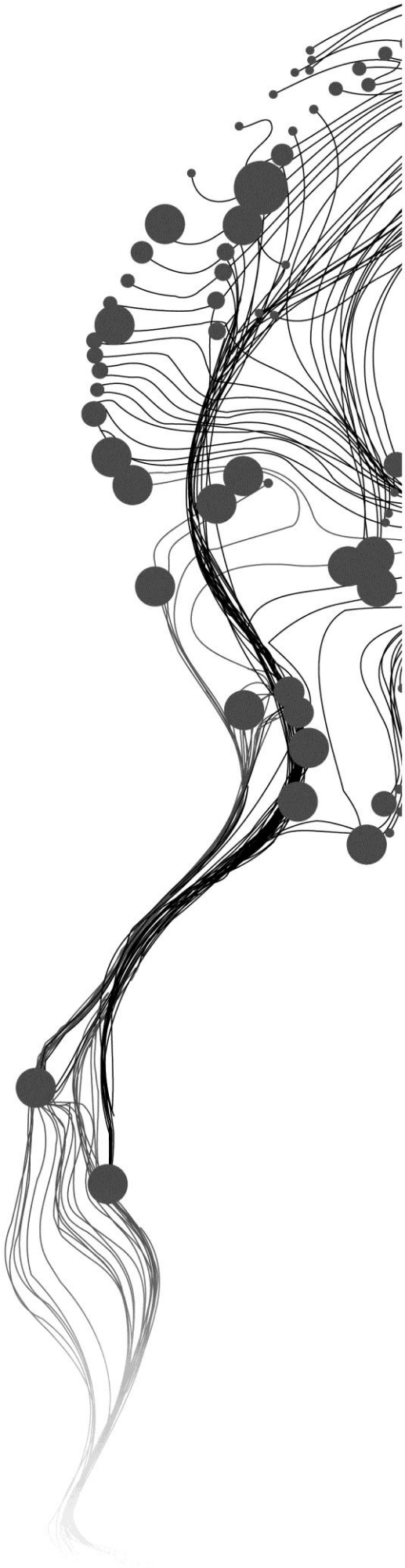
DISASTER AND LAND: ACCESS TO LAND AND LAND RIGHTS- COMPARATIVE CASE STUDIES OF INDONESIA, PAKISTAN AND HAITI

MAHAMAN LAWALI ABBA WAZIRI
MARCH, 2011

SUPERVISORS:
Prof. Dr. Jaap Zevenbergen
Drs. Johan de Meijere



DISASTER AND LAND: ACCESS TO LAND AND LAND RIGHTS- COMPARATIVE CASE STUDIES INDONESIA, PAKISTAN AND HAITI

MAHAMAN LAWALI ABBA WAZIRI

Enschede, The Netherlands, March, 2011

Thesis submitted to the Faculty of Geo-Information Science and Earth Observation of the University of Twente in partial fulfilment of the requirements for the degree of Master of Science in Geo-information Science and Earth Observation.
Specialization: Land Administration

SUPERVISORS:
Prof. Dr. Jaap Zevenbergen
Drs. Johan de Meijere

THESIS ASSESSMENT BOARD:
Prof. Ir. Paul van der Molen (chairman;)
Prof. Mr. J.W.J. Besemer (External Examiner)

ABSTRACT

Disaster destroys land and property and can lead to small or large scale displacement of affected communities away from the affected areas during the recovery phase. Land administration system can suffer from losses of staff, records and can lead tenure insecurity. After a period of time the displaced people (IDPs) may like to come back to their pre-disaster living area to reconstruct their houses. Land became a scarce resource and land issues have to be addressed from early recovery till the reconstruction phase. The normative framework for addressing housing land and property rights in the context of displacement is summarized in the 2005 principles on housing and property restitution for refugees and displaced persons (COHRE, 2005).

The objective of this study is to assess how prepared can be a government in term of disaster management what are the factors that can obstruct or help to recovery and reconstruction and how land and land rights are gained back after a disaster.
The research methods consist of case study of Asian tsunami in Aceh, the Pakistan earthquake and the Haiti earthquake, the desk research was based on literature review.

