to improve quality of life for all;
- proper public participation and consultation is ensured;
- there is a political will for the betterment of society and justice, and there is an end to corruption;
- the poor and marginalized fail to act as a sponge for absorbing environmental ills that are generate from project development; and
- policies and safeguards such as EIAs are appropriately applied and followed.

Growth with equity will affect every aspect of human activity, and thus a shift in this development paradigm will affect all areas of society.

2.3. Lessons from Northern Canada

5

Sri Lanka shares commonalities with Northern Canada in some of the issues encountered in the EIA process, particularly with regard to meaningful participation and consultation of affected communities. Hence comparing and contrasting practices in Northern Canada to those in Sri Lankan is both relevant and useful.

The two case studies in Canada serve as examples of how a successful EIA and meaningful public participation can be accomplished during project development. They provide examples for how the First World has dealt with issues that are faced by the Third World, particularly with regard to challenges of poverty, inequality and marginalization of native people. The Canadian case studies illustrate how the previously identified "contributing factors" to environmental justice (section 2.2.) have been dealt with in the past, and explicitly described how environmental justice can be incorporated into the early stages of project development.

Three major similarities exists between Northern Canada and Sri Lanka with respect to environmental and social issues in the EIA process. They are: 1) importance of cultural and heritage values and ancestral affinity; 2) reliance on the natural environment for survival; and 3) limited access to information and lack of opportunity to participate in the decision making process (due to language barriers, limited financial resources and/or under representation of culture and values in mainstream society).

The Mackenzie Valley Pipeline Inquiry (Berger Inquiry) and the Great Whale Hydroelectric Project serve as good examples of ambitious environmental impact assessment exercises. The environmental and social impacts associated with the project are as challenging as those experienced in Sri Lanka, and thus the Canadian case studies will serve as a benchmark in this thesis; a standard by which the Sri Lankan experience can be compared. This does not imply that the Canadian case studies are perfect, for they are not without their own set of flaws. They do, however, serve as examples of successful EIA processes that ultimately seek to ensure that development takes place in an environmentally and socially sound manner.

The case studies provide some promise and confirm that when implemented appropriately, EIAs can prove to be hugely beneficial and an extremely valuable component of the development process. They illustrate how public participation can be integrated into the assessment and decision making process in the initial stages of project development as well demonstrate the value of integrating traditional knowledge into the assessment.

2.3.1. Berger Inquiry/Mackenzie Valley Pipeline Inquiry

A pipeline (that would traverse through the Northern Yukon and the Mackenzie Valley) was proposed to bring natural gas from Yukon to Southern Canada and the United States (Mulvihill & Baker, 2001; Gamble, 1978). It was a complex and massive technologically innovative project and was the largest private undertaking ever considered in its time (Gamble, 1978). The Mackenzie Valley Pipeline Inquiry, also known as the Berger Inquiry after its Chair, was conducted from 1974-1977 in order to determine if the project should take place based on its social, environmental and economic impacts. The inquiry was chaired by Judge Thomas Berger (Mulvihill & Baker, 2001), whose mandate was to explore every conceivable way the project would affect the North (Gamble, 1978).

The inquiry was necessary as the proposed pipeline was to traverse through land traditionally occupied by First Nations, namely Indian, Inuit and Metis nations (Mulvihill & Baker, 2001; Gamble, 1978). The degree and complexity of the project would place a large pressure on every area of life in the region (Gamble, 1978). Thus there were significant social concerns associated with the mega project such as loss of traditional community life as well as biophysical concerns such as potential impacts on caribou herds (Mulvihill & Baker, 2001). The development would intrude into an area with "unique biology and vast wilderness" (Gamble, 1978). Moreover the region's fragile ecosystem supported human populations that were dependent on the natural environmental for survival (Gamble, 1978).

Judge Berger, in order to fulfil his mandate of examining all social, economic and environmental impacts, requested a rigorous environmental assessment to be conducted with comprehensive stakeholder consultation (Mulvihill & Baker, 2001; Sabin, 1995). Judge Berger understood that for the inquiry to accomplish what it was intended to, it would have to be sufficiently flexible to include unexpected departures and would need to respond to findings as they emerged (Gamble, 1978). The inquiry was to consider impacts of the pipeline as well as impacts from the transportation corridor that included an oil pipeline, a highway, a railroad and electrical power transmission and telecommunication facilities (Gamble, 1978). As such, the inquiry required that cumulative effects triggered by the pipeline be considered. Cumulative impacts were also the main concern for local communities (Gamble, 1978).

According to Judge Berger an integral part of the inquiry was to "find out what the people were really thinking." "Suppressing differences and pretending there were no divisions

would not" he said "lead to a proper assessment of impact" (Gamble, 1978). A large effort was made to identify and consult stakeholders; in fact, a combination of community and technical hearings over three years was conducted to ensure all concerns were obtained (Mulvihill & Baker, 2001). This lengthy period was required so that it could accommodate a pace that was suitable to the Northern context (Mulvihill & Baker, 2001). Judge Berger found that this broad assessment perspective was the only method of tackling paramount social issues such as land claims that were associated with the project (Gamble, 1978).

Judge Berger guided the inquiry such that it would ensure a process that was "thorough, fair, flexible, and accessible." To fulfil this end, the hearings were conducted in two main ways: formal hearings, and community hearings (Mulvihill & Baker, 2001; Gamble, 1978). All possible viewpoints were encouraged in the inquiry and thus anyone and everyone who wanted to be heard was allowed to present evidence (Sabin, 1995).

The formal hearings were organized so that an expert witness for each participant gave a testimony and was then cross-examined by all other participants. However, the participants at these hearing were requested to provide background studies in addition to explaining their position (Gamble, 1978). The community hearings allowed for people to voice and identify potential social, cultural and biophysical associated with the project (Mulvihill & Baker, 2001). In order to gather input from all affected communities the inquiry travelled over 17,000 miles visiting 35 cities, towns and villages to hear the evidence. These hearings were done in eight languages and almost 1000 people spoke to Judge Berger directly (Gamble, 1978). This non-technical input played an important role in the Inquiry's deliberation especially since one of the key goals of the Inquiry was to protect the people and environment of the North (Gamble, 1978). Funding was also provided for native and regional organizations to cover the various costs associated with participation (Gamble, 1978; Sabin, 1995).

Construction of the pipeline was halted and then stopped partly due to the findings that surfaced from the Inquiry and partly due to market doubts and financial issues (Mulvihill & Baker, 2001). Regardless, the Berger Inquiry stands as a remarkable example of careful scoping and as an excellent model for stakeholder consultation. It serves as a benchmark for future EIA processes in Northern Canada and remains one of the most influential EIAs conducted in the region (Gamble, 1978; Mulvihill & Baker, 2001). The methodology used by Judge Berger in this Inquiry shows the extent to which information is important in the assessment process

(Gamble, 1978). There is evidence of a keen focus on environmental justice by Judge Berger throughout the entire assessment process, which makes this case study a good example of how environmental justice can be incorporated into project development.

The case study sets a strong precedent for community input; a major reason for why it is considered a "high water mark" (Mulvihill & Baker, 2001). According to Gamble (1978), the Inquiry further illustrated:

- how essential citizen's input is to the assessment process,
- "participatory technology" as a way of "assessing a superstar technology while still maintaining a human perspective,"
- that the input of technical experts can be blended with the input of affected communities,
- that it is possible to disseminate information about highly complex technical projects and balance the human factor of concerns for non-technological aspects simultaneously, and
- that the obligation of the expert in industry and government "is to expose, at a very early stage, the whole range of issues to the 'expert' scrutiny of all citizens."

Judge Berger's approach to the assessment showed that the issue of EIA was much larger than the sum of its constituent parts (Gamble, 1978). It was only through the input of all parties that the whole picture could be put together. It was the only way a successful impact assessment could be conducted (Gamble, 1978). "[B]lending of expert evidence with the thoughts of the ordinary citizen is the hallmark of the Berger Inquiry and of Judge Berger's report" (Gamble, 1978). It was the most important component to ensuring the thoroughness of the Inquiry assessment. This is what has provided its value as a learning process (Gamble, 1978). If the process was to rely on government and industry, whose background studies were often vague (which was probably to avoid the legal and politically sensitive issues), there would have been a serious "evasion of responsibility" (Gamble, 1978) and resulted in a consequent example of injustice.

Proof that the Berger Inquiry was a "high water mark" lies in the fact that several inquiries since have been modelled after it, and according to Sabin (1995) much of the subsequent environmental legislation in Canada has been founded on its assumptions and practices.

2.3.2. Great Whale Hydroelectric Project

The Great Whale Hydroelectric Project, a component in the elaborate James Bay Hydroelectric program, is a part of a complex scheme to dam selected rivers of Northern Quebec to transmit power to the southern regions (Mulvihill & Baker, 2001). The project design included the diversion of three rivers north of the Great Whale River. The rivers were then to be connected to a system consisting of dams, dikes, reservoirs and power stations (Adelson, 2000).

The environmental assessment process for the Great Whale project began in 1991, but the proposal was stopped because of a 1994 provincial policy decision. Although the project proposal was withdrawn it was done so after the completion of the scoping phase and after the environmental impact statement (EIS) guidelines were given to the proponent (Mulvihill & Jacobs, 1998). Regardless of the decision in 1994, the Great Whale Hydroelectric Project stands as a valuable case study displaying the general process development of an EIA (Mulvihill & Baker, 2001).

There were significant impacts associated with project that were controversial in nature. The project was proposed by the South but adverse impacts were on the northern regions populated by Inuit and Cree people (Mulvihill & Jacobs, 1998). The potential effects included a variety of social, economic, biophysical, cultural and cumulative impacts (Mulvihill, 2002). For instance, this large project was projected to have a grave impact on the Whapmagoostui people who relied on the waterway and its tributaries for food and travel (Adelson, 2000). While some of the effects could be predicted, there were many that could not be estimated with any degree of accuracy (Mulvihill, 2002).

Scoping for the Great Whale project started in 1992 and public hearings were conducted in nine communities, in four languages, over a period of 23 days (Mulvihill & Jacobs, 1998; Mulvihill & Baker, 2001). Approximately 250 people gave oral presentations and 94 briefs were received. There were many written submissions that were received including traditional ecological knowledge (TEK) (Mulvihill & Baker, 2001). The process was managed by a review panel that consisted of federal, provincial, Inuit and Cree representatives (Mulvihill & Jacobs, 1998).

The EIS guidelines that were finalized and submitted to the proponent were quite unique to existing standards. According to Mulvihill and Baker (2001) the guidelines were

innovative and in some ways precedent-setting in terms of their responsiveness to diverse stakeholder input and their attempt to construct a framework for intercultural [EIA]. Instead

of the more common list of issues and valued ecosystem components, the guidelines featured considerable explanatory text in which the challenge of intercultural [EIA] was described. Where standard lists of study criteria and issues were included, they were often reinterpreted to reflect intercultural concerns.

The trademark of the Great Whale scoping process was that hearings were designed with the goal of ensuring the inclusion of intercultural EIA challenges (Mulvihill & Baker, 2001). There was a conscious effort to integrate a pluralistic approach into the framework, which was reflected in the EIS guidelines. According to Mulvihill and Jacobs (1998) the proponent was "required to present a clear description of the project and impacts in intercultural terms" to "increase its own intercultural literacy." Further, the proponent's work was framed such that "it had to first understand the environment from multiple perspectives, and only then to justify its project and impacts, with reference to a set of principal assessment criteria." (Mulvihill & Jacobs, 1998).

The purposeful inclusion of intercultural issues into the EIA process is what sets apart the Great Whale project from other cases. It was an impressive framework that included a high degree of innovation which challenged common practices at the time (Mulvihill & Baker, 2001). It recognized cultural diversity and addressed cultural barriers to consultation (Mulvihill & Baker, 2001). According to Mulvihill and Baker (2001) the case represented "more than an incremental movement in term of the process development for [EIA]" and it further featured a "displacement of power and influence with Cree and Inuit First Nations and environmental groups acquiring more power through formal [EIA] and scoping process" (Mulvihill & Baker, 2001).

The Great Whale project demonstrated a commitment from the very beginning to integrate TEK into the assessment process (Mulvihill & Jacobs, 1998). Moreover the case "establishes an explicit basis for an intercultural approach to [EIA]; anticipates and addresses cultural barriers to consultation; reformulates problems to recognize cultural diversity; places a high value on the values and perceptions of stakeholders; and is inherently openended and nondeterministic" (Mulvihill & Jacobs, 1998). The process did not simply react to the proposal alone but considered the historical and actual context of development relationships between the North and South (Mulvihill & Jacobs, 1998). The process was further "accessible to a culturally diverse set of stakeholders, provided clear direction to the proponent in terms of study

requirements, and identified ways for the proponent to address the competing world views surrounding the project" (Mulvihill & Jacobs, 1998).

The case study serves as a great example of meaningful public involvement, addressing intercultural issues constituting ambitious and innovative scoping. These are valuable lessons that could be readily applied to future EIA processes of similar nature. The Great Whale illustrates how experimentation and adaptation can unveil the full potential of scoping and EIA (Mulvihill & Jacobs, 1998).

2.4. Case Studies: Sri Lanka

Five projects were identified as potential case studies to be examined in the light of environmental justice issues for this thesis. They included: the Puttalam Housing Project, the Post Tsunami Housing Reconstruction Project, the Weerawila International Airport Project, the Upper Kotmale Hydropower Project and the Southern Transport Development Project. The latter two cases, the Upper Kotmale Hydropower Project (UKHP) and the Southern Transport Development Project (STDP) were chosen for this study as they best represent and demonstrate environmental justice issues associated with project development, and provide examples of the various "contributing factors" discussed in the preceding sections, in particular:

- unhealthy reliance on foreign donors,
- lack of public involvement,
- corruption and bad governance,
- poverty, and
- ineffective EIA processes.

Both projects are associated with high environmental and social impacts, including destruction of major waterfalls and the relocation of thousands of people. Both projects are ongoing and represent the current situation faced by affected communities in Sri Lanka. The above make the study of these two projects interesting, relevant and ideal for exploring environmental justice issues.

The Asian Development Bank (ADB) and the Japan Bank for International Cooperation (JBIC) are the donor agencies for the UKHP and STDP. Both donor agencies have what seem to be stringent environmental and social policies. However, the case studies describe that there is a gap between these policies on paper and their implementation in reality.

The gap that exists between the written policy and its implementation in reality, and the resulting adverse environmental social impacts, have precipitated the creation of advocacy groups such as the Sri Lankan Working Group on Trade and International Financial Institutions (SLWG IFIs) and the Centre for Environmental Justice (CEJ). The SLWG IFIs was created in an attempt to "sharpen the public debate on [World Trade Organizations] and [International Financial Institution] policies, programmes and projects affecting the life forms, constituencies, communities and resources and amplify their position" (SLWG IFIs, 2006). They are a group of civil society organizations that monitor affairs of the Asian Development Bank (ADB), World Bank (WB), Japanese Bank for International Corporations (JBIC) and other export credit agencies and global institutions (SLWG IFIs, 2006). The Centre for Environmental Justice is a non-governmental organization that aims to "protect the environmental and social rights." They also provide services such as free legal assistance for people adversely affected by environmental problems (CEJ, 2008). Together, the SLWG IFIs and CEJ play a key role in providing information regarding environmental and social impacts associated with the UKHP and STDP.

2.4.1. Upper Kotmale Hydropower Project

History and purpose

Development of this project began in 1968 with the construction of a master plan for hydroelectric development in the Mahaweli Basin (Upper Kotmale Hydropower Project Environmental Management Plan [UKHP EMP], 2004). In 1985, the Government of Japan funded a feasibility study to further examine hydropower options in the upper reaches of the Kotmale Oya (stream). Five sites and eight alternate development schemes were examined in the study. The Upper Kotmale Hydropower Project (UKHP) was selected as the preferred alternative (Ceylon Electricity Board [CEB], 2004).

The demand for electricity in Sri Lanka has been growing at a rate of 7-8% per annum and this trend is expected to continue in the future (CEB, 2004). To meet the growth in demand, it is estimated that about 150MW of new generating capacity of power needs to be added annually. Forecasts by the CEB projected that over the next 15 years an additional 3238 MW of generating capacity would be needed to keep up with the demand. The UKHP, funded by the Japan Bank for International Cooperation (JBIC), was therefore considered an essential addition in fulfilling this requirement (CEB, 2004). The CEB (the implementing agency) was confident

that the project would generate 150 MW, to contribute 530 GWH of energy to the national grid every year (Withnage & Kodithuwakku, 2001).