The study reveals that location plays a role in disaster as it can help or obstruct recovery and reconstruction also security, political and social aspects of a country can be also important factors for delaying or speeding recovery and reconstruction. The United Nations Agencies provided guidelines on land issues in post disaster but access to land and land rights depend largely on existing land administration system and land tenure system. Disaster Risk Management is a continuous process and preparedness continuous cycle of planning, organizing, evaluating and improving activities to ensure effective coordination to prevent protect and recover from disaster.

Key words: Disaster, Displacement, Land Administration, Tenure security, IDPs, Land, Disaster Management.

ACKNOWLEDGEMENTS

This research was possible through the combined efforts of my two supervisors, namely Prof. Dr Jaap Zevenbergen and Drs. Johan de Meijere. This is the place to show them my appreciation and gratitude. I really appreciate your support and critical comments, time was hard sometimes but you managed to guide me till the end.

I'm thankful to my wife Ramatou and my loved daughter Amira that came all the way from Niger to support me.

I'm indebted to my friend and brother Hanhan Lukman from Indonesia for his support and the documents he supplied me and my friend and sister Chinnapan from Thailand for her kindness and help.

Thanks to Allah for giving me the opportunity to finish the course, to my Dad and Mum.

Thanks to the world bank for the scholarship.

Thanks to my course director Kees Bronsveld and our course secretary Jacqueline Mol for their availability and support.

Last but not least, I will like to thank the kingdom of land administration for the friendship, helps and the consideration given to me, by electing me as chairman for enjoyment to reduce stress in the Kingdom.

Mahaman L Waziri

LIST OF ABBREVIATIONS

AJK (Azad Jammu Kashmir)
BAKORNAS (National Coordinating Board for Disaster Management and Internally Displaced People Affairs)
BPN (National Land Agency in Indonesia)
BRR (Reconstruction and Rehabilitation Agency for Aceh and Nias)
CDA (Community Driven Adjudication)
CNIC (Computerized National Identity Cards)
DGI (Direction Générale des impôts)
DRM (Disaster Risk Management)
DRU (District Reconstruction Unit)
FRC (Federal Relief Commission)
IDP (Internal Displaced Population)
IHRC (Interim Haiti Recovery Commission)
INED (National Institute of Demographic Studies)
ISDR (International Strategy for Disaster Reduction)
LAS (Land Administration System)
MOU (Memorandum of Understanding)
NASA (national aeronautics and space administration)
NDMA (National Disaster Management Authority)
NWFP (North West Frontier Province)
OCHA (United Nations Office of the Coordination of Humanitarian Affairs)
PERRA (Provincial Earthquake Reconstruction and Rehabilitation Authorities)
RALAS (Reconstruction of Land Administration System in Aceh and Nias)
SERRA (State Earthquake Reconstruction and Rehabilitation Authorities)
UCIL (Union Carbide India limited)
UNDHA (United Nations Department of Humanitarian Affairs)
UNDRO (United Nations Disaster Relief Office)
UNHCR (United Nations High Commissioner for Refugees)
UNISDR (United Nations International Strategy for Disaster Reduction)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1. Background

Different types of disasters may have different effects on land and land tenure. Hydro-meteorological hazards such as floods and tsunamis may leave large amount of land uninhabitable through long term inundation. Seismic events may destroy land through landslides, leaving other areas too unstable for safe habitation. High wind events have relatively little impact on land, but displace large numbers of people from the affected areas. "The complexity of disasters today is demonstrated by the processes in which they can combine with and compound each other" (Jansen, 2003). Natural disasters often generate both large and small scale migrations of people away from affected (P. Blaikie, et al., 1994). Migration is said to be collateral damage of disaster and is generally considered to be one of the primary responses, among others explanation, outmigration occurs because disaster victims and survivors frequently lose their livelihood in the wake of an extreme natural event, they migrate to non-affected areas for a period of time, another reason for outmigration is the fear the impacted area may experience more natural disasters in the near future, however the majority of migrants seem soon to forget this concern and return to their original residence, while few may remain at their new destination (Mileti, 1999).