The original EIA report was submitted in 1994, and construction of the project is currently nearing completion (as of 2008) (Kodithiwakku & Moonesinghe, 2004).

Project design

The Upper Kotmale Hydropower Project was designed to have an installed capacity of 150 MW (two units of 75 MW each). It was calculated to produce 409 GWh per annum. The project also included a 35.5 m dam located close to the town of Talawakelle (UKHP EMP, 2004). It was to have a reservoir with an area of 0.25 km². The powerhouse was to be located 491 m from the headrace tunnel, below a number of additional intakes to augment flow from the dam with flows diverted from other watersheds. The powerhouse would generate 150 MW from two 75 MW units (UKHP EMP, 2004).

The project construction also included improvements to existing roads and construction of new roads; building of transmission lines and switchyards; infrastructure to support the project during the construction phase (including campsites and equipment yards); and preparation of resettlement sites (UKHP EMP, 2004).

Area profile

The Upper Kotmale Hydropower Project is located in the Southern Highlands of Sri Lanka. It spans an area of 540 km² of the upstream catchments of the Kotmale Oya (Ceylon Electricity Board [CEB], 2004). The topography of the project area is mountainous and is predominantly rural. The majority of the population lives in small communities or on tea plantations (CEB, 2004) (Figure 4).

Project outcome, response and environmental justice issues

The Upper Kotmale Hydropower Project was rejected three times by state agencies (Withanage & Kodithuwakku, 2001) because the project had failed to identify and evaluate the location of alternatives and possible environmental and social impacts (Withanage, 1998). Impacts posed by the project included destruction of major waterfalls, possible earth slides, damage to the lifestyle of the people in the areas, heavy soil erosion in the area, drying up of a 30

km long downstream stretch of the rivers (and subsequent impact on the fauna and flora and the water users) and lack of proper planning for the relocation of approximately 600 families (Withanage, 1998).

In 1996, the Ceylon Electricity Board appealed against the decision of the Central Environmental Authority (CEA) and eventually the project was granted approval on political grounds. This decision was made without a proper public consultative process (Kodikara, 2002). Environmental Foundation Limited (EFL: a group that has been arguing against the UKHP from its inception) sought relief for an injunction before the Court of Appeal. However, it was only granted a hearing. According to Kodikara (2002), the re-approval of the project was granted without proper consideration of the EFL's opinion.

Figure 4: Map of Sri Lanka and Approximate Location of the UKHP and the STDP



Although public opinion was considered in the decision making process, no member of the public was invited to the hearing of the last appeal (Withanage, 1998), which resulted in the

CEB obtaining the green light for the project. The justification as to how this project was ultimately approved, after been rejected three times by three technical committees (comprising of more than 40 scientist and sociologists) remains questionable (Withanage, 2001). Failing to include public participation in the appeal hearing illustrates a large possibility of bias towards the CEB, and is considered an act of injustice to the public (Withanage, 2001).

Eco-activists have repeatedly warned of the threat of landslides that could endanger several townships downstream. Environmental Foundation Limited (EFL) highlighted the fact that 50% of the project was located within a well-known landslide zone. Also, under the project, the present delicate stability of the hill side had the potential to be disturbed by rock blasting, deep excavation and related activities (Kodikara, 2002). Environmentalists have also warned of the dire consequences of flooding of the nearby town, Talawakelle (Kodikara, 2002). Such impacts were not properly considered, and according to Withanage and Kodithuwakku (2001), surveys prepared for the project were entirely inadequate.

Apart from the environmental and social impacts of the project, it was also doubtful if the plant would be able to generate the promised electricity requirements and thus be economically viable. In response to these concerns, proponents declared that "the power need of the country and the ensuing economic benefits claimed for the project are more important that the question of the waterfalls" and hinted that the EIA procedure delayed the economic development of the country (Withanage & Kodithuwakku, 2001).

Another major argument made by those opposing the project was that hydropower is heavily dependent on weather conditions and thus the low rainfall in the area and dry weather conditions make it difficult to guarantee a consistent output of 150 MW of generated power capacity. Some experts speculated that it would generate less that half of that which was proposed (70 MW) (Withanage & Kodithuwakku, 2001).

Advocates against the project, Withanage and Kodithuwakku (2001) stated that the "financial burden of this project was not justified by the amount of electricity it could generate." It was the largest project to be ever funded by Japanese foreign aid, and there are many who wondered why the Japanese government wished to spend such a large amount of money on a risky project (Kodikara, 2002).

Proponents of the UKHP had also failed to seriously consider alternative locations for the project. The Central Engineering Consultancy Bureau (CECB) suggested other alternatives such

as the "Yoxford Option" to the UKHP (Withanage & Kodithuwakku, 2001). According to the CEBC (a reputed government constructing engineering firm and partner of the feasibility group), a dam constructed in the region of the Yoxford Option would pose minimal environmental and social costs compared to the Upper Kotmale region. Additionally, there would be no need for resettlement of dwellers and the project would not destroy any waterfalls (Withanage, 1998). The Yoxford Option, however, was rejected on the basis that it contained several adverse geological features; in particular, the presence of a crystalline limestone band and the associated threat of landslides (Withanage & Kodithuwakku, 2001). Thus, the CEB ruled-out Yoxford as a possible alternative. Interestingly, the proposed site for the UKHP also possesses the same crystalline limestone bands. This fact was not properly considered in the geological evaluation of the UKHP report, and the project received approval (Kodithuwakku & Moonesinghe, 2004). Withanage and Kodithuwakku (2001) confirmed that there was no serious commitment to scoping of this alternative, and that the report dismissing the Yoxford Option constituted an "incomplete analysis."

A constant complaint by advocates against the project was that proponents for the project failed to consider outcomes of past experiences related to large scale dams. For example, the Mahaweli Project that promised water to a large portion of the country and had planned to export excess electricity to India, was responsible for the forced resettlement of more than 111,400 families (700,000 people) in 1992 (Withanage, 1998). People who were uprooted from their ancestral homes consequent to the project implementation, in return, inherited a "waterless desert", without basic services such as health care, transport, education or other social services (Dissanayake, 2007).

The UKHP is also set up to trigger intergenerational injustice, since the debt incurred for such a massive investment would have to be paid back by future generations (Dissanayake, 2007). And so, Withanage and Kodithuwakku (2001) ask whether "justice was served to protect the greater interest of the public and the future generation" in implementing such projects in Sri Lanka. According to these authors, studying the approval process would lead to realization of a destructive trend where projects are readily approved even if the environmental and social consequences are disastrous.

It perhaps comes at no surprise that, as with other similar development projects, the people most adversely affected are the poor and the underprivileged. They are the people who

are most dependent on natural resources and suffer the most when such resources are degraded or depleted (Dissanayake, 2007). Proponents of the project noted that there would threats of power cuts if the project was not implemented. Ironically these power cuts affect the people in the city and the most affluent, not the poor who are used to living without these privileges (Dissanayake, 2007). According to Dissanayake (2007), the immediate benefits of the project are to politicians, contractors and businessmen with long term benefits to the already privileged persons of society. In contrast, the poor people pay the price; suffering the long-term negative impacts of the project (Dissanayake, 2007).

2.4.2. Southern Transport Development Project

History and purpose

The Southern Development Project (STDP) loan was approved in November 1999, and is Sri Lanka's first major expressway to be built since independence in 1948 (Asian Development Bank [ADB], 2007; Road Development Authority [RDA], 2007). The project aims to link by road, Colombo (the political and financial capital) with the southern cities of Galle and Matara (Road Development Authority, 2007). The concept is a controlled access highway with eight interchanges which runs approximately 128 km (Asian Development Bank, 2008a). The Asian Development Bank (ADB) and the Japan Bank for International Cooperation (JBIC) are providing parallel capital funding for this project while the Government of Sri Lanka is to finance operation and maintenance. The Road Development Authority (RDA) acts as the Implementing Agency while the Ministry of Highways and Road Development Authority is the Executing Agency for the project (RDA, 2007).

The main objective of the project is to facilitate development in the southern region by merging it with the economic mainstream of Sri Lanka and thus improve socioeconomic opportunities for residents (RDA, 2007). The road is to serve as a catalyst for increasing economic/commercial growth of the region. Linking the northerly industrial/commercial areas in this manner is expected to enhance the living standards of the affected population (RDA, 2007). Secondary objectives of the project are to alleviate poverty in the South by improving access to employment opportunities and induce development in agriculture, trade and tourism (ADB, 2007; RDA, 2007). Another objective of the project is to produce a sustainable reduction in the

country's very high road accident rate. Road safety is a major issue in the country and is linked to high fatality rates and economic costs (RDA, 2007).

The EIA for the project was undertaken in 1999, and construction of the project is expected to be completed by 2010 (ADB, 2008c).

Project design

The southern 60 km of the expressway is to be financed by ADB while JBIC is financing the northern 68 km (ADB, 2008a). The ADB financed section is to be constructed as a two-lane expressway, with the intention that it will eventually be expanded into a "four-lane, high-capacity, limited-access expressway", similar to the JBIC financed section (RDA, 2007).

The expressway is to be constructed with an asphalt concrete pavement and shoulders, a substantial number of bridges and other drainage structures, and major and minor intersections with other roads (ADB, 2008a).

Area profile

The project area is dominated by agriculture. The hill ridges are mostly cultivated as tea, cinnamon, rubber and coconut plantations, while valleys are dominated by paddy land and irrigation systems (Road Development Agency [RDA], 2007). Altitude in the region varies from 2 m to 30 m above sea level and the annual rainfall varies from 3,000 mm to 5,000 mm (RDA, 2007) (Figure 4). Piped water supply is available in some areas near the expressway while elsewhere the population is reliant on tube wells and dug wells. The expressway crosses five major rivers as well as many small tributaries (RDA, 2007).

Project outcome, response and environmental justice issues

The expressway crosses over 60% high ground and 40% wetland (Withanage et al., 2004). The undulating feature demands for the road to be constructed by using a cut and fill method. However, this approach has been linked to many major environmental problems (Withanage et al., 2004). For instance the stability of the geological formation has been threatened due to the exploitation of soil, and there is the possibility for small earth slips to occur. This situation may be further aggravated as a result of monsoonal rains (Withanage et al.,

2004). Moreover extensive soil erosion due to construction of the project has greatly affected adjacent surface water quality (Withanage et al., 2004).

Aquatic life has been threatened due to the change of flow patterns and siltation in waterways. An improper drainage design has resulted in aquatic fauna being severely threatened. Many dead specimens of fish in pools created along the side of the road were observed. Other larger animals such as reptiles have also been affected since their movements have been restricted due to improper road design (Withanage et al., 2004). In addition, natural waterways and irrigation canals have been blocked by filling material, and contractors seem to have paid no attention to drainage and flow patterns (Withanage et al., 2004).

From the beginning of the project proposal in 1992, many people opposed the construction of the expressway (Withanage et al., 2004). The project has generated serious social, environmental and legal issues. Some of the main controversies associated with the STDP as outlined by Withanage et al. (2004) include: weak public participation and consultation process; inadequate information disclosure procedures; issues related to resettlement and unsatisfactory resettlement packages; a significant shift in the "trace" (the route) of the highway (without public participation and after approval for the project was granted); non-consideration of proper alternatives and incorrect evaluation of alternatives; and inadequate environmental considerations and a weak EIA Report.

According to the EIA prepared by the RDA, the total population affected by the project is approximately 760,000. Over 1,325 households, approximating 6,186 individuals will be displaced by the end of project development. Of these, 38% of households were relocated to 32 resettlement sites (RDA, 2007). The remaining 65% chose self-relocation in which they opted to find their own land and houses. In addition, the project has also affected more than 4,000 households close to the ROW (right-of-way) because of loss of land/houses and displacements (RDA, 2007).

Considerable controversy lies in the fact that the trace used throughout the documents and studies was not the one that was implemented by the RDA (Withanage et al., 2004). The "final trace" was arrived at by modifying the initial path, the "combined trace" significantly eastward in several areas (RDA, 2007).

There is concern that the Sri Lankan RDA is withholding proper compensation from communities affected by the STDP (Bank Information Center, 2005b). Rent stipends and other

relocation allowances are also being withheld. In addition, houses and land belonging to the affected communities are allegedly grossly undervalued (Bank Information Center, 2005b). According to the Sri Lanka Working Group on Trade and International Financial Institutions (SLWG IFIs) (2004b), many people who have received compensation are not satisfied with amounts received. A few received unprecedented compensation and many others expected the same but came away disappointed because they did not have adequate bargaining power (SLWG IFIs, 2004b).

In addition to affected communities being dissatisfied with their compensation packages, there are those who had not received parts of compensation for their relocation by 2004 (Withanage et al., 2004). According to the EIA requirements, living standards of relocated people must be maintained at the same level or enhanced (Withanage et al., 2004). However, many are faced with conditions that are much worse than they have had to deal with before relocation. The RDA did not provide proper guidance especially in the area of using compensation for building new houses (Withanage et al., 2004). Many houses have been built without considering the tenants' capability of constructing a house. In addition, relocated families face unsatisfactory infrastructure facilities. For example, the water supply is very poor compared to their previous living conditions. Some people are also unable to tap into electricity from the national grid; a situation that most of them did not have to face before relocation (Withanage et al., 2004).

Most of the land allocated to the relocation of people is situated on steep slopes and the RDA has been criticized for not developing the land in a proper manner. Some of these lands are under threat of earth slips and show signs of excessive erosion (Withanage et al., 2004). In addition, internal roads are not developed and those that are, become easily eroded by rain. The drainage system servicing the area is largely inadequate. These communities are further inconvenienced as some of the homes/land that were given over (for relocation) in 2003 had not received permanent addresses nor did they receive deeds for their new homes (four years after commencement of the project) (Withanage et al., 2004).

In February 2004, the Supreme Court of Sri Lanka found that the human rights of people whose lands have been taken away due to the project had been violated (SLWG IFIs, 2004a). This infringement was attributed to a lack of "information and participation, and the failure to do an Environmental Impact Analysis" (SLWG IFIs, 2004b). In addition, the Court found that the

project had not complied with requirements of the *National Environmental Act* (SLWG IFIs, 2004a). The decision of the Supreme Court confirmed that the project has also violated ADB's own policies which include policies on environmental and social impact assessments, public participation in decision making and involuntary resettlement (SLWG IFIs, 2004a). Although the Court ruled that human rights of people have been violated, it has not stopped the road construction, and so there remain many unsolved issues (SLWG IFIs, 2004a). The verdict also does not guarantee protection to affected people (Withanage et al., 2004).

According to the SLWG IFIs (2004a), the Sri Lankan government originally developed a complete Environmental Impact Assessment and Social Impact Analysis for the road project in consultation with affected communities (SLWG IFIs, 2004b). However, the Asian Development Bank and the government ultimately decided to construct the expressway along a new route; a decision for which public consultation was not sought (SLWG IFIs, 2004b).

The inefficiency of the implementing agencies of the project is demonstrated by the fact that the public was not even given the map and design of the expressway before construction of the project. This also displays the lack of accountability of the agencies as well as highlights some major transparency issues associated with the public consultation process (Withanage et al., 2004). Further, the RDA did not design a comprehensive drainage plan and thus this information has not made its way to the public forum (Withanage et al., 2004). Many people did not have access to reports such as the EIA of the project and it was difficult for the people to find information about the resettlement plan; documents which should have been made freely available to the public (Withanage et al., 2004).

The public consultation process for the STDP consisted of parliamentary members threatening to arrest people if they did not allow construction of the expressway (SLWG IFIs, 2004b). Road surveying created terror in some areas as surveyors went to villages accompanied by the police. A person in Gelanigama said that the police came into their village with guns and tear gas and threatened to arrest them if they did not comply (SLWG IFIs, 2004b). The process was described as one full of "terror, bribes, betrayals and displacements" (Withanage et al., 2004).