Land is said to be an important natural resource for human life where people have access to benefits such as living, working, producing food and etc. Therefore, land administration is necessary to control the land resources to remain sustainable (Enemarck, 2009). A review of literature reveals much discussion on land issues following natural disasters, e.g. (D'Souza, 1986), (Pantelic & Srdanovic, 1992), and (Olivier-smith, 1996). However, according to David Mitchell (2010) it's after the Asian 2004 Tsunami, that interest in land issues increased. David Mitchell (2010) mentioned that "the most vulnerable households after a disaster are those that rely on access to land with insecure tenure". When a disaster occurs, groups whose rights to land are informal (such as tenants), or those who have been occupying land illegally (such as squatters) are vulnerable to land grabbing or resettlement without compensation (Brown & Crawford, 2006); (Cosgrave, 2008). Pre-disaster property rights can be very complex and overlapping. Secure rights and access to land are crucial for the vulnerable groups being more affected by a disaster including renters, informal landholders, widows and orphans.

Lessons from recent natural disasters have highlighted several threats to landholders. First, there are material threats caused by displacement (risk of land grabbing), the need for temporary shelter and resettlement, and the impact of resettlement on those with insecure tenure. A second category of threats is the material threats caused by destruction (damage to land and property, loss of documents). The third threat is administrative (limited public sector capacity, inadequate compensation). The final threat relates to legality and human rights, and includes discrimination and inappropriate land acquisition for resettlement (Fitzpatrick, 2006).

Mitigation and preparedness are important components in the emergency response and a move away from Disaster Risk Reduction to Disaster Risk Management (Mitchell, 2010). Baas, et al.,(2008) argue that disaster risk management is a broader concept and includes a management perspective that includes the stages of prevention, mitigation, preparedness, response and recovery. Disaster destroyed not only land and property but also infrastructures that support the economy, roads, companies and telecommunications.

1.2. Justification of Study

Nowadays, the damage by unexpected natural disaster increased worldwide and manifold damage such as the South East Asia Tsunami in 2004 that killed almost 230,000 lives and destroyed a big amount of land and properties, the North America Hurricane Katrina in 2005 loss more than $75 billion of economic damage (FIG, 2006) and the Pakistan earthquake in 2005. The latest example of a large loss of lives and property in disaster events, is the Haiti earthquake in January 2010, around 200,000 to 250.000 lives were lost and over 1.500,000 people have been homeless(PDNA, 2010). These disaster events not only destroy life and resources but also they reduce liquidity of economic and social development (GTZ, 2002). Addressing land issues is crucial in post-disaster, when a big quantity of land is lost and land has become a scarce resource. People may need land for temporary shelter and later land is needed for reconstruction. Land tenure is an important aspect of a reconstruction process. Every year, 95% of the 250,000 people who died from disaster live in developing country (UN-HABITAT, 2008).

Both disaster and forced migration are terms that are used to describe a wide variety of environmental and social processes. The term "disaster" actually refers to a process essentially, the disruption of social functions, it is generally employed to characterized an event or agent such as Hurricane, earthquake, tsunami and flood, (Olivier-Smith, 2001). Since the 1980s the researches have linked the issue of environmental change with human migration, explicitly designating as "environmental refugees" people who are forced to leave their homes, temporally or permanently, due to threat, impact or effects of a Hazard (El-Hinnawi, 1985). Other researchers attribute the displacement of people to a complex pattern of factors including political, social economic as well as environmental forces (Wood, 2001) and (Black, 2001).

Natural disasters are seen to cause temporary displacement but not authentic permanent migration because after a period of time (weeks or few months) the migrants called internal displaced people (United Nations) return to their pre- disaster areas of residence.

After natural disaster comes the compensation for the affected population. The compensation package provides multiple options such as cash compensation, replacement of land and small business grant. Reasonable criteria for establishing compensation are needed.

Vulnerable groups have limited access to land. Addressing landlessness raises particularly difficult protection issues and policy recommendations regarding the landless may inadvertently increase tenure insecurity of the most vulnerable people affected by disaster. Landlessness refers to the physical loss of land due to the disaster by two groups (1) tenants, renters and other secondary holders of right to land (2) informal landholders are highly vulnerable to the impacts of a disaster (UN-HABITAT, 2010).

1.3. Problem Statement

Natural disaster such as earthquake, tsunami, landslides and flood result in a significant loss of life, land and induce to large displacement of people. "Addressing the needs of those who have lost land in such circumstances is often a distinct imperative of post disaster land programming" (UN-HABITAT, 2010). The need to find new land and clarifying ownership is critical.

When people are displaced from their homes because of a disaster, they require sites for emergency and transitional shelter for a period to recover where they can find all facilities, like food, water and health.

Where persons affected by disaster have returned to their homes for reconstruction, the primary land issue will be to ensure tenure security. Landholders will like to get back their land, renters and squatters may not be able to go back to their former place, women and inheritance rights have to be secured. People have claims which have to be handled. The problems have to be investigated in a systematic way by comparing a few recent disasters areas (Indonesia, Pakistan and Haiti).

1.4. Research Objective

The main objective of this research is to investigate how well prepared the governments of Indonesia, Pakistan and Haiti where in terms of disaster management and making land available (response and recovery), for people when they moved out of their place of residence and how land was provided when they returned back to the affected areas for reconstruction. I will investigate also the factors that can obstruct or speed to recovery and reconstruction, the mechanisms to give back land rights after such destruction of land boundaries and documentation and the preventions (mitigation) measures taken for disaster risk reduction for future.

1.5. Research Questions

1. How disaster was managed in the study areas?
2. How land is provided during the emergency phase for the displaced population?
3. What has been done in Indonesia, Pakistan and Haiti in terms of access to land and land rights and mitigation for disaster risk reduction?
4. How are the people with weak or no right to land treated after the disasters in Indonesia, Pakistan and Haiti?
5. How are land rights gained by landowners in Aceh, Pakistan and Haiti?

1.6. Research Framework

The **Conceptual Framework** is a map of the relationships between the main concepts required for structuring and designing the research. The general overview of the conceptual framework, outlined to carry out this study in a structured way is mentioned in figue1-1

As per the main objective of the research, the major issues of concern are the concept of disaster that lead to the disruption of the relationships between man and land administration. Also the concept of risk and vulnerability to disaster impacts on land and land tenure, availability of land, need for shelter to relocate people, expropriation and compensation and tenure in post disaster assessing the three cases (Indonesia, Pakistan Haiti).

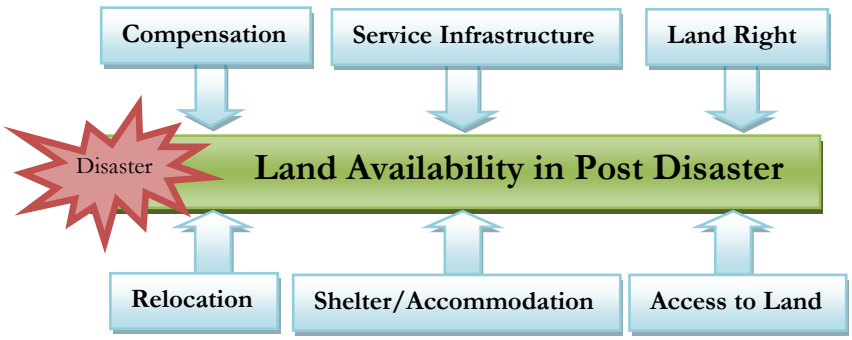


Figure 1-1: Conceptual (theoretical) framework

1.7. Research Approach

This research will apply a desktop approach making use of secondary data (literature review and also empirical data) related to land policy, land tenure, land use planning, disasters, reports on resettlement and relocation, tenure security and case studies of countries (Indonesia, Pakistan and Haiti) that suffered from disaster and their experiences.