The Asian Development Bank has also received much criticism from various non-profit organizations and other environmental groups for irresponsible management of the project. The Compliance Review Panel (an independent forum established by the Board of Directors of ADB,

responsible for performing the compliance review of the ADB) found violation of seven ADB policies in the STDP and recommended 19 courses of action (Asian Development Bank Compliance Review Panel, 2006; Bank Information Center, 2005a). The Panel accused the ADB of failing to perform a sufficient EIA. They were further criticized for inadequate public information and participation in the environmental review process. The Asian Development Bank was also blamed for the significant shift of the road trace that was conducted without input from the public (Bank Information Center, 2005a).

2.4.3. Factors Contributing to Environmental Injustice: UKHP and STDP Case Studies

The UKHP and STDP provide insight into the various social and environmental impacts that result from project development in Sri Lanka. Although impacts on the environment and relocation of individuals are often required for the development of large scale infrastructure projects such as the UKHP and STDP, what is significant in the case of these two projects is that many of these impacts were to a large degree avoidable. In addition, the safeguards employed to remove or mitigate the adverse social and environmental impacts associated with both cases seem to have been largely ineffective.

The case studies also illustrate how the various factors that contribute to environmental injustice during project development (section 2.2), acted individually and collectively in the resultant controversial projects that were mired in a plethora of environmental injustice issues. In particular, they provide examples of how an unhealthy reliance on foreign donors, a lack of public involvement, corruption and bad governance, poverty and ineffective EIA processes can result in environmental injustice.

Lack of technical resources

The lack of technical resources was named in section 2.2. as a factor contributing to environmental injustice during project development in countries such as Sri Lanka. Although the contribution of this factor is not explicitly illustrated by the case studies, it is extremely relevant to the situation that Sri Lanka faces today. In general, the project approving agencies (PAA) (responsible for conducting the scoping process of the EIA to determine environmental and social impacts) "do not have full-time staff, space, or allocations of funds and equipment"

(Kodituwakku, 2004). Further, the Central Environmental Authority (CEA) (the State agency responsible for the implementation of the EIA requirements under the NEA) is usually understaffed (Atapattu, 2001). It is not unreasonable to assume therefore that both the UKHP and STDP were developed and implemented under these conditions of sparse technical resources and that the lack of skill, experience, manpower and funds contributed to the environmental injustice that is attributed to these two projects.

Unhealthy reliance on foreign donor agencies

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The STDP case study highlights the extent of non-implementation of ADB's ideal safeguard policies under which development was supposed to be conducted. The STDP led to "serious problems to the affected communities as it fail[ed] to deliver justice through such policies" (Withanage, 2004). The project was justified under the banner of poverty alleviation but the entire procedure under which development took place has been questioned and labelled as "poor." Among others, some of the main controversies were: weak public participation/consultation process; inadequacy of information disclosure; issues related to resettlement and unsatisfactory resettlement package; frequent changing of the traces; non-consideration of the proper alternatives and wrong evaluation; inadequate environmental considerations and the weak environmental assessment report (Withanage, 2004).

According to the Asian Development Bank, their safeguard polices are "central to achieving sustained development impact and poverty reduction." Further these policies are meant to "avoid, minimize or mitigate adverse environmental impacts, social costs to third parties or marginalization of vulnerable groups that may result from development projects. Safeguard policies prescribe 'do no harm' requirements that must be met for all ADB projects" (Asian Development Bank, 2008b).

If the STDP was to be evaluated against these ADB principles, the project would fall short in almost every area. The project has in fact left widespread and avoidable destruction of the environment. The project resulted in affected communities being treated with disrespect, and has led to severe environmental injustice among them.

Of the policies employed by ADB, the Environment Policy and the Involuntary Resettlement Policy are two safeguard policies that are particularly relevant to the STDP. According to ADB, their Environmental Policy aims to (ADB, 2008b):
- promote environmental interventions that reduce poverty directly
- assist member countries to mainstream environmental considerations into economic growth and development planning
- help maintain global and regional life support systems that underpin future development
- build partnerships to maximize the impact of ADB lending and nonlending activities
- integrate environmental safeguards across all ADB operations

Again, the STDP case study demonstrates that these policies although seemingly "perfect" on paper, had little relevance to the actual project. For example, environmental considerations did not seem to be a critical part of economic growth and development planning in the case of STDP. Also, environmental safeguards were not adequately or effectively applied across all ADB operations in this case.

According to ADB, their Involuntary Resettlement Policy aims to (ADB, 2008b):

- avoid involuntary resettlement wherever feasible
- minimize resettlement where population displacement is unavoidable by exploring all viable project options
 If, nonetheless, individuals or communities must lose their land, means of livelihood,
- social support systems, or way of life they should be
- compensated for lost assets and loss of income and livelihood
- assisted for relocation
- assisted so that their economic and social future will generally be at least as favorable with the project as without it
- provided with appropriate land, housing, infrastructure, and other compensation, comparable to the without-project situation
- fully informed and closely consulted on resettlement and compensation options

It is reasonable to infer that if the above environmental and resettlement policies of the ADB were appropriately implemented, the STDP would have resulted in minimal impacts on the environment and affected communities. However, this was not the outcome that was experienced. These ideal policies ultimately functioned as nothing but empty promises, especially when considering the manner in which affected communities were displaced, the land acquisition process, the inadequate assistance in relocation, withholding and non-payment of proper compensation and the inadequate/absent consultation processes took place (Sri Lankan Working Group on Trade and IFIs [SLWG], 2004a; Withanage et al., 2004).

According to reports presented by NGOs and other concerned citizens, JBIC has also failed in its aim to ensure development occurs in an environmentally and socially safe and sustainable manner. JBIC jointly financed a portion of the STDP project with ADB and also financed the UKHP; projects that resulted in major impacts on the environment and significant harm to affected communities. Table 2 displays some of the "JBIC guidelines for confirmation

Table 2: Evaluation of Upper Kotmale Hydropower Project against Japan Bank for International Cooperation's ______Guiding Principles

JBIC guiding principles	Evaluation of principles against the UKHP
Environmental and social considerations	
 To prevent or minimize the impact on the environment and local communities which may be caused by the projects for which JBIC provides funding, and not to bring about unacceptable effects JBIC makes the utmost efforts to ensure that appropriate environmental and social considerations are undertaken, in accordance with the nature of the project for which JBIC provides funding JBIC confirms that project proponents are undertaking appropriate environmental and social considerations 	 Impacts due to project development included: destruction of major waterfalls, possible earth slides, damage to lifestyle of neighbouring communities, heavy soil erosion, drying up of rivers of approximately 30km downstream and consequent impacts on flora and fauna, area prone to flashfloods Project noted as a destruction of Sri Lanka's heritage (Withanage, 1998) Livelihoods of those in the Talawakele region (neighbouring the project area) were affected (partially submerged due to project) Lack of proper planning for the relocation of approximately 600 families (Withanage, 1998)
Transparency and Accountability	
 Takes note of the importance of transparent and accountable processes, as well as the participation in those processes of stakeholders in the project concerned, including local residents and local NGOs affected by the project JBIC endeavors to ensure transparency, predictability and accountability in its confirmation of environmental and social considerations For projects with a potentially large environmental impact, sufficient consultations with stakeholders, such as local residents, must be conducted via disclosure of information from an early stage where alternative proposals for the project plans may be examined 	 Transparency and accountability of the project has been challenged as the PAA was also the parent ministry of the Ceylon Electricity Board (PP) (Zubair, 2001) Public not invited to the hearing of last Appeal, when permission was granted for project (Withanage, 1998)
Consideration of Alternatives	
 Alternative proposals or minimization measures to prevent or reduce adverse impact must be examined and incorporated into the project plan Such examination must include analysis of environmental costs and benefits in as quantitative terms as possible and be conducted in close harmony with economic, financial, institutional, social and technical analysis of the project The findings of the examination of environmental and social considerations must include: alternative proposals, mitigation measures and be recorded as separate documents or as a part of other documents 	 The Central Engineering Consultancy Bureau suggested the "Yoxford Option" as a suitable alternative to the UKHP, however, this was not properly considered in the geological evaluation of the UKHP report, and the project received approval (Kodithuwakku & Moonesinghe, 2004; Withanage & Kodithuwakku, 2001) Proper analysis of the economic cost benefit analysis would have indicated that there was a possibility that the project may not be economically viable The "financial burden of this project is not justified by the amount of electricity it can generate" (Withanage & Kodithuwakku, 2001)

Source: Column 1. JBIC (2002).

of environmental and social considerations" and an evaluation of those principles as it relates to the UKHP.

The assessment of the UKHP in Table 2, however, represents an evaluation against only a few selected JBIC guiding principles. The JBIC document outlining the guidelines for environmental and social considerations is a comprehensive one. As with the ADB principles, it seems that these safeguards did not materialize in reality, at least in the cases of the UKHP and STDP.

It seems as though JBIC's role in the UKHP was only limited to providing financial support for the project. A closer examination of JBIC's guiding principles, however, show that they are committed to go far beyond simply providing the necessary funds for development of the hydropower dam (JBIC, 2002).

Borrowers have relied on IFIs to such a large extent that they have neglected to pay attention to the role that they play in ensuring safe development. The outcome is a twisted state of affairs, where each party relies on the other to properly conduct development and follow safeguard processes. Each party hopes that by relying on the other, issues such as environmental injustice will be dealt with appropriately. This false reliance on the "other party", however, will only result in perfect theories on paper and zero action in reality.

Lack of public involvement

The UKHP and STDP are two cases which required involved in-depth public participation (Withanage, 2006a). However, the "interest of EIA decision making in now solely left to few authorities" and although the "EIA process is open for general public, it is mostly used by the concerned public" (Withanage, 2006a). Moreover the "concerned community is shrinking due to lack of confidence [in] the process. Public opinion is being considered as an obstruction to government (mostly political) development decisions" (Withanage, 2006a). The above criticism is not unique to Sri Lanka; it seems to be an inherent problem in many developing nations. According to Withanage (2006a), the public consultation process in the Third World is largely unsatisfactory.

The UKHP further illustrate these criticisms. In the case of the UKHP, although public opinion was built into the decision making process, the public was not invited to the hearing of the last appeal, where approval for the project was granted (Withanage, 1998).

Even worse was the case of the STDP, where public consultation turned into public threatening, when politicians visited villages with armed police by their sides, threatening to arrest anyone who did not comply with the project and allow construction of the expressway. In what was supposed to be a democratic decision making process, it seems almost unbelievable that such an event occurred. In this case, public consultation took on a whole new meaning.

Many of the affected people did not have access to the EIA, and found it difficult to access any information about the resettlement plan; a document that should have been available to the public since the project would directly affects the lives of all those who were required to be relocated because of the road development. The public did not receive a map or sketch of the expressway (Withanage et al., 2004).

These examples prove the importance of having clear guidelines, effective monitoring and enforcement of proper public consultation. Leaving public consultation in the hands of project proponents can, as it did in the above case, result in injustice among affected communities. In addition to being disproportionately affected by the development project, these people were also forced to comply with proponents who did not seem to be concerned about their opinion or wellbeing.

Corruption and bad governance

Perhaps the best approach to explore the extent of corruption and bad governance and its manifestation as environmental injustice in Sri Lanka is by examining its effects in the STDP and the UKHP. The STDP in particular describes the powerful role political influence can play during development and depicts the extent of corruption and the tragic consequences that affected communities often bear as a result of bad governance.

According to Withanage (2004):

As in many other development projects Sri Lanka politicians think that they should be the only decision makers. This has lead to mismanagement, corruption, social unrest, delay, disregard of social and environmental concerns and terror. Bureaucracy as well as the lending institutions and consultants are also responsible for these mishaps.

The STDP serves as a clear example of the above. Communities directly affected by the project were threatened by parliamentary members if they did not comply and support development (Withanage, 2004). The Road Development Agency officials were "very rude to people" and used the police as surveyors. Police even arrested those who showed opposition to

the surveying (Withanage, 2004). Government agencies were reluctant to share copies of monitoring plans which should have been made available to the public.

According to Withanage (2004), the STDP posed an "unacceptable risk" to the environment, society and economy of the area. Affected communities in the town of Akmeemana said that the road traversed through their village to protect land owned by a rich businessman. Villages in the area were reported as saying "politicians took bribes to protect those lands" (Withanage, 2004). Although communities went through all available judicial mechanisms available to them and wrote to the Inspection Panel of the ADB, they only resulted in failed attempts (Withanage, 2004).

The project approval process for the STDP shows bad governance on the part of the national regime and also proves the widespread corruption behind the project. Withanage (2004) notes that that "the Prime Minister has advised some politicians" and that "[t]hey used political pressure to create terror in the areas that people were opposed to this project. They gave bogus hopes to people affected." People once believed in various governance and accountability mechanisms. This is no longer the case, however, since all attempts of pleading for justice has resulted in failure (Withanage, 2004). Villages affected by the project were noted as saying that they have "no faith" in the politicians who once promised them economic relief. Not only have people given up on policies of the national government but also those associated with the multilateral banks such as ADB. As a result, there is lack of faith in both national and international standards (Withanage, 2004).

Poverty

The STDP case study illustrates how the rich and affluent largely avoided the environmental harm that result from the development of the expressway, and how the poor bore the brunt of most of the environmental ills associated with the project. Approximately 25% of the population in the project area were below the national poverty line (ADB, 2007). One of the main objectives of the project was founded in the argument that by facilitating development in the southern region it would alleviate poverty in the area. However, just a brief examination of the reports about the development process and the aftermath of the project, point out that it is the poor who have suffered most.

Even once the STDP is complete and is able to provide those in the south with improved access to employment and basic services, it will still not bring benefits to those relocated to locations away from the expressway. These individuals, who gave up their homes and livelihoods for a construction project that they knew nothing about, may never share in the benefits that the expressway promised. This is a classic example of harm falling on the already-disadvantaged. Communities affected by the project: were uprooted and relocated (lost homes, social community and livelihood); were relocated to areas of worsened conditions; and would likely not benefit from the project because of their relocation to areas away from the expressway.

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The UKHP serves as another example of how affected communities, specifically the poor, hardly profited from development. Dissanayake (2007), in his report on The Upper Kotmale Hydro Power Project states:

Most of the people who would be affected by the UKHP, as in all such development projects around the world, would be the poor, the underprivileged. They are the people who are more dependent on natural resources. When such resources are degraded they suffer the most. Not the affluent and the over privileged, who are the people who promote such projects. The UKHP is needed by only a very small percentage of people in Sri Lanka. A very small percentage of people consume a very large percentage of electricity generated. Those who promote UKHP warn people of power cuts. Power cuts too affect the city people and the most effluent, who cannot survive without their airconditioning, television, music, washing machines, vacuum cleaners, dish washers and every thing else....The immediate benefits of projects like UKHP will be to the politicians, the contractors and the businessmen, while the long term benefits would be to the over-privileged. It would be the poor people who would be paying for it, while suffering all the adverse effects of such projects.

Is there any relief for people dwelling in poverty? How might environmental injustice caused by poverty be mitigated during project development? According to Thakur and Wiggen (2004) "[p]overty reduction hinges on reducing inequality through targeted pro-poor policies." However, the experience has been that existing pro-poor policies seem to have only served as theories, and have yet to be applied in reality. The STDP was founded on the basis of poverty alleviation for the southern parts of Sri Lanka, but in attempting to accomplish its project goals it has brought environmental and economic devastation to the affected communities. The project was enthusiastically backed by the funding agency, the ADB, as it fitted well into their mandate of poverty alleviation policies. However, tracking events of the project thus far and learning about the devastation it has brought to some communities, challenges ADB's project objective of poverty alleviation. Although the development of the expressway may in the long run facilitate

economic development in the southern region of Sri Lanka, the immediate injustice brought upon people for its development cannot be ignored nor can it be excused.

The UKHP also illustrates the injustice that may occur among affected communities who heavily rely on natural resources. Communities in the Upper Kotmale region were dependent on the surrounding natural resources for their survival. However, many of these resources were destroyed once the hydropower project was implemented. In addition, many were uprooted and relocated to regions where living conditions and services were worse that they had experienced before.

Ineffective EIA process

The UKHP and the STDP case studies illustrate that requirements of the EIA mandated under the *National Environmental Act* were not seriously considered. These case studies further confirm Kodituwakku's (2005) comment that "[i]n Sri Lanka the EIA process is often just a paper one." Examination of project alternatives; identification of environmental and social impacts; mitigation of adverse impacts and public involvement are all basic components of an EIA. However, as the two case studies illustrate, these components were hardly taken into consideration during the development process in Sri Lanka. The UKHP and the STDP case studies provide examples for the harm that may befall affected communities as a result of weak and ineffective EIAs, and exemplify how easily this tool can be misused to favour various agendas.