Case study

As explained by (Yin, 1994); (Darke, et al., 1998), a case study is "an empirical enquiry that investigates a contemporary phenomena within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident and it relies on multiple source of evidence".

According to Cavaye (1996), the main focus of case studies is to get in depth understanding of the phenomenon and its context.

The three disasters in the three countries are treated as cases in this study. The case studies are based on reports, articles and internal sources that could be accessed from ITC.

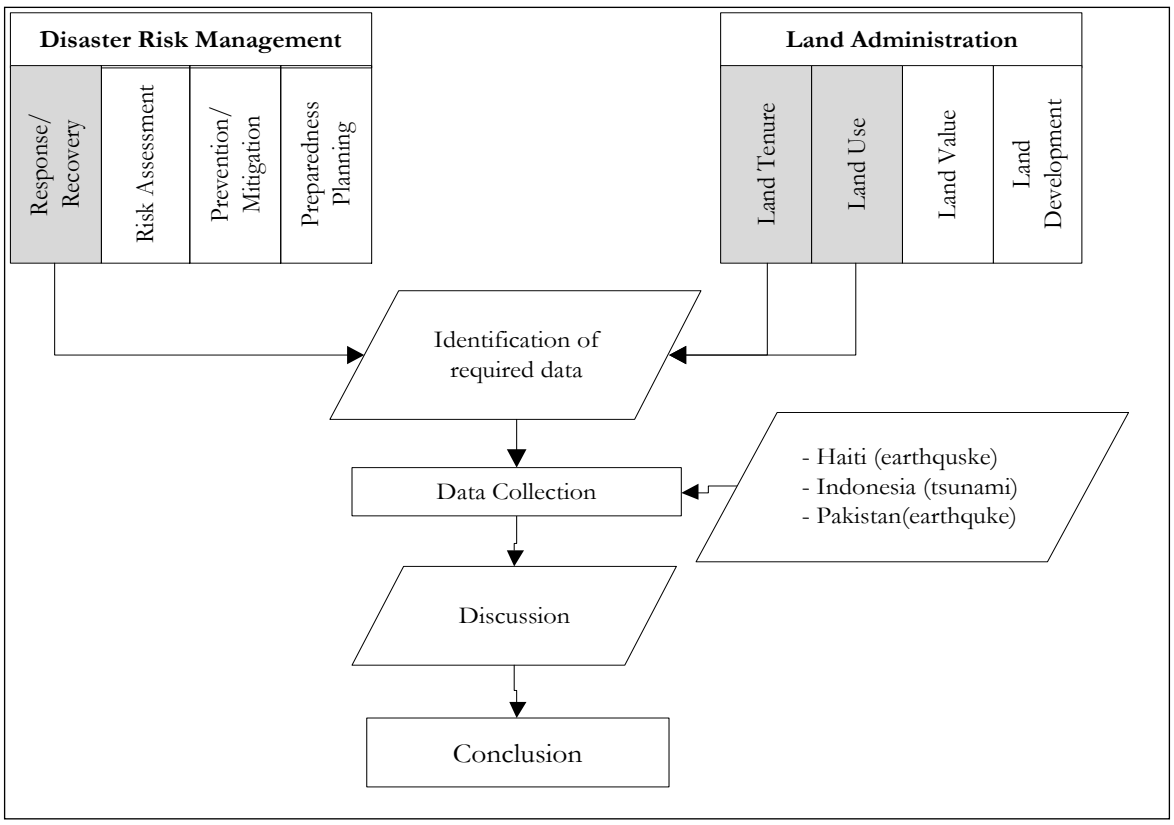


Figure 1-2: Research Approach

1.8. Thesis structure

Chapter 1 – Introduction

This chapter will provide the general background and justification, Research Problem, Research objective, Research question.