The EIA process in both case studies was not used as intended. Although both the ADB and the JBIC (the donor agencies) have what seem to be "ideal" safeguard policies that ensure fair treatment of affected communities, these policies have in reality amounted to nothing but theoretical constructs which did little to prevent the widespread environmental injustice that resulted from these projects.

Although considering alternatives is mandated under the *National Environmental Act*, they were not properly considered in the case of the UKHP. The case study in section 2.4.1. describes how the project was rejected three times due to inadequate consideration of alternatives.

A key principle of an EIA is to identify potential social impacts so that subsequent mitigatory measures could be employed to minimize adverse impacts of the project. The

aftermath of the STDP suggests that these social impacts were not appropriately dealt with. The project affected 760,000 people and displaced over 6000 individuals with basic issues such as compensation and resettlement not being adequately considered (Bank Information Center, 2005b; RDA, 2007; Withanage et al., 2004).

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Zubair (2001) offers some suggestions for improving the EIA process in Sri Lanka. For example, he notes a more stringent set of guidelines will help the EIA to be more effective in protecting both the environment and affected communities (Zubair, 2001). He also suggests that the list of prescribed projects should be expanded and thresholds should be reduced, which calls for supporting legislation to be more stringent.

Zubair (2001) further suggests that there should be a method for assessing cumulative impacts of multiple projects (Zubair, 2001). The number of days open for public participation should be increased to more than 30 days and there should be more guidance on projects to avoid conflict of interest. In addition, Zubair (2001) states that safeguards that increase transparency of projects should be employed to ensure that PAAs are neither negligent nor politically influenced (Zubair, 2001). It is even suggested that licensing EIA consultants should be considered (Zubair, 2001). These are all valid recommendations that could perhaps significantly strengthen the EIA process. Improving the EIA in this manner will take the process one step closer to guaranteeing that affected communities are treated fairly; one step closer to ensuring environmental justice is upheld.

CHAPTER THREE

This chapter introduces the "environmental justice matrix"; a tool that can be used to measure the degree of environmental injustice, particularly with regard to major infrastructure project development in Sri Lanka. The rationale, scope and utility of the environmental justice matrix are described in detail. A template and guidelines for use are also presented. To demonstrate the functionality of the matrix, the case studies presented in section 2.4. are evaluated against the indicators in the environmental justice matrix. This is conducted in an attempt to showcase the benefits and characteristics of the matrix as a tool that enables better incorporation and consideration of social impacts in the development process.

3.1. Measuring Environmental Justice

Environmental justice has been measured in various ways, and has often resulted in contradictory outcomes (Harner et al., 2002). The literature on environmental justice has been characterized as having failed to effectively measure overall impact from an extensive range of ecological hazards (Krieg & Faber, 2004). A common criticism among scholars is that there are a number of "conceptual, theoretical, and methodological issues in the literature on environmental justice and environmental inequalities" that are in need of improvement (Pellow, 2000). Regardless, researchers and policy makers have long recognized the value of trying to measure environmental justice (Harner et al., 2002).

It is challenging to demonstrate that one method of measurement is better than another as "no two environmental inequality struggles are identical" (Pellow, 2000) and therefore analyses are not reproducible and cannot be subjected to multiple trials to prove the accuracy of a given methodology. It is also not always obvious when environmental harms shift to poor or minority communities and so resulting discrimination is sometimes unclear. For example, it is important to remember that it may not always be that the poor and minority communities are treated with blatant discrimination. Perhaps they are located closer to high-risk industries for example, due to market forces, and not necessarily as a result of discriminatory decision making (Petrova, 2004). Therefore, when trying to determine the type and/or magnitude of the case of environmental injustice, it is important to know why some people are exposed to a worse environmental harm than others (Petrova, 2004).

There is a definite need to develop sound methodology that will be able to provide evidence of discrimination in relation to environmental conditions (Petrova, 2004). Developing such a methodology for measuring environmental justice can also help broaden policy debate and facilitate a more open approach to setting policy (Petrova, 2004). It is also important for "identifying and measuring environmental injustice, so that steps can be taken to right ecological wrongs" (Petrova, 2004).

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Indicators are often used as a method for citizens and researchers alike to gauge the level of existing issues (Petrova, 2004). Activists can make use of such indicators to prove or show the existence of environmental injustice. Moreover, if these indicators are linked to policies, it will allow for corrective measures to follow shortly (Petrova, 2004). Indicators of environmental justice can prove to be an integral component of "advocacy and awareness-raising processes" and may constitute a long term benefit of providing an "increased over-all capacity for analyzing environmental justice issues over time and for making assessments and predictions about future development patterns" (Petrova, 2004).

Indicators of environmental justice may range from common social and economic indicators such as income per capita to legal indicators such as level of personal security available to an individual (Petrova, 2004). Although much research has been dedicated to the creation and identification of appropriate indicators, according to Krieg and Faber (2004) there is still an absence of a full range of environmental indicators.

3.2. The Environmental Justice Matrix: Rationale, Scope and Utility

This thesis recognizes that there is a significant lack of appropriate indicators against which to measure environmental injustice, particularly during project development in a developing country such as Sri Lanka. Moreover, indicators and methodological approaches that have been developed and widely used in the West (of which there are many) cannot be employed in Sri Lanka since the type of environmental injustice faced in the two regions is different (section 1.2.). There is a definite need for a comprehensive set of environmental justice indicators that are able to assist in identifying environmental injustice or the potential for environmental injustice, so that corrective steps could be employed to mitigate or prevent adverse impacts.

Creating a set of indicators to determine if environmental justice exists and the extent to which it is prevalent as a result of project development in Sri Lanka requires a set of indicators that: 1) captures a range of issues that may occur during project development; 2) is measurable; and 3) is appropriate to the Sri Lankan situation.

Choosing appropriate indicators is vital for maintaining the validity of environmental justice measurement studies. Failing to do so may skew results and provide decision makers with misleading information.

This thesis responds by providing a set of indicators that represent a variety of issues that are encountered during the different phases of project development in Sri Lanka, that have the potential to cause environmental injustice among affected communities. These indicators are presented in a matrix that is designed to function as a tool to evaluate the degree of environmental injustice. The use of matrices in EIAs has long been accepted as a method for assessing and evaluating environmental impacts. One of the most common matrices, the "Leopold matrix", was proposed by Leopold et al. in 1971. There are other matrices that have since been developed and employed, for example, Peterson's matrix and the component interaction matrix (Sinha, 1998). This thesis also uses a matrix approach to assess and evaluate environmental impacts of a project; specifically targeting environmental justice issues associated with project development.

One of the primary goals of the environmental justice matrix is to create awareness and draw attention of stakeholders to issues that have the potential to cause environmental injustice among affected communities. The matrix serves to keep environmental justice at the forefront: at every stage of the project, especially during the assessment and decision making process. Ideally, it will function as a tool that is able to highlight areas of concern and alert stakeholders of sensitive issues that need to be dealt with before proceeding with the implementation of the project. The environmental justice matrix proposed in this study is a novel approach to assessing and evaluating the adverse environmental and social impacts of a project. It is one that understands and responds directly to the Sri Lankan experience.

The following sections will describe the methodology used to create the matrix and describe the rationale for choosing the indicators and the approach taken in setting indicator criteria.

The environmental justice team (EJT)

The matrix is intended to be completed using third party validation to ensure credibility and integrity of the evaluation process. Ideally it is to be carried out by an environmental justice team (EJT); an interdisciplinary group of experts committed to ensuring maximum protection of the environment and affected communities. The EJT is the most critical part of the matrix evaluation process. The combination of expert knowledge within this team is essential in guiding and advancing the evaluation. They will be responsible for identifying potential environmental injustices associated with the project and providing subsequent recommendations to preclude or mitigate these issues to various stakeholders. Thus the EJT's role is one that essentially monitors, supports and provides expert advice to PPs and PAAs in their attempt to uphold environmental justice during project development.

The EJT will be responsible for evaluating if geographical boundaries that encompass the project area, as well as the corresponding level of data used for the evaluation of the project, are appropriate. Further, when data sets required for the assessment are incomplete or non-existent, the team will be able to request that additional research be conducted by the PP and PAA to obtain these data. The team will also be able to notify stakeholders about the lack of comprehensive data sets available for the project and the risks associated with proceeding with implementation (as a result of incomplete and/or non existent data). The team will be able to evaluate if there is adequate representation and integration of local expertise during the development process. Local expertise constitutes those who are knowledgeable about the project location and country specific needs and are committed to protecting affected communities and the environment.

Based on the evaluation of the matrix the EJT will be able to communicate results to all stakeholders and provide recommendations to government and agencies involved in the project. The team will be able to highlight and flag areas of concerns, notify PPs and PAAs and request additional safeguards to be employed to mitigate negative impacts. The EJT will also be able to propose and recommend mitigatory measures they deem appropriate that could be incorporated into subsequent stages of the project development process. The environmental justice matrix is to be employed during the initial stages of the assessment process. The matrix will primarily contribute to the scoping phase of the EIA process. The scoping process essentially identifies the potential issues and impacts that are of importance in the EIA which consequently results in a

more focused EIA. The matrix thus assists in identifying the most pertinent environmental justice issues that need to be named, integrated and addressed in the assessment process.

The matrix will ideally be an essential component of the scoping phase and consequently play a vital role in the EIA process during project development in Sri Lanka. Figure 5 outlines the EJT's role within the EIA process. According to the flow chart, the team's responsibilities begin at the scoping phase and end before the commencement of EIA report preparation. This is an essential stage in the EIA process since important decisions such as terms of reference (TOR), timelines for the project, alternatives, environmental and social impacts, project scale and significance and mitigatory measures are examined and considered during this period (Table 1). Ideally recommendations made by the EJT will be considered and suggestions incorporated into the TOR, so that important environmental justice issues can be integrated into subsequent stages of the process and included in the EIA report.

The evaluation of the environmental justice matrix and recommendations proposed by the EJT is to be included with the submission of the official EIA report. It is to be publicly available and easily accessible. Further, the evaluation of the matrix should be made available in Sinhalese, Tamil and English (at least).

Potential members of the EJT

Ideally the EJT would constitute an independent body whose sole interest is to represent environmental justice issues that may arise during the development process. The team should not be solely driven by those with direct interests in the project such as project proponents, donor agencies and government, but rather interests should be balanced by the inclusion of affected community members and NGO representatives to ensure considerations of all aspects of the project and a fair decision making process. The team should also include independent evaluators such as environmental and social impact assessment consultants.

Members of the EJT should be committed to ensuring sustainable development. Their priority should be to safeguard affected communities from the ills of project development and to uphold environmental justice. Ideally the members should be conversant with the various aspects of project development as well as be knowledgeable about the particular project being proposed. They would be individuals with proven expertise in their own fields that corresponds to the various components of the project being evaluated. However, this requirement of





Source: Adapted from Withanage (2006b)

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academic and field expertise does not necessarily apply to affected community members and other such participants. The inclusion of these members should be based on personal experience and the consequent value they may add to the evaluation process.

The EJT would comprise of individuals with varied backgrounds and skills who would provide a comprehensive representation of all the necessary expertise needed to evaluate the project against the environmental justice matrix. The expertise required for the formation of the ideal EJT is illustrated in Figure 6. In the event of a dispute or difference of opinion within the team, the EJT would assign a team member to play the role of a mediator to help resolve any conflict that may arise.

Indicators

The environmental justice matrix includes eighteen indicators in ten categories. Indicators are divided into two parts. Part 1 comprises of the "impact on natural environment" indicator. This indicator is different from the others as it provides an overall assessment of the entire project in terms of its impacts on the environment and affected communities. It serves as the starting point of the environmental justice assessment.

Part 2 includes seventeen indicators distributed among nine categories. Many of the indicators in the matrix essentially respond to the "factors contributing to environmental injustice" identified in preceding sections of this study. The matrix therefore includes indicators that evaluate the following: technical resources, foreign donor accountability, public involvement, political influence, poverty status of affected communities, as well as essential elements of the EIA process such as consideration of alternatives (Table 3). Thus evaluating the project against these indicators will ideally assist in ensuring that social impacts are considered and weighed throughout the assessment, decision-making and development process. They provide a measurable standard against which to evaluate the potential for negative social impacts on affected communities as a result of project development. The matrix includes a combination of both quantitative and qualitative indicators.

Some indicators were chosen based on indicators presented in the Environmental Justice Strategic Enforcement Assessment Tool (EJSEAT) created by the United States Environmental Protection Agency Office of Enforcement and Compliance Assurance.[®] The EJSEAT included indicators in four broad categories, namely, environmental indicators, human health indicators,

Figure 6: Potential Members of the Environmental Justice Team

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Table 3: Factors Contributing to Environmental Injustice during Project Development in

Contributing Factor	Corresponding Indicators
	Data Gaps
Lack of Technical Resources	Local Expertise
	 Staffing and Financial Resources
Unhealthy Reliance on Foreign	Eoreign Donor Accountability
Donors	Toroign Donor Accountaionity
	Formal Process and Commitment to Public Involvement
Lack of Public Participation	 Formal Process and Commitment to Information
	Dissemination in All Appropriate Languages
Corruption and Bad	Conflict of Interest
Governance	Distribution of Benefits
	Poverty Gap Index
Poverty	 Gini Index of Income Inequality
	 Affected Communities' Reliance on Natural Resources
	 Access to Essential Services, Adequate Compensation and
Ineffective EIA Process	Environmental Quality of Relocated Area
	Consideration of Alternatives

Sri Lanka and Corresponding Indicators

compliance indicators and social demographic indicators (United States Environmental Protection Agency [US EPA], 2008). Not all indicators in the EJSEAT, however, were applicable to the Sri Lankan context. Indicators in the EJSEAT that were relevant to Sri Lanka were used directly as potential environmental justice triggers in the matrix, while some were modified to suit issues representative of the Sri Lankan experience.

Indicators in the matrix can be classified as: direct, indirect, and inferential indicators (Table 4). "Direct" environmental justice indicators suggest a direct relationship between indicator and outcome of social impacts, i.e., the presence of the indicator suggests the existence of environmental justice/injustice. An "indirect" indicator suggests no direct relationship to the outcome of social impacts, but is related to social changes that will subsequently lead to social impacts i.e., the indicator is related to social issues that suggest the existence of environmental justice/injustice. "Inferential" environmental justice indicators do not have any direct or indirect relationship to the outcome of social impacts. They suggest a general sensitivity among the population or a change in a sequence of events or activities that will consequently lead to social impacts.

Indicator Type	Indicator
Direct	 Impact on Natural Environment and Affected Communities Affected Communities' Reliance on Natural Resources Conflict of Interest Distribution of Benefits Access to Essential Services, Adequate Compensation and Environmental Quality of Relocated Area
s Indirect	 Data Gaps Local Expertise Staffing and Financial Resources Formal Process and Commitment to Public Involvement Formal Process and Commitment to Information Dissemination in All Appropriate Languages Foreign Donor Accountability Consideration of Alternatives
Inferential	 Poverty Gap Index Gini Index of Income Inequality Literacy Rate Proportion Population Over 65 and Children Under 14 Child Mortality Rate Proportion Weight for Age, Underweight

Indicator criteria

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Some criteria for evaluating indicators in the matrix are numerical while others vary qualitatively. Each indicator has a scale of evaluation criteria that ranges from a value of 0 to 3. A rating of 0 signifies low sensitivity while a rating of 3 signifies high sensitivity.

Qualitative indicator criteria are based on the degree of potential (low to high) a project has to cause negative social impacts. The indicator criteria are mutually exclusive and reflect a degree of severity of environmental injustice that may befall affected communities. Determination of numerical thresholds follow a consistent and systematic approach that require basic arithmetic.

Numerical thresholds for the environmental justice matrix were based on data published by the Department of Census and Statistics in Sri Lanka. Data in these documents are provided on both a district and national level and allows for the mean, standard deviation and range between districts to be considered during the establishment of appropriate thresholds for each indicator. Numerical thresholds were calculated as described below (Figure 7).