Chapter 2 – The theory of land tenure arrangement in disaster risk management

This chapter will give an overview of the concepts of disaster and hazard, risk and vulnerability, disaster risk management true (mitigation preparedness, response and reconstruction).

Chapter 3 – natural disasters/impacts on land and access to land

In this chapter I will describe natural disaster such as earthquake and tsunami their impacts on land in term of destruction, displacement and death, access to land for the affected persons for temporary shelter and long term reconstruction, community participation ,tenure security and reconstruction of lost documentation, laws principles and standards.

Chapter 4 description of the three cases (Indonesia, Pakistan and Haiti)
This chapter will provide a short description of the three countries, the impacts of the disasters suffered by those Indonesia (Tsunami), Pakistan and Haiti (earthquake) description of pre-disaster land tenure and land administration system.

Chapter 5 – analysis of the three cases for land tenure arrangement
This chapter will deal with the analysis of how the governments of Indonesia, Pakistan and Haiti managed to provide land during the response phase and the reconstruction phase. What are the mechanism used to provide the land, the rights reconstruction and tenure security? What are the measures for mitigation for future disaster in the affected areas?

Chapter 6 – Conclusion and recommendation
This chapter gives the conclusions based on the previous chapters and some recommendations.

2. LAND AND DISASTER MANAGEMENT

The chapter two is related to land and disaster management, it defines land and land administration disaster, hazard, the difference between disaster and hazard and when a hazard becomes a disaster. It also explain the concept of risk and vulnerability, and the disaster risk management through mitigation, preparedness, response, recovery, community participation, and land use planning for disaster risk reduction.

2.1. Introduction

Land Administration is "the regulatory framework, institutional arrangements, systems and processes that encompass the determination, allocation, administration and information concerning land. It includes the determination and conditions of approved uses of land, the adjudication of rights and their registration via titling, the recording of land transaction and the estimation of value and taxes based on land and property. There are three components of land administration: the land rights registration and management, the land use allocation and management, and the land valuation and taxation (Lyons & Satish, 2001). Land administration can also be defined as "the processes of determining, recording and disseminating information about the ownership, value and use of land when implementing land management policies" (UN-ECE, 1996); (UN-ECE, 2005). Land administration system (LAS) is concerned with social, legal, economic and technical framework within which land managers and planners operate. Since land administration system has the ability to influence societal and institutional behaviour (including that of individuals), professional competence and human resource development are an important component of LAS (Paul & Enemarck, 2008).

After a natural disaster, a number of issues arise around the relocation of the victims either temporal or permanent relocation. According to the United Nations Development Program report in 2004, 85 % of those exposed to disaster risk live in countries having medium or low human development, while a certain amount of this risk can be attributed to geography, much of it has to do with poverty and under-development. People with no legal status or slum dwellers, are much less likely to be able to claim restitution because they have no legal proof of their previous ownership or tenancy status.

The owner may represent an individual or a group and give the answer to the question 'who'. The parcel represents a certain part of land and the answer to the question 'where' and how much. The right or title represents a certain legal relation (ownership, leasehold or other form of tenure) and gives the answer to the question 'how'.