Figure 7: Model for Setting Numerical Thresholds for Indicators in the Environmental Justice Matrix



Where σ is the standard deviation

Data were available for only 17 of the 25 districts in Sri Lanka. Data were unobtainable for eight districts in the northern and eastern regions of Sri Lanka. This is due to conflict in these areas and consequent inaccessibility of the government to include data from these regions in national databases. Thus, statistics from the northern and eastern districts of the country are not included in the calculation of national averages.

First, data for all available districts were obtained for each indicator. Next, the mean and standard deviation were calculated for each data set. A value of 0 (unlikely to cause environmental injustice) is given for values above one standard deviation in the direction of lower social impacts. Values that range between the mean and one standard deviation in the direction of lower social impacts constitutes a rating of 1 (some potential to cause environmental injustice). Values that range between the mean and one standard deviation in the direction of higher potential for social impacts reflects a rating of 2 (high potential to cause environmental injustice) and values beyond a standard deviation of one in the same direction signifies a rating of 3 (very high potential to cause environmental injustice). A sample calculation describing this methodology is provided below.

Poverty Gap Index (sample calculation):

Data set for 17 districts (DCSS, n.d.): 1.2, 6.1, 4.1, 2.2. 4.3. 5.3, 5.8. 7.9. 7.2. 6.5. 5.4. 4.0. 5.0, 8.6, 9.6, 7.7, 7.2

Mean = 5.8

Standard Deviation (σ) = 2.2

Thresholds for the poverty gap index are calculated such that:

0 = < 3.61 = 3.6 - 5.8 2 = 5.8 - 8.0 3 = > 8.0

3.3. Environmental Justice Matrix Guidelines

Each indicator and its relationship to environmental injustice, guidelines for use, role and utility, and indicator criteria are presented below. An environmental justice matrix template displaying a summary of indicators and corresponding indicator criteria is also presented (Table 5).

Table 5: Environmental Justice Matrix Template

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	Indicator	Potential to Cause Environmental Injustice			
Category		0	1	2	3
PART 1					
A. Project Impact	A1. Impact on Natural Environment and Affected Communities	No adverse effects	Minimal adverse effects, mitigable, category C	Moderate adverse environmental effect, mitigable, non-reversible, category B	Significant adverse effects, non- mitigable, non- reversible, category A
PART 2					
B. Technical Resources	B1. Data Gaps	Comprehensive data sets – no information gaps	Minor data gaps – not of critical importance to the project	Data gaps – potential to affect project decision making	Significant data gaps – unable to make informed decisions based on available information (cannot/should not proceed)
	B2. Local Expertise	Adequate representation and number of experts committed to project	Adequate representation in all areas of expertise but insufficient number of experts	Sufficient number of local experts but inadequate representation in all areas of expertise	Inadequate representation and insufficient number of experts committed to project
	B3. Staffing and Financial Resources	Adequate staffing and financial resources allocated, and commitment to EIA process	Adequate financial resources but lacking sufficient staffing for EIA	Adequate staffing but lacking financial resources for EIA	Lack of appropriate staffing and financial resources for EIA
C. Reliance on Foreign Donors	C1. Foreign Donor Accountability	High commitment to implementing policies	Reasonable/moderate commitment to implementing policies	Low commitment to implementing policies	No commitment to implementing policies

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	Indicator	Potential to Cause Environmental Injustice			
Category		~ 0 ~ >	1 - 1 - 1	2	and the second second
D. Public Participation	D1. Formal Process and Commitment to Public Involvement	Commitment to public participation in place, appropriately implemented and ongoing	Commitment to public participation, appropriately implemented and ongoing but no formalized process in place	Commitment to public participation, fragmented efforts to include public opinion, no formalized process in place	Weak commitment to public participation, no formalized process in place, inappropriate and/or fragmented efforts to include public opinion
	D2. Formal Process and Commitment to Information Dissemination in All Appropriate Languages	Information disseminated using appropriate languages, channels and media	Information disseminated using appropriate languages but not through appropriate channels and media	Some information disseminated using various channels and media but not in all appropriate languages	Inadequate dissemination of information in all languages, and insufficient use of channels and media
E. Political Influence	E1. Conflict of Interest	No conflict of interest	Low potential for biased decision- making	Some potential for biased decision- making	High potential for biased decision- making
	E2. Distribution of Benefits	Benefits primarily shared by affected communities, poor and marginalized population	Benefits well integrated into local economy and shared evenly among affected communities, poor and marginalized population and the general population	Benefits predominantly shared by a different population (another social class or geographical area) with less benefit to affected communities, poor and marginalized population	Benefits solely shared by a different population (another social class or geographical area), no benefit to affected communities, poor and marginalized population

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<u> </u>	Indicator	Potential to Cause Environmental Injustice			
Category		0	1	2	enciencies 31 percentes
F. Social	F1. Poverty Gap Index	< 3.6	3.6 - 5.8	5.8 - 8.0	> 8.0
Demographics	F2. Gini Index of Income Inequality	< 0.41	0.41 - 0.45	0.45 - 0.49	> 0.49
	F3. Literacy Rate	> 93.3 %	89.8 - 93.9 %	86.2 - 89.8 %	< 86.2 %
	F4. Proportion of Population Over 65 and Children Under 14	< 31.6	31.6 - 33.7 %	33.7 – 35.9 %	> 35.9 %
G. Natural Resources	G1. Affected Communities' Reliance on Natural Resources	Do not rely on natural resources	Low reliance on natural resources	Moderate reliance on natural resources	Heavy reliance on natural resources
H. Human Health	H1. Child Mortality Rate	< 12.4 (per 1000 live births)	12.4 – 20.7 (per 1000 live births)	20.7 – 29.0 (per 1000 live births)	> 29.0 (per 1000 live births)
	H2. Proportion Weight for Age, Underweight	< 20.1 %	20.1 – 26.9 %	26.9 - 33.7 %	> 33.7 %
I. Dislocation	I1. Access to Essential Services, Adequate Compensation and Environmental Quality of Relocated Area	Relocated area significantly better than previous living standards, adequate compensation secured for inconveniences caused by dislocation	Minimal disruption, relocated area better than previous living standards but inadequate compensation secured for dislocation	Considerable disruption, relocated area same as previous conditions and inadequate compensation for dislocation	Serious disruption, relocated area worse than previous conditions and inadequate compensation for dislocation
J. Alternatives	J1. Consideration of Alternatives	All possible "alternative means of carrying out the undertaking" and "alternatives to the undertaking" considered	"Alternatives to the undertaking" considered but "alternatives means of carrying out the undertaking" not adequately considered	"Alternative means of carrying out the undertaking" considered but "alternatives to the undertaking" not adequately considered	Inadequate consideration of "alternative means of carrying out the undertaking" and "alternatives to the undertaking"
<u></u>			adequately considered	adequately considered	undertaking"
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<u>Part 1</u>

A. Project Impact

A1. Impact on Natural Environment and Affected Communities

Foreign donor agencies such as the World Bank (WB) categorize projects based on their impacts on the environment during the project screening process (category A, B & C). This allows the agency to decide if (and what) safeguard policies need to be applied to the project. For example, Category A projects (that have high social and environmental impacts associated with them) require the borrower to prepare an Environmental Impact Assessment (WB, 2008). Other donor agencies have similar screening procedures and it is suggested that this categorization be considered when estimating the impact of the project on the natural environment.

According to the WB (1999) Operational Policy 4:01 Environmental Assessment, classification of projects into categories A, B or C is based on the following:

Category A – likely to have significant adverse impacts that are sensitive, diverse, or unprecedented, or that affect an area broader than the sites or facilities subject to physical works.

Category B – site-specific in nature and do not significantly affect human populations or alter environmentally important areas, including wetlands, native forests, grasslands, and other major natural habitats. Few if any of the impacts are irreversible, and in most cases mitigatory measures can be designed more readily than for Category A projects. Category C – likely to have no adverse impacts at all, or the impacts would be negligible.

During the classification process the WB considers the type, scale, location, sensitivity, nature and magnitude of potential impacts. It is strongly advised that these criteria be considered when determining the level of impact the project has on the natural environment and affected communities.

The indicator also takes into consideration the extent of the impacts of the project, whether they could be mitigated or not, and if they are reversible or non-reversible. The indicator helps identify the seriousness of the project with respect to the damage it may have on the natural environment and affected communities. The evaluation of the project against this indicator frames the entire project in terms of the potential it has to cause environmental injustice. Depending on the ranking of the project it will warrant various measures to be employed to ensure that affected communities and the environment are adequately protected.

Impact Ranking

The general severity of anticipated impact on the natural environment and affected communities is scored on an impact ranking scale that ranges from 0-3 such that:

0 = No adverse effects

1 = Minimal adverse effects, mitigable, category C

2 = Moderate adverse environmental effect, mitigable, non-reversible, category B

3 = Significant adverse effects, non-mitigable, non-reversible, category A

<u>Part 2</u>

B. Technical Resources

B1. Data Gaps

Environmental impact assessments demands comprehensive data sets and reliable sources to be utilized so that sound decisions could be made throughout project development. The use of incomplete data sets has the potential to severely compromise the validity and accuracy of studies resulting in wrong conclusions being made. Consequently, the decision making process has the potential to be seriously flawed. It follows that the more comprehensive the data set used in studies the more accurate the results and the more reliable the conclusions. The use of incomplete (or non-existent) data sets during the assessment process has the potential to result in environmental injustice because studies may not reveal best possible options nor provide reliable accounts of current condition for informed decision making.

This indicator will help highlight if (and to what extent) there are information gaps in the data sets that are crucial to the project assessment and decision making process. If the evaluation reveals that there exist significant data gaps that are essential to the assessment, it would allow the EJT to propose necessary mitigatory measures. The EJT would be able to flag the issue as one that needs immediate attention and provide recommendations to project proponents and project approving agencies. These recommendations might include halting the project until necessary data are obtained, proceeding with the project while bearing in mind the lack of comprehensive data sets and the potential for incomplete analysis during the decision making process or even terminating the project due to the lack of sufficient data to make informed decisions. At the very least the indicator would serve to alert approving agencies and other stakeholders about the risk associated with basing important decisions on incomplete

information. It could ideally, mitigate environmental injustice from occurring among affected communities as a result of incomplete and incorrect analyses.

Degree of data deficiency

The data gap indicator is scored on a degree of data deficiency scale that ranges from 0 and 3 as described below.

- 0 = Comprehensive data sets available; no information gaps
- 1 = Minor data gaps, not of critical importance to the project but some research recommended before proceeding with implementation of project
- 2 = Data gaps, potential to affect project decision making and considerable research recommended before proceeding with implementation of project
- 3 = Significant data gaps, unable to make informed decisions based on available information (cannot/should not proceed)

B2. Local Expertise

Local expert involvement is essential for informed decision making. These experts would be knowledgeable about location and country specifics as well as understand the environmental and social impacts that are unique to the areas within the geographical boundaries of the project. Excluding input from local expertise during the assessment and decision making process could result in wrong (incomplete) conclusions being made which in turn has the potential to cause environmental injustice. Conversely, including local expertise can add considerable value to the assessment process and serve to protect and better understand native issues so that consequent mitigatory steps are more effective.

Using adequate local expertise in the assessment and decision making process requires that representatives are drawn from all appropriate areas of expertise and that there are an adequate number of these experts committed to the project. Neglecting either criterion may result in environmental injustice and may hinder informed decision making. In addition, all experts should be sensitive to environmental justice and be knowledgeable about what it entails.

This indicator will inform the EJT whether or not there is sufficient and available local expert involvement represented in all appropriate fields of study. If the evaluation shows that there is a lack in either the number of experts and/or a lack of representation in all essential fields of study, then it will allow the EJT to highlight this deficiency early on so that necessary action could be taken to remedy the situation.

Level of local expertise

The above indicator is rated on a level of local expertise scale such that:

0 = Adequate representation in all areas of expertise and number of experts committed to project

- 1 = Adequate representation in all areas of expertise but insufficient number of experts
- 2 = Sufficient number of local experts but inadequate representation in all areas of expertise
- 3 = Inadequate representation in all areas of expertise and insufficient number of experts committed to project

B3. Staffing and Financial Resources

There is a noted shortage of manpower and funds in the environmental units responsible for overseeing EIA implementation in Sri Lanka (Atapattu, 2001; Kodituwakku, 2004). The lack of staff and/or financial resources could contribute to environmental injustice by resulting in incomplete studies and hampering informed decision making, both of which could severely compromise the accuracy and validity of the environmental assessment. A lack of dedication to environmental justice concerns by staff could also contribute to injustice.

This indicator will serve to inform the EJT whether or not there is adequate staffing and financial resources allocated (secured) for the completion of a successful EIA. If there is a lack of secured staff or finances for the project, then the EJT will be able to notify and make recommendation to the various stakeholders such as the project proponent and the project approving agency so that the situation can be reviewed and sufficient action taken so as to alleviate issues associated with inadequate resources.

The EJT will thus be able to judge whether or not there is satisfactory resource allocation, manpower, expertise, experience and commitment by staff to integrating environmental justice considerations into the assessment and decision making process. If the evaluation suggests that there is inadequate staffing, experience and financial resources to successfully complete the EIA, then the EJT will be able to recommend and propose corrective measures to ensure that sufficient resources as well as an environmental justice focus are incorporated into the assessment process. Level of resources

The staffing and financial resource indicator is scored on a level of resources scale as described below.

- 0 = Allocation of adequate staffing and financial resources and commitment to EIA process (and strong environmental justice focus)
- 1 = Allocation of adequate financial resources but uncertainty about sufficient staffing for EIA (adequate environmental justice focus)

- 2 = Some uncertainty about staffing and financial resources for EIA (lacks environmental justice focus)
- 3 = Great uncertainly about staffing and financial resources for EIA (lacks environmental justice focus) and/or clear lack of staffing and financial resource allocation for EIA

C. Reliance on Foreign Donors

C1. Foreign Donor Accountability

Many foreign donor agencies have come under considerable criticism for their negligence in ensuring that development occurs in an environmentally and socially appropriate manner (Withanage, 2008). In many instances, although the policies of agencies concerning these issues seem thorough on paper, the reality of their implementation (or lack of it) leaves a lot to be desired.

Since one of the reasons donor agencies use safeguards is to ensure environmental justice, holding agencies accountable to these safeguards and policies will in turn ensure that development occurs in a manner that protects the environment and its people to the best of its ability.

The EJT will function as an auditing team when evaluating the project against this indicator. The evaluation will consider agency policies and safeguards pertaining to the project and measure their commitment to these policies. Evaluation of this indicator will serve to draw the attention of stakeholders to donor agency accountability and will, in an ideal situation, put pressure on donor agencies to keep to their promises made on paper.

The evaluation of agency policies and the implementation of those policies will be left solely in the hands of the environmental justice team. This multidisciplinary team of experts will be able to best judge and critique the commitment of donor agencies to their own environmental and social policies. The agency's history of commitment to environmentally and socially sound development will play a key role in the EJT's evaluation.

Degree of commitment

The above indicator is scored on a degree of commitment scale that ranges between 0 and 3 as follows:

0 = High commitment to implementing policies

- 1 = Reasonable/moderate commitment to implementing policies
- 2 = Low commitment to implementing policies
- 3 = No commitment to implementing policies

D. Public Participation

D1. Formal Process and Commitment to Public Involvement

Meaningful public involvement is considered a cornerstone of any successful EIA (Sinclair & Diduck, 2005). Neglecting or intentionally denying public involvement violates the integrity of the assessment process and will likely result in environmental injustice. Conversely, incorporating public involvement is associated with a number of benefits including input of traditional social and environmental knowledge which could significantly strengthen the assessment process.

One of the main features of public participation and consultation is that it is a process; it is ongoing. Public participation should be integrated into every stage of the assessment and ideally should be one of the first steps taken in the assessment process.

This indicator will expose the commitment and the extent to which public participation has been (and will be) integrated into the different stages of the EIA process. If the experience is that public input has not been sought on an ongoing basis up unto the point of the evaluation, and/or if there is no formal process in place to include meaningful public participation, then the EJT will be able to flag this as an issue that needs immediate attention.

Degree of commitment

The above indicator is scored on a degree of commitment scale as follows:

- 0 = Commitment to public participation in place, appropriately implemented and ongoing
- 1 = Commitment to public participation, appropriately implemented and ongoing but no formalized process in place
- 2 = Commitment to public participation, fragmented efforts to include public opinion, no formalized process in place
- 3 = Weak commitment to public participation, no formalized process in place, inappropriate and/or fragmented efforts to include public opinion

D2. Formal Process and Commitment to Information Dissemination in All Appropriate Languages

A language barrier may significantly affect a person's access to information as well as the bargaining power they hold during the decision making process. It may also completely isolate individuals from participating in the development process. For such reasons it is fair to assume that if information is not made available in all appropriate languages there is a high potential for environmental injustice to occur.

Although official languages spoken in Sri Lanka are Sinhalese and Tamil, English is the main language used by donor agencies and is also commonly used in government (NationMaster, 2008). Further, environmental assessments and other safeguards requested by donor agencies are prepared in English. In general, information dissemination about project development is largely in English, even though 90% of the population does not speak the language with any level of competence (NationMaster, 2008).

Having information available to all affected communities in all appropriate languages is a crucial part of conducting meaningful public participation and consultation. If including public input is considered a priority, then information should also be available in all appropriate languages. Neglecting to effectively communicate information to the public and reporting their input back to the decision maker in an appropriate language would defeat the purpose of meaningful public participation. It is imperative that all information be made available in all appropriate languages (and at an appropriate level of communication) to ensure that affected communities receive information in a language that is known to them so that they are able to respond and voice their opinions. This will ensure integrity in the communication process.

In order for a case to be evaluated against this indicator, the languages and dialects spoken by communities need to be identified. Next, it should determined if all relevant information regarding the project has already been made available to the public in these various languages, and if there is a strong commitment to ensure the same during future steps of project development. The indicator will allow the EJT to judge the extent to which information has been made available, and will be made available during subsequent stages of the project (in terms of language type, modes and media) and recommend necessary measures that need to be taken by project proponents, donor agencies and project approving agencies to mitigate language barrier issues that may lead to environmental injustice.

In addition to information being available in all languages, effective communication requires this information to be conveyed using all appropriate modes of communication. In some cases information will need to be communicated verbally to ensure that all affected peoples receive the information, are able to understand and respond to the information in a medium and language they are comfortable in.

Degree of information dissemination

The above indicator is scored on a degree of information dissemination scale as follows:

- 0 = Information dissemination in appropriate languages, channels and media
- 1 = Information dissemination in appropriate languages but not through appropriate channels and media
- 2 = Some information dissemination using various channels and media but not in all appropriate languages
- 3 = Inadequate dissemination of information in all languages, and insufficient use of channels and media

E. Political Influence

E1. Conflict of Interest

According to EIA regulations in Sri Lanka a project approving agency (PAA) which is also a project proponent (PP) is disqualified from approving the project at hand. Any conflict of interests that exists between proponent and approving agency has the potential to result in environmental injustice. The decision making process can be easily jeopardized by conflict of interest, allowing a project to proceed without consideration of community or other stakeholder input.

The indicator aims to highlight the degree of conflict of interest and/or the appearance of bias and will allow the EJT to take this potential for bias decision making into consideration in the assessment process. Thus if there is a conflict of interest, this indicator can act to flag the conflict of interest or appearance of bias in the decision making process by bringing it to the forefront during all stages of project development.

It is expected that by drawing attention to the potential bias due to conflict of interest, the decision making process will occur in the transparent and fair manner, where all stakeholders comments are considered and weighed equally. It will demand for a greater emphasis to be placed on ensuring a level playing field between all stakeholders, and not simply those of the project proponents.

Degree of bias

The conflict of interest is scored on a degree of bias scale shown below. The scale ranges from no conflict of interest (0) to obvious conflict of interest (3). A degree of bias of 1 represents a situation where there is some potential for bias decision-making and a degree of bias

of 3 suggests a high potential for bias decision-making. A score of 3 may also suggest a close relationship between project proponents and project approving agencies.

0 = No conflict of interest.

- 1 = Low potential for biased decision-making
- 2 = Some potential for biased decision-making
- 3 = High potential for biased decision-making

E2. Distribution of Benefits

This indicator identifies the primary beneficiaries of the project. In essence it considers the distributive justice of project benefits among stakeholders. If the benefits of the project are not shared equally there is high potential for environmental injustice to arise.

The indicator informs the EJT whether the distribution of project benefits is projected to occur justly. If the indicator reveals that benefits will be predominantly shared among the elite (or a different population) and to a lesser degree communities negatively affected by the project, then there should be a mechanism for amending plans so that there is a more balanced and fairer distribution of benefits among stakeholders, failing which, this indicator may serve to flag the project as one that does not respect distributive justice. It will draw attention to the fact that this project will instigate environmental injustice; a factor that should be heavily weighed in the decision making and approval process.

Degree of distribution inequality

Distribution of benefits is scored on a degree of distribution inequality scale ranging from 0 to 3 as described below.

- 0 = Benefits primarily shared by affected communities, poor and marginalized population
- 1 = Benefits well integrated into local economy and shared evenly among affected communities, poor and marginalized population and the general population
- 2 = Benefits predominantly shared by a different population (another social class or geographical area) with less benefit to affected communities, poor and marginalized population
- 3 = Benefits solely shared by a different population (another social class or geographical area), no benefit to affected communities, poor and marginalized population

F. Social Demographics

F1. Poverty Gap Index

The poverty gap index is defined by the United Nations (2008) as the "mean distance below the poverty line as a proportion of the poverty line where the mean is taken over the whole population, counting the non-poor as having zero poverty gap." The poverty gap index measures the depth of poverty, and it is a measurement that is widely used and accepted around the world.

For an individual, the "depth of poverty is the proportion by which that individual is below the poverty line" where individuals above the poverty line are noted as having a value of 0 (World Bank, 2004). It is the "sum of the depth of poverty of each individual, divided by the total number of individuals in the population" and provides a good indication of the depth of poverty as it is dependent on the distances of the poor below the poverty line (World Bank, 2004).

Experience shows that greater environmental burden often falls disproportionately on the poor. It is thus important to ensure that environmental ills that are produced by development projects do not fall disproportionately on the already disadvantaged. Poverty may also influence a person's access to information and their right to participate in the decision making process (Atapattu, 2003). Thus, proceeding with a project in a poverty-stricken region has a high potential to result in environmental injustice.

In this case it is assumed that depth of poverty is a function of potential environmental injustice. The evaluation of the indicator will inform the EJT of whether the people living in and around the project area are poor and by how much, in comparison to the national poverty line. This will act as an early warning to allow for extra measures to be taken to ensure that such communities are not faced with environmental injustice.

Thresholds for this indicator are based on information gathered from the Poverty in Sri Lanka – Issues and Options document (Nanayakkara, 2006). The poverty line used to calculate the poverty gap index is the national poverty line of Sri Lanka. The mean and standard deviation poverty gap index for the 17 districts are 5.8 and 2.2 respectively. The poverty gap index range for the districts is 1.2 - 9.6. Based on these values thresholds for the environmental justice matrix are calculated as follows:

0 = < 3.6 1 = 3.6 - 5.8 2 = 5.8 - 8.03 = > 8.0

F2. Gini Index of Income Inequality

The Gini index (or Gini coefficient) is a "measure of the extent to which the actual distribution of income, consumption expenditure, or a related variable, differs from a hypothetical distribution in which each person receives an identical share" (United Nations, 2004). It is a dimensionless scale ranging from zero to one, where zero represents no inequality and one represents complete inequality (United Nations, 2004).

This indicator is an index of inequality. The higher the Gini index the higher the level of inequality and consequently the greater the potential for environmental injustice. The Gini index is widely used and accepted as a reliable method for measuring inequality.

One of the deficiencies of the poverty gap index (indicator B1) is that "it is unaffected by changes in inequality among the poor" (Ravallion & Sen, 1996). The Gini index, however, is a measure of income inequality and thus compensates for the deficiency of the previous indicator.

The Gini index will assist the EJT in determining whether the affected communities are burdened with an unequal distribution of income and the extent of inequality they face. If results show that affected communities have a high Gini index then extra efforts should be made to ensure that development does not cause this already disadvantaged group to face further injustice. The team will further be able to monitor and recommend mitigatory measures to ensure affected communities are protected.

Thresholds

Thresholds for this indicator are based on information gathered from the Poverty Statistics/Indicators for Sri Lanka document (Department of Census and Statistics Sri Lanka [DCSS], n.d.). The Gini index mean and standard deviation for the 17 districts are 0.45 and 0.04 respectively. The range of the Gini index is 0.4 - 0.56. Based on these values thresholds for this indicator are calculated as follows:

0 = < 0.411 = 0.41 - 0.45 2 = 0.45 - 0.49 3 = > 0.49

F3. Literacy Rate

The literacy rate of affected communities will shape the means of communication as well as the level of communication needed to inform communities about the various aspects of the development project.

In some cases, literacy may influence the bargaining power that individuals and communities have in the decision making process. It is submitted that the lower the literacy rate of a given community (or individual) the greater the potential for environmental injustice. Thus if there is high illiteracy among affected communities, then extra measures should be taken to ensure that the dissemination of information occurs in a suitable manner.

Based on the evaluation of this indicator, the EJT will be able to monitor and recommend necessary steps that need to be taken in order to ensure information is available and easily accessible to all affected community members. For example, the mode of communication used to relate information to affected communities may need to be changed based on the communities' ability to understand and respond to project development activities. <u>Thresholds</u>

Thresholds are based on values obtained from the Poverty Statistics/Indicators for Sri Lanka document (DCSS, n.d.). The mean and standard deviation adult literacy rate for the 17 districts are 89.8 % and 3.5 % respectively. The adult literacy rate range is 81.7 % to 95.3 %. Based on these values the following thresholds were assigned for the literacy indicator in the environmental justice matrix:

0 => 93.3 % 1 = 89.8 - 93.9 % 2 = 86.2 - 89.8 %3 = < 86.2 %

F4. Proportion of Population Over 65 and Children Under 14

Those over 65 years of age and children under 14 represents a population that in general will have less access to information and a lower ability to influence the decision making process (JBIC, 2002). This population demographic is also characterized with a certain level of dependency on the rest of the population (Grason, 1995). Further, it is generally accepted that these demographic are also more vulnerable to health hazards than the rest of the population (United States Environmental Protection Agency [US EPA], 2005). Therefore if the proportion

of population over 65 and under 14 is particularly high in and around the project area then there is reason to believe that there is higher potential for environmental injustice to occur.

If the project area represents a higher than average proportion of the above population, extra effort should be made to ensure that their wellbeing and opinion is factored into the decision making process. It is assumed that those over 65 year of age may not be able to express their opinions on the project due to reasons such as limited access and mobility. On the other hand, children may not be able to vocalize their opinion and many of them will be unaware of how the project will affect them, due to their age. Therefore the effects on their health as citizens of a vulnerable population, and the effects that the project may have on their future should be weighed and considered. To resolve issues of limited access, extra measures should be taken to ensure that their opinions are included in the decision making process.

This indicator will provide insight into whether or not communities within the project area have high proportions of vulnerable population. It will enable the EJT to draw attention to the need for appropriate safeguards to be employed as well allow the team to monitor and to recommend mitiagtory measures to ensure affected communities are protected.

The basis for choosing this indicator was drawn from the Environmental Justice Strategic Enforcement Assessment Tool (EJSEAT) developed by the United States Environmental Protection Agency Office of Enforcement and Compliance Assurance (US EPA, 2008). The indicator, however, has been modified to better depict the situation in Sri Lanka. In the original tool, children, as a vulnerable population were defined as those under the age of 5 according to the EJSEAT. However, for purpose of this study, those under 14 years of age are considered as children for two reasons: 1) data for this group are more readily available and has been published by the DCSS; and 2) it is a more appropriate age bracket since this research paper not only considers health aspects but also accessibility to available information and ability to participate in the decision making process. Further, the EJSEAT classifies population over 65 and population under 5 years as two separate indicators. For this study, however, they have been combined since both populations represent vulnerable groups and grouping it in this manner avoids duplication.

Thresholds

Thresholds for this indicator have been based on information gathered from the Poverty Statistics/Indicators for Sri Lanka document (DCSS, n.d.). The mean and standard deviation for
the proportion of population over 65 and children under 14 for the 17 districts are 33.7 % and 2.1 % respectively. The proportion of population over 65 and children under 14, for the 17 districts, range from 28.6 % to 36.3 %. Based on these values thresholds are calculated as follows:

0 = < 31.61 = 31.6 - 33.7 % 2 = 33.7 - 35.9 % 3 = >35.9 %

G. Natural Resources

G1. Affected Communities' Reliance on Natural Resources

This indicator considers the extent of the communities' reliance on natural resources for their livelihood and whether these resources would be partially/completely destroyed consequent to project development. If communities heavily rely on natural resources, and these resources are threatened by development of the project at hand, it suggests a greater potential for environmental injustice to occur among affected communities. In this case it is assumed that environmental injustice is proportional to the communities' reliance on natural resources.

The indicator also considers the loss of access and/or proximity to natural resources due to relocation. The indicator further aims to capture the non-monetary value of the surrounding environment to the community i.e., ancestral, traditional and cultural affinity.

The indicator serves to draw attention to families and communities that will be burdened by project development. It allows the environmental justice team to develop appropriate schemes that ensure these affected communities are appropriately compensated for all losses and inconveniences. It will provide an opportunity for the team to recommend other safeguard procedures to monitor and to implement plans that will mitigate negative impacts on affected communities.

Degree of reliance

The communities' dependence on natural resources is scored on a degree of reliance scale as described below.

0 = Do not rely on natural resources 1 = Low reliance on natural resources 2 = Moderate reliance on natural resources 3 = Heavy reliance on natural resourceswhere, injustice = f (reliance of natural resources)

H. Human Health

H1. Child Mortality Rate

According to the World Health Organization (2008a), child mortality rate (under 5 mortality) is the leading indictor of child health and development. This indicator will signal to the EJT whether affected communities are especially vulnerable based on the child mortality rates for the area. It is a way to include the vulnerability of a population into the assessment process.

Impacts of a project may place a greater burden on an already vulnerable population, thereby causing environmental injustice. For example, if the proposed project is expected to cause health hazards and the community within the project area has an already higher than average child mortality rate (high vulnerability), then proceeding with the project and subjecting this population to additional risks may result in environmental injustice.

Based on the evaluation of this indicator the team with be able to monitor and recommend mitigatory measures to ensure that vulnerable populations are protected from the adverse impacts of project development.

The EJSEAT (US EPA, 2008) uses infant mortality rate as the indicator under the human health category for measuring environmental injustice. However, for this study, child mortality rate has been used as it is deemed an indicator that better represents human health of a developing country such as Sri Lanka.

Thresholds

Thresholds for this study have been based on values obtained from the Poverty Statistics/Indicators for Sri Lanka document (DCSS, n.d.). The mean and standard deviation for child mortality rate for the 17 districts are 20.7 and 8.3 (per 1000 live births) respectively. The range for child mortality rate is 10.0 to 30.5 (per 1000 live births). Based on these values thresholds are calculated as follows:

0 = < 12.4 1 = 12.4 - 20.7 2 = 20.7 - 29.03 = > 29.0 (per 1000 live births)

H2. Proportion Weight for Age, Underweight

The weight for age indicator is defined by the World Health Organization (2008b) as the "percentage of children under five years who have a weight-for-age below minus two standard deviations of the NCHS [National Center for Health Statistics]/ WHO reference median." According to the World Health Organization (2008b), children suffering from malnutrition possess a greater risk of illness and death. They represent a vulnerable population that could be significantly affected by project development.

Weight for age (underweight) is another indicator of health status within the project area. It is also an indicator of the vulnerability of the affected population to health hazards. If the proportion of weight for age (underweight) is high among affected communities, then adverse impacts of development (for example, poor air and water quality during construction) may pose a greater burden on this already vulnerable population. Thus it is assumed that project development in an area with a high proportion underweight has the potential to result in environmental injustice.

This indicator will highlight if, and to what extent, affected communities are vulnerable by providing a means of including the health status and subsequent vulnerability of a population into the assessment process. If the proposed project has the potential to cause impacts that will place a greater burden on a community within the project area that has a high weight for age (underweight) percentage (high vulnerability), then proceeding with the project has the potential to result in environmental injustice.