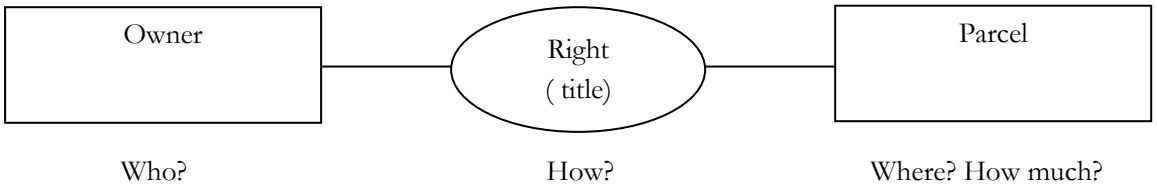


Figure 2-1: Land and man relationship

2.2. Disaster

International normative instruments have also approached "disaster" in various ways. Some do so narrowly, focusing exclusively on events of a particular type (e.g., nuclear emergencies, or oil pollution) or category (e.g., natural disasters or industrial accident). The international humanitarian community has adopted a broad approach to the term disaster in policy documents. For example in 1991 the Red Cross/Red Crescent and NGO code of conduct, defined disaster as a calamitous event resulting in loss of life, great human suffering and distress, and large scale material damage. In 1992, an "Agreed of Basic Terms Related to Disaster Management" prepared by the UNDHA a predecessor to the office for the coordination of humanitarian affairs (OCHA) defined disaster as "a serious disruption of the functioning of society, causing widespread human, material or environment losses which exceed the ability of affected society to cope using only its own resources".

The International Space Charter, 1999, art.1 defined natural or technological disaster as a situation of great distress involving loss of human life or large-scale damage to property caused by a natural phenomenon, such as a cyclone, earthquake volcanic eruption, or by technological accident, such as pollution by hydrocarbon, toxic or radioactive substance. For instance, Sheehan and Hewitt (1969) defined disasters as those events leading to at least 100 deaths, 100 injuries, or $1million in damages. Glickman et al.(1992) used 25 deaths as their threshold. I will define a natural disaster as extreme phenomena of large intensity, limited in time with a spatial component that affects the environment, and leads to financial damage to property and human losses. The resulting loss depends on the capacity of the population to support or resist the disaster and their resilience. This understanding is concentrated in the formulation: "disasters occur when hazards meet vulnerability" (P. Blaikie, et al., 2004).

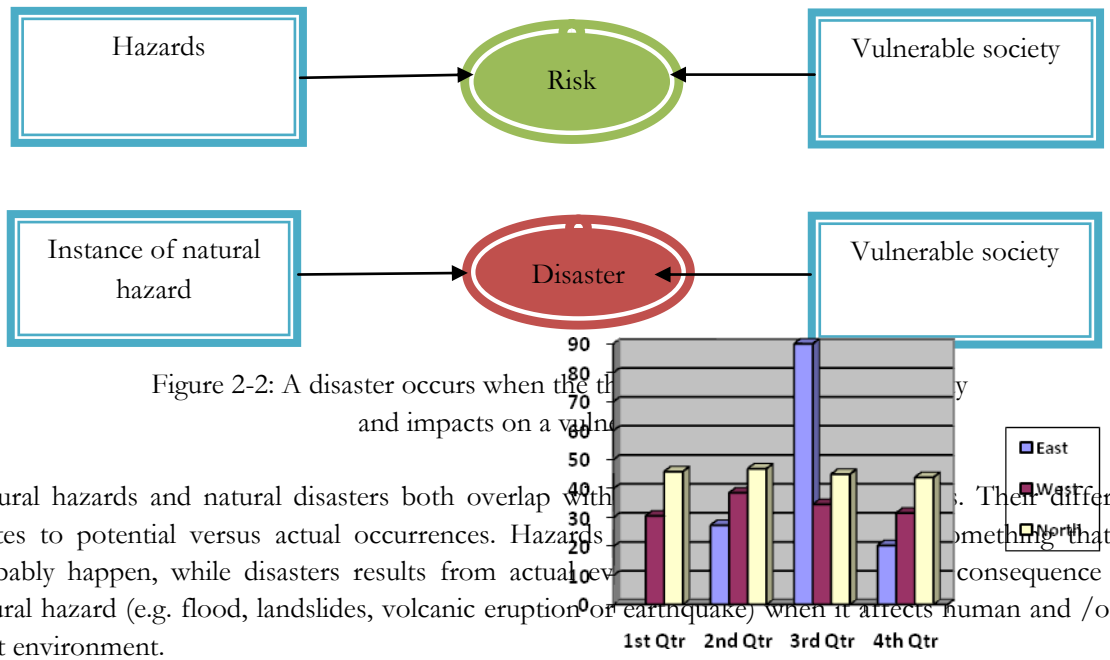


Figure 2-2: A disaster occurs when the th y and impacts on a vulne

Natural hazards and natural disasters both overlap with s. Their difference relates to potential versus actual occurrences. Hazards omething that can probably happen, while disasters results from actual ev consequence of a natural hazard (e.g. flood, landslides, volcanic eruption or earthquake) when it affects human and /or the built environment.