Thresholds

Thresholds for this study are based on values obtained from the Poverty Statistics/Indicators for Sri Lanka document (DCSS, n.d.). The mean and standard deviation for the proportion weight for age (underweight) are 26.9 % and 6.8 % respectively. The range for proportion weight for age (underweight) is 17.0 % to 36.7 %. Based on these values threshold were assigned such that:

0 = < 20.1 % 1 = 20.1 - 26.9 % 2 = 26.9 - 33.7 %3 = > 33.7 %

I. Dislocation

I1. Access to Essential Services, Adequate Compensation and Environmental Quality of Relocated Area

If development requires that affected communities be relocated, then providing these individuals with an alternate living area that has adequate environmental quality (water, air, land) is essential. Those relocated should not only have access to enhanced living conditions but also be adequately compensated for any all difficulties that result from relocating to a new area. This includes compensation for loss of access to natural environment due to relocation as well as compensation for loss of ancestral, traditional and cultural affinity and loss of crops and other food sources. These are associated with real costs and thus failing to adequately compensate and provide enhanced living conditions for individuals who are required to relocate because of development would precipitate environmental injustice. In some cases losses may amount to more than a simple dollar value and thus bridging the gap and providing adequate support to those who are relocated should be a priority in the assessment and decision making process.

Accessibility to essential services will also need to be carefully considered. For environmental justice to be upheld individuals required to relocate (leaving their livelihood, access to natural resources, ancestral and traditional and cultural affinity behind) should experience enhanced essential services in their new location as well as improved accessibility to these services. Neglecting either one will diminish any efforts in ensuring that the wellbeing of relocated persons is adequately protected.

This indicator also includes individuals who may not have to physically move to a new location but whose daily routines will be affected due to project development. It thus suggests that individuals should be adequately compensated for loss of natural environment or access to services or inconveniences to daily routines that may have been caused by development.

This indicator will show the EJT whether the project has considered issues of accessibility and quality of essential services that are available to relocated individuals. If the evaluation of this indicator reveals that these issues have not been adequately considered and dealt with, then the EJT will be able to highlight this area as needing immediate attention. It will allow for measures to be taken during the assessment process to resolve relocation issues, thus ensuring that individuals are provided with enhanced access and enhanced essential services in their new locale.

If evidence shows that necessary measures have not been employed to ensure that these relocated individuals are guaranteed significantly better living conditions and are adequately compensated for the inconvenienced of relocation, then the team will be able to flag the project as one that has a very high potential to cause environmental injustice. The indicator will serve to add weight to the issue during the decision making process and ensure that project goals are altered to include greater protection of relocated communities.

Degree of impact

The above indicator is rated on a degree of impact scale such that:

- 0 = Relocated area significantly better than previous living standards, adequate compensation secured for inconveniences caused by dislocation
- 1 = Minimal disruption, relocated area better than previous living standards but inadequate compensation secured for dislocation
- 2 = Considerable disruption, relocated area same as previous conditions and inadequate compensation for dislocation
- 3 = Serious disruption, relocated area worse than previous conditions and inadequate compensation for dislocation

J. Alternatives

J1. Consideration of Alternatives

Consideration of alternatives in an EIA is mandated under the *National Environmental Act* (1980) in Sri Lanka. Serious consideration of all possible "alternatives means of carrying out the undertaking" and "alternatives to the undertaking" ensure that the best possible options are available to decision makers. It can provide better alternatives for project location and type which may otherwise be overlooked. Alternative solutions may also pose less social and environmental impacts and thus failing to evaluate all possible "alternatives to" and "alternative means to the undertaking" may result in environmental injustice among affected communities.

This indicator will allow the EJT to evaluate the extent to which proponents have considered possible alternatives to and alternate means to the proposed project. If the evaluation reveals that proponents have either not seriously considered alternatives, or have no desire to seriously consider alternatives, the indicator will draw attention to the fact that the project has potential to cause issues of environmental justice; a factor that should be heavily weighed in the decision making and approval process.

Proper consideration of alternatives in an EIA includes consideration of "alternatives to the undertaking" as well as "alternatives means of carrying out the undertaking." For example, if

a road construction project is proposed to support growing traffic needs of a city, consideration of "alternatives to the undertaking" may include: other modes of transportation such as air, rail or water. It may also include the widening of existing roads or using alternative routes to support traffic needs. Consideration of "alternative means of carrying out the undertaking" suggests consideration of alternative methods of carrying out the proposed road construction project. For example, "alternative means of carrying out the undertaking" of the road project may include consideration of alternate designs of the proposed road project.

Although both "alternative means of carrying out the undertaking" and "alternatives to the undertaking" are important when considering alternatives of a given project, in general, it can be assumed that consideration of "alternatives to the undertaking" is of greater importance than consideration of "alternative means of carrying out the undertaking." Failing to seriously consider "alternatives to the undertaking" has the potential to result in more adverse impacts on the environmental and affected communities.

Degree of consideration

The above indicator is rated on a degree of consideration scale such that:

- 0 = All possible "alternative means of carrying out the undertaking" and "alternatives to the undertaking" considered (or commitment to consider)
- 1 = "Alternatives to the undertaking" considered (or commitment to consider) but "alternatives means of carrying out the undertaking" not adequately considered (or inadequate commitment to consider)
- 2 = "Alternative means of carrying out the undertaking" considered (or commitment to consider) but "alternatives to the undertaking" not adequately considered (or inadequate commitment to consider)
- 3 = Inadequate consideration of (or commitment to consider) "alternative means of carrying out the undertaking" and "alternatives to the undertaking"

3.4. Evaluation of UKHP and STDP Case Studies

This section presents an evaluation of the Upper Kotmale Hydropower Project (UKHP) and the Southern Transport Development Project (STDP) against the eighteen indicators in the environmental justice matrix. The evaluation uses the same guidelines described in the previous section. The completed matrices provide a sense of how the projects scored in terms of their potential to generate environmental and social impact issues.

The matrix is intended to be completed during the initial stages of the environmental impact assessment process. It is designed to complement the scoping process so that key

environmental injustice issues could be considered and integrated into the assessment and decision making process from the initial stages of project development and before project implementation takes place. However, since the evaluation of the UKHP and the STDP using this matrix has taken place well after this period (and after commencement of construction of both projects), for the purpose of this study, it is simply intended to display the matrix as a working tool that is able to evaluate the form and extent of social impacts that are precipitated by development projects. The main goal of the evaluation in this study therefore is not meant to be pre-emptive but rather to illustrate the various benefits and attributes of the matrix and to evaluate the degree to which the projects succeeded (or failed) in ensuring environmental justice. The evaluation also serves as an example of the matrix's utility and application for future development projects in Sri Lanka.

As noted previously, the matrix is designed to be evaluated by a group of experts, i.e., an environmental justice team (EJT). However, the evaluation of the UKHP and STDP was not evaluated using this approach. Regardless, the exercise demonstrates the utility of the matrix and further demonstrates the value that it can possess if piloted by a team of experts.

Information used for the evaluation of the UKHP and STDP is secondary. Although these were obtained from reliable sources, they cannot replace the value of first hand information and primary data for the completion of the matrix. For the evaluation of future projects, however, the EJT would be able to obtain reliable first hand data. They would also be able to incorporate adequate local knowledge into the assessment.

The lack of first hand data for the evaluation of the UKHP and STDP is due to the inability to be on-site and collect information and access data banks. The evaluation has thus relied heavily on reports and statistics that are made public via the World Wide Web. For both case studies seven of the eighteen indicators could not be evaluated due to the inability to be physically present in Sri Lanka and collect necessary data for the evaluation. Data were unobtainable for two main reasons. In some cases data were unobtainable due to limited access to data banks. These data, however, are available within the country and will be easily obtainable by EJT experts. In other cases, indicators could not be evaluated due to the lack of sufficient and reliable information to make informed decisions, particularly those pertaining to the evaluation of the project development "process." For example, indicators in Categories B and E that relate to conflict of interest, distribution of benefits, data gaps, and staffing and

financial resources, could not be evaluated remotely with any degree of certainty. It would be too presumptuous to evaluate the projects against these indicators without being a part of, or proximate to, the process itself. The EJT will play a crucial role in judging process related indicators. Their expertise and focus on environmental justice will enable the team to make sound value judgements and rate the project against indicators accurately while maintaining integrity and reliability of the evaluation process. Despite the limitations of accessing information for the evaluation of the case studies, the exercise illustrates the potential of the tool.

Data, particularly for the evaluation of Categories F and H were obtained from documents published by the Department of Census and Statistics in Sri Lanka. These constitute reliable data, but as more data become available it would be the responsibility of the EJT to ensure that indicator criteria, particularly numerical thresholds, are updated.

The UKHP falls approximately within the geographical boundaries of the Nuwara Eliya district in Sri Lanka. Therefore, for the evaluation of this case study statistics from the Nuwara Eliya district were used. The STDP boundaries extend over four districts, namely, Colombo, Kalutara, Galle and the Matara districts and the evaluation of this case study utilized statistics from all four districts. In some cases for different districts values fell within multiple threshold categories. To overcome this issue, the evaluation was conducted so that the district "most sensitive" to the indicator (either highest or lowest value depending on the direction of the indicator) was employed. It is suggested that the EJT also consider using the "most sensitive" conditions so that in instances where project boundaries encompass multiple cities and districts, the situation of communities that are "worse off" are considered and not overlooked in the evaluation process. The EJT will be responsible for ensuring that an appropriate geographical scale and boundary of analysis has been chosen and that reliable corresponding data are utilized for the analysis.

Despite a few limitations that were encountered during the evaluation of the UKHP and the STDP, the tool displays considerable strength. The matrix has the potential to be valuable in identifying the most sensitive issues associated with the proposed project during the early stages of the EIA process. It provides opportunities for corrective measures to be employed from the beginning of project development so that adverse impacts to the environmental and affected communities could be avoided or minimized, and environmental justice could be upheld.

3.4.1. Upper Kotmale Hydropower Project

The UKHP was evaluated against 11 of the 18 indicators in the environmental justice matrix. Indicators B1-B3, D1-D2, G1 and I1 could not be evaluated due to the lack of access to, and reliability of, data to make informed decision. Of the 11 indicators that were evaluated, six of them were scored as having a very high potential (score = 3) to cause environmental injustice. Further, three indicators were rated as having high potential (score = 2) and one with some potential (score = 1) to cause environmental injustice. One of the indicators were scored as unlikely to cause environmental injustice (score = 0) (Table 6). Overall the project may be flagged as one that warrants significant attention as it shows potential for several adverse social impacts. Table 7 presents the evaluation of the UKHP against the indicators in the environmental justice matrix. The rationale for the evaluation of each indicator is also provided.

Table 6: Indicator Scores for Upper Kotmale Hydropower Project Evaluation

Very high potential to cause environmental injustice (score = 3)

A1. Impact on Natural Environment and Affected Communities

- C1. Foreign Donor Accountability
- E1. Conflict of Interest
- E2. Distribution of Benefits
- F3. Literacy Rate
- J1. Consideration of Alternatives

High potential to cause environmental injustice (score = 2)

F4. Proportion of Population Over 65 and Children Under 14

- H1. Child Mortality Rate
- H2. Proportion Weight for Age, Underweight

Some potential to cause environmental injustice (score = 1)

F1. Poverty Gap Index

Unlikely potential to cause environmental injustice (score = 0)

F2. Gini Index of Income Inequality

Table 7: Evaluation of the Upper Kotmale Hydropower Project

Category	Indicator	Potential t Environment: 0 1	o Cause al Injustice	Explanation
PART 1				
A. Natural Environment	A1. Impact on Natural Environment and Affected Communities			Impacts posed by the project included destruction of waterfalls, earth slides, damage to the lifestyle of the people in the area, heavy soil erosion in the area and relocation of approximately 600 families (Withanage, 1998), category A project.
PART 2		<u> </u>		
B. Technical	B1. Data Gaps			**
Resources	B2. Local Expertise			**
	B3. Staffing and Financial Resources			**
C. Reliance on Foreign Donors	C1. Foreign Donor Accountability		3	Comparison of donor policies against project outcomes illustrates very little commitment to the implementation of agency policies (section 2.4.3).
D. Public Participation	D1. Formal Process and Commitment to Public Involvement			**According to Withanage (2001) public was not included in the appeal hearing when project got the go-ahead.
	D2. Formal Process and Commitment to Information Dissemination in All Appropriate Languages			**
E. Political Influence	E1. Conflict of Interest		-3-5	The project approving agency (PAA) for the UKHP was also the parent ministry of the Ceylon Electricity Board (the project proponent) (Zubair, 2001).
	E2. Distribution of Benefits	•	3	According to Dissanayake (2007), immediate benefits of the project are to politicians, contractors and businessmen with long term benefits to the already privileged persons of society. Further according to Withanage and Kodithuwakku (2001), the 600 or so relocated families would perhaps never benefit from the project.

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Category	Indicator	Potential to Cause Environmental Injustice				Explanation
		0	1	2	3	
F. Social	F1. Poverty Gap Index		1			Nuwara Eliya District 4.1 (Nanayakkara, 2006., p.17).
Demographics	F2. Gini Index of Income Inequality	0				Nuwara Eliya District 0.4 (DCSS, n.d., p.30).
	F3. Literacy Rate				3	Nuwara Eliya District 81.7% (DCSS, n.d., p.30).
	F4. Proportion of Population Over 65 and Children Under 14			2		Nuwara Eliya District 34.3% (DCSS, n.d., p.27).
G. Natural Resources	G1. Affected Communities' Reliance on Natural Resources			•		*
H. Human Health	H1. Child Mortality Rate			2		South central hill country with a concentration of estates = 22.7 (per 1000 live births); lower South central hill country excluding districts with a concentration of estates = 27.9 (per 1000 live births) (DCSS, n.d., p.40).
	H2. Proportion Weight for Age, Underweight			2	-	South central hill country with a concentration of estates = 26.3 %; lower south- central hill country excluding districts with a concentration of estates = 33% (DCSS, n.d., p.38).
I. Dislocation	 Access to Essential Services, Adequate Compensation and Environmental Quality of Relocated Area 				1	**According to Withanage (1998), there was a lack of proper planning for the relocation of affected communities.
J. Alternatives	J1. Consideration of Alternatives				3	The Upper Kotmale Hydropower Project was rejected three times by state agencies (Withanage & Kodithuwakku, 2001) because the project had failed to identify and evaluate the location of alternatives and possible environmental and social impacts (Withanage, 1998). Both alternatives to the undertaking and alternatives means to the undertaking were not properly considered.

In general data available and obtainable; however, unobtainable for the evaluation of this study due to complexities associated with remotely accessing * information. ** Evaluation of process. Unable to make informed decision based on information at hand.

3.4.2. Southern Transport Development Project

The STDP was evaluated against 11 of the 18 indicators in the environmental justice matrix. Of the 11 indicators evaluated for the STDP, six of them were rated as having a very high potential (score = 3) to cause environmental injustice. Three indicators were rated as having high potential (score = 2) and two indicators were rated as having some potential (score = 1) to cause environmental injustice (Table 8). Overall, the project may be flagged as one that warrants close attention as it shows potential for several adverse social impacts. Table 9 presents the evaluation of the STDP against the indicators in the environmental justice matrix. The rationale for the evaluation of each indicator is also provided.

Table 8: Indicator Scores for Southern Transport Development Project Evaluation

Very high potential to cause environmental injustice (score = 3)

- A1. Impact on Natural Environment and Affected Communities
- C1. Foreign Donor Accountability
- D1. Formal Process and Commitment to Public Involvement
- D2. Formal Process and Commitment to Information Dissemination in All Appropriate Languages
- F4. Proportion of Population Over 65 and Children Under 14
- I1. Access to Essential Services, Adequate Compensation and Environmental Quality of Relocated Area

High potential to cause environmental injustice (score = 2)

F1. Poverty Gap Index

- F2. Gini Index of Income Inequality
- F3. Literacy Rate

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Some potential to cause environmental injustice (score = 1)

H1. Child Mortality Rate

H2. Proportion Weight for Age, Underweight

Table 9: Evaluation of the Southern Transport Development Project

Category	Indicator	P Env	otential	to Cause ntal Injustice	Explanation
		0	1	2 3	
PART 1		L			
A. Natural Environment	A1. Impact on Natural Environment and Affected Communities			3	The project falls under a category A project (ADB, 2008c).
PART 2					
B. Technical	B1. Data Gaps				**
Resources	B2. Local Expertise				**
	B3. Staffing and Financial Resources				**
C. Reliance on Foreign Donors	C1. Foreign Donor Accountability			3	The Supreme Court confirmed that the project violated ADB's own policies which include policies on environmental and social impact assessments, public participation in decision making and involuntary resettlement (Sri Lankan working Group on Trade and IFIs [SLWG], 2004a); the Compliance Review Panel found violation of seven ADB policies with the implementation of the STDP (Bank Information Center, 2005a).
D. Public Participation	D1. Formal Process and Commitment to Public Involvement			3	Weak public participation and consultation process (Withanage et al, 2004); In February 2004, the Supreme Court of Sri Lanka found that the human rights of people whose lands have been taken away due to the project had been violated (SLWG, 2004a), this infringement was attributed to a lack of "information and participation", (SLWG, 2004b).
	D2. Formal Process and Commitment to Information Dissemination in All Appropriate Languages			3	Inadequate information disclosure procedures – many people did not have access to reports such as the EIA of the project and it was difficult for the people to find out the resettlement plan, documents which should have been made freely available to the public (Withanage et al, 2004).
E. Political	E1. Conflict of Interest				**
Influence	E2. Distribution of Benefits			5° ~1	**
L	A	<u>Largenza (1997)</u>	· /·- 6		

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F. Social F. Social Demographics F2 In F2 In F3 F4 Pc C1 G. Natural G. Natural G. Sources I. Human Health H2 F4 Pc C1 F4 F4 Pc C1 F4 F4 Pc C1 F4 F4 F4 F4 F4 F4 F4 F4 F4 F4	 F1. Poverty Gap Index F2. Gini Index of Income nequality F3. Literacy Rate F4. Proportion of Population Over 65 and 	0	1	2 2 2 2 2 2	3	Colombo district = 1.2, Kalutara district = 4.3, Galle district = 5.8, Matara district = 6.5. Evaluated based on the highest poverty gap index of 6.5 % for the district of Matara (Nanayakkara, 2006., p.17). Colombo district = 0.46, Kalutara district = 0.43, Galle district = 0.43, Matara district = 0.43. Evaluation based on the higest Gini index value of 0.46 (district of Colombo) (DCSS, n.d., p.30).
F. Social F. Social Demographics F2 In F2 In F3 F4 PC C1 G. Natural G. Natural G. Natural G. Natural Human Human Huffen H2 Complete Natural G. Natural G. Natural G. Natural G. Natural G. Natural G. Natural G. Natural G. Natural G. Natural H. Human H. Human H. Human H. Human H. H. H	 F1. Poverty Gap Index F2. Gini Index of Income nequality F3. Literacy Rate F4. Proportion of Population Over 65 and 			-2 -2 -2 -2		Colombo district = 1.2, Kalutara district = 4.3, Galle district = 5.8, Matara district = 6.5. Evaluated based on the highest poverty gap index of 6.5 % for the district of Matara (Nanayakkara, 2006., p.17). Colombo district = 0.46, Kalutara district = 0.43, Galle district = 0.43, Matara district = 0.43. Evaluation based on the higest Gini index value of 0.46 (district of Colombo) (DCSS, n.d., p.30).
F2 In F3 F3 F4 Pc C1 G. Natural G Resources C4 Na Esources H. Human H Health H2 F3	 F2. Gini Index of Income nequality F3. Literacy Rate F4. Proportion of Population Over 65 and 			2		Colombo district = 0.46, Kalutara district = 0.43, Galle district = 0.43, Matara district =0.43. Evaluation based on the higest Gini index value of 0.46 (district of Colombo) (DCSS, n.d., p.30).
F3 F4 Pc Ch G. Natural G Resources Cc Na H. Human H Health H2 F3	 F3. Literacy Rate F4. Proportion of Population Over 65 and 			2		Colombo district = 02 6 8/ Kolutore district = 02 8 8/ Collo district = 02 0 0/
F4 Pc Ch G. Natural G Resources Cc Na H. Human H Health H2 for	74. Proportion of Population Over 65 and			-		Matara district = 92.8 %, Kalutara district = 92.8 %, Gane district = 92.9 %, Matara district = 89.8 %. Evaluation based on the lowest literacy rate of 89.8 % (district of Matara) (DCSS, n.d., p.30).
G. Natural G Resources Co Na H. Human H Health H2 for	Children Under 14				3	Colombo district = 28.6 %, Kalutara district = 33.1 %, Galle district = 35.7 %, Matara district = 36.3 %. Evaluation based in higest percentage of population over 65 and under 14 of 36.3% (district of Matara) (DCSS, n.d., p.27 & 28).
H. Human H Health H2	G1. Affected Communities' Reliance on Natural Resources					*
H	11. Child Mortality Rate		1			South-western coastal low land = 13.7 (per 1000 live births) (DCSS, n.d., p.40).
10	12. Proportion Weight for Age, Underweight		1			South-western coastal low land = 26.2 % (DCSS, n.d., p.38).
. Dislocation 11. Se Co En Re	1. Access to Essential ervices, Adequate Compensation and Invironmental Quality of Relocated Area				3	Unsatisfactory resettlement packages (Withanage et al, 2004); concern that the Sri Lankan Road Development Authority (RDA) is withholding proper compensation from communities affected by the STDP (Bank Information Center, 2005b); house and land belonging to the affected communities are allegedly grossly undervalued (Bank Information Center, 2005b); relocated families face unsatisfactory infrastructure facilities (e.g., the water supply is very poor compared to previous living conditions, communities are unable to tap into electricity from the national grid) (Withanage et al, 2004); lands are under threat of earth-slips and show signs of excessive erosion; internal roads are not developed (Withanage et al, 2004).
J1.	1. Consideration of		1			**Non-consideration of proper alternatives and incorrect evaluation of alternatives

* In general data available and obtainable; however, unobtainable for the evaluation of this study due to complexities associated with remotely accessing information.

** Evaluation of process. Unable to make informed decision based on information at hand.

3.4.3. Discussion: Evaluation of UKHP and STDP

The matrix provides an overall sense of the propensity of a project to cause environmental injustice among affected communities and the environment. The evaluation of the UKHP and the STDP suggest that there were significant social and environmental issues associated with the implementation of these projects and provides insight into why the projects were wrought with so much controversy.

The evaluation of the UKHP and STDP demonstrate that the mechanisms that have been utilized so far to ensure sustainable development, have largely failed to protect the environment and affected communities. There is a need for a mechanism that understands and considers environmental justice issues that are most pertinent to Sri Lanka during development. The environmental justice matrix fulfils this role and thus has the potential to have a place in the evaluation of projects involved in development.

The evaluation exercise leads to the conclusion that the matrix can be a beneficial tool, especially if used as intended during the scoping phase of the EIA process. If a tool such as the matrix had been available to evaluate the UKHP and STDP during the scoping process, it may have resulted in a reduction of issues of environmental injustice. Evaluation of the projects against the matrix may have prompted the following ideal outcomes:

- Assisted in the identification of key environmental justice concerns early in the project cycle. Recommendations from the EJT could have been incorporated by the PP and PAA into project planning, resulting in better outcomes than described in section 2.4.
- Resulted in the search for, and use of, more comprehensive data sets and a greater integration of knowledge and expertise which may have resulted in better analyses of impacts. This may have significantly improved the decision making process.
- Prompted greater foreign donor accountability and a more transparent process.
- Facilitated a better incorporation of public interest and opinion into project planning, resulting in an overall improvement of both projects.
- Protected the reputation of the PPs, PAAs and foreign donor agencies from the endless criticisms they received (and continue to receive) since the implementation of the projects.
- Prompted a greater intentionality with regard to the consideration of alternatives, especially in the case of the UKHP. The exercise may have offered better alternatives

associated with fewer social and environmental impacts. Perhaps these "better" alternatives would not have required the destruction of some of Sri Lanka's major waterfalls or the relocation of thousands of individuals.

- Encouraged PPs and PAAs to ensure proper compensation packages for affected communities including compensation for loss of, and access to, natural resources and cultural affinity.
- Allowed for mitigatory measures to be taken to ensure that access to essential services and environmental quality were adequate for resettled communities.

The evaluation of the UKHP and the STDP not only displays the matrix as a working tool, but also exhibits its potential. The environmental justice matrix could be a valuable safeguard in upholding environmental justice that can significantly strengthen the EIA process by serving as an "add-on" to the scoping stage. It is able to provide direction and identify key issues that need special attention so that remedial action could be taken as early as possible in the development process.

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CHAPTER FOUR

4.1. Summary and Conclusions

Ensuring environmental justice is an important aspect and a desired outcome of good project planning. Upholding environmental justice must be intentional from the very beginning of the assessment process; it cannot be treated as an afterthought if any honest attempt is to be made at integrating environmental justice into project development. However, in reality the intention to ensure environmental justice is seldom translated into any meaningful action because it is all too often quickly replaced by other goals and priorities of the project.

The guiding principles of environmental justice and the reality faced by affected communities are often in stark contrast with each other. Although environmental impact assessment (EIA) reports often contain safeguards pertaining to environmental justice issues, they are often vague about the specific plans that should be in place to ensure that environmental justice is sustained during and after development. Many assessments highlight areas of concern but rarely provide a means of gauging the extent of injustice the project may have on communities. Many large and prominent issues such as relocation overshadow less prominent issues such as the loss of traditional values and cultural affinity due to relocation. Proponents of the project may enthusiastically note the inclusion of public participation into the assessment process, but their definition of public participation may be inadequate for meeting the standards of participation required to ensure environmental justice. The assessment process is sometimes hurried over due to political interference and in some instances politics and bureaucracy also influences the approval of projects. The significant lack of expertise and comprehensive data sets to conduct EIAs may also result in environmental justice components being inadequately dealt with during the assessment process. Donor accountability is at times poor which significantly affects the implementation of donor safeguards that posit environmental justice during project development.

The Upper Kotmale Hydropower Project (UKHP) and the Southern Transport Development Project (STDP) demonstrate the above shortcomings and also suggest that the safeguards used to uphold environmental justice were, to a large extent, unsuccessful. The Sri Lankan experience illustrates that the EIA safeguard, which is often a requirement by foreign donors and mandated by law, is failing to adequately protect affected communities. There are examples of EIA processes that have successfully incorporated environmental justice considerations into project development. The Berger Inquiry and the Great Whale Hydroelectric Project case studies from Northern Canada serve as good examples of ambitious environmental assessment exercises and demonstrate how principles of environmental justice can be integrated into the early stages of project development. These projects share commonalities with those in Sri Lanka, particularly with regard to challenges of poverty, inequality and marginalization of people during development. Although, in general, mechanisms used in the West are inappropriate for measuring environmental injustice in developing countries such as Sri Lanka, these case studies from Northern Canada present issues common to Third World countries.

Perhaps two of the most valuable lessons to be learned from the above mentioned Canadian case studies are the importance of scoping in the assessment process and the value of understanding the culture and experience of the people affected by development. Applying both these principles to the Sri Lankan situation can be very valuable and will significantly contribute to uphold environmental justice during project development. This thesis recognizes the importance of employing safeguards that appreciate the Sri Lankan context and respond to issues that are most prevalent in the country. This study further acknowledges the importance that the scoping phase has on the entire EIA process.

This thesis also identifies a lack of appropriate indicators against which to measure environmental injustice during project development in Sri Lanka. One of the main reasons for this shortage is because the indicators that are available have been developed to tackle environmental justice issues of the West, and are largely inappropriate since the nature of environmental justice issues faced in countries like Sri Lanka are significantly different from the West.

In response, this thesis proposes a set of indicators that represent a variety of issues that are encountered during the different phases of project development in Sri Lanka, which have the potential to cause environmental injustice. The indicators together form the "environmental justice matrix", a tool designed to evaluate the degree of environmental injustice during project development. The matrix is a new approach to integrating environmental justice concerns into project development in Sri Lanka. It is intended to strengthen the EIA process by providing a means of addressing key environmental justice issues from the initial stages of project design and

development. The environmental justice matrix will ideally provide direction, encourage innovative solutions and facilitate further communication between agencies and government on key environmental justice issues associated with the project.

The environmental justice matrix fulfils the need for having an evaluation component whereby a project can be assessed against major environmental justice issues that may arise during development. It demands that project activities be questioned and gauged in terms of the extent of damage it may have on individuals, communities and the environment. It provides a means of considering, as part of the assessment process, the vulnerability and disadvantages faced by communities prior to development. Thus, the matrix considers the injustice that may result from adverse impacts of a project on an already disadvantaged population.

The matrix also provides a means of linking the "contributing factors" to environmental injustice as discussed in Chapter two and provides a comprehensive measure that can be used to mitigate and alleviate adverse environmental and social impacts that may befall affected communities. It demands that a project be evaluated against pre-existing indicators. With the employment of the matrix one is forced to consider all associated negative impacts of the project, and not merely elaborate on the positive aspects. It requires an intentional commitment to the assessment of major issues of a project that are associated with significant social impacts, which in the past have often been overlooked or underplayed.

As with any other method of measurement, however, there are limitations and constraints associated with the environmental justice matrix. It is important to note that this matrix is a first attempt at evaluating project development against environmental justice indicators in Sri Lanka. It is expected that the matrix will be modified to suit specific circumstances related to individual projects. This will improve and increase the utility of the matrix. Also, since the matrix is specific to situations reflective of the Sri Lankan experience, the indicators in the matrix will need to be modified in order to be applicable to other countries.

The determination of measurement scales and criteria for indicators were based on the judgement of the author. Determination of indicator criteria for future projects in Sri Lanka should be subject to expert input to increase validity and reliability of the matrix. It is a "model" that can be built upon to increase the value of the matrix.

Although the geographies of the scale of project and data availability were comparable, data provided on a district level may overshadow smaller pockets of individuals faced with

dissimilar results than what district averages suggest. This factor should be considered during the assessment and evaluation of the matrix. Perhaps employing conservative ranges will account for these individuals who may otherwise be overlooked or underrepresented.

Regardless of the above mentioned constraints, the matrix has the potential to be a valuable tool. The evaluation of the UKHP and the STDP case studies against the environmental justice matrix shows that there is a need for a safeguard mechanism such as the matrix, and demonstrates the matrix's utility. The evaluation also leads to the conclusions that there is a potential place for the matrix in the evaluation of projects involving development.

This study also proposes the formation of an environmental justice team (EJT): a group of experts responsible for evaluating the project against the environmental justice matrix. The EJT will assume the most critical part of the matrix evaluation process, as the team will be responsible for identifying potential environmental injustices associated with the project. The EJT's role is to effectively monitor, support and provide expert advice to project proponents (PPs) and project approving agencies (PAAs) to maintain environmental justice during project development. It is recommended that the EJT should be established under the *National Environmental Act* of Sri Lanka. This will provide the EJT with statutory authority that will make it mandatory that their recommendations be considered by PPs, PAAs and foreign donor agencies.

The matrix as presented in this study is not limited to the indicators provided. The matrix is simply a model. It can be, and perhaps should be developed and further enhanced to best suit the needs of affected communities. For example, Pasha (2004) notes that a "free and vibrant" press can contribute to "greater transparency and accountability." Perhaps the matrix will benefit from an indicator that incorporates the suggestion of having a free and vibrant press. This is an example of an indicator that may be added to further increase the value of the matrix; to further increase the protection of the environmental and affected communities.

Both indicators H1 child mortality and H2 weight for age (underweight) under the "human health" category, reflect child health and development status of a population. Inclusion of these in the EJM was based on indicators in the EJSEAT created by the US EPA (US EPA, 2008). It is suggested that including an indicator reflective of adult health would be beneficial in this category as it will better represent the "human health" status of affected communities (and not only limit it to child health).

According to Hanna (2005), consideration of impacts should not end with approval and implementation and must have the "capacity for ensuring compliance and accuracy of impact prediction and evaluation of project performance." This study recognizes that a post-project evaluation component will be essential in identifying the success of the environmental justice matrix. Moreover, including an evaluation component may further strengthen the EIA process.

Despite some limitations, the matrix serves as a tool that can help protect society from the ill effects of development projects on communities and the environment. There is a need for a safeguard that is contextualized and is able to respond to environmental injustices in developing countries such as Sri Lanka. This thesis provides a method of responding to this need. The environmental justice matrix answers the call for a structured and logical method of incorporating and ensuring environmental justice during project development in Sri Lanka.

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