2.3. Hazard

Hazard exists because humans are constantly exposed to natural forces .The word natural hazard has been defined in four ways: According to Burton and Kates (1964) the elements in the physical environment which are harmful to man and caused by forces extraneous to him are called hazard, for White (1974) a hazard is an interaction of people and nature governed by the co-existent state of adjustment of the human use system and the state of nature in the natural events.

The United Nations Disaster Relief Office (UNDRO, 1982) defined in 1982 a hazard as the probability of occurrence within a specific period of time and within a given area of a potentially damaging phenomenon, two years later in 1984, the American Geological Institute gave another definition of a hazard as: A naturally occurring or man-made geologic condition or phenomenon that presents a risk or is a potential danger to life or property.

The office of the United Nations International Strategy for Disaster Reduction (UN-ISDR, 2004), defined a hazard as a potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation while the office of the United Nations disaster relief office co-coordinator (UNDP, 1991) gave a definition of a hazard as the probability of occurrence within a specified period of time and within a given area of a potentially damaging phenomenon.

2.3.1. Classification

For many years researchers have been studying disasters, and through Disaster Research Center research on disaster has been institutionalized. The studies reflect a common idea that all disasters can be seen as being human-made, the reason is that human actions can prevent hazard to develop into disaster. Hazards are routinely divided into natural or human-made. A specific disaster may result in a secondary disaster that increases the impact. A classic example is an earthquake that causes a tsunami resulting in coastal flooding in Asia.

2.3.2. Disaster location

Natural disaster may occur in any part of the world, but some types of disasters are specific to certain areas. Earthquake occur usually along active tectonic plate margins and volcano's occur along subduction zones (around the margins of the pacific plate), when disaster such as tsunami occur in the neighbourhood of active plate margins. Tropical cyclone called typhoons occurs in Asia and those called hurricanes are more common in North America and Landslides occurs generally in hilly and mountainous regions.

2.3.3. Disasters impacts

Disaster has a spatial as well as temporal dimension as it can occur in a particular area and at a certain time. A distinction can be made between disasters that result in relatively localized areas of severe damages and disruption and those in which impact are spread over a wide geographic areas (Asian tsunami). Disaster produce a range of impacts, they can be categorized as direct, secondary or disaster induced and indirect effects. Deaths, injuries, physical damage and destruction caused to properties and lands are called direct effects because they are produced by the impact. Secondary disasters impacts are fires or hazardous materials release, landslides caused by earthquake and pollution resulting for example from flooding. Losses resulting from disruption in the flow of goods and services, unemployment and business interruption can be seen as indirect losses. The table below showed how dramatic disaster can be in term of death.

According to ISDR (2009) five out of the ten worst disasters occurred between 2003 and 2009. Table 2-1 showed the ten most deadliest disasters in the last century (Wikipedia, 2010a).

Rank	Event	Location	Date	Death toll (estimate)
1	1931 China floods	China	July, November 1931	1000.000-2500.000
2	1887 Yellow River flood	China	September, October 1887	900.000-2000.000
3	1556 Shaanxi earthquake	Shaanxi Province china	January23,1556	830.000
4	1970 Bhola cyclone	East Pakistan(now Bangladesh)	November 13, 1970	500.000
5	1839 India cyclone	India	November25,1839	300.000
6	526 Antioch earthquake	Antioch ,Turkey	May 526	250.000-300.000
7	1976 Tangshan earthquake	Tangshan,Hebei,China	July 28,1976	242.419
8	1920 Haiyuan earthquake	Haiyuan,Ningxia-Gansu China	December16,1920	234.117
9	2004 Indian ocean tsunami	Sumatra Indonesia	December 26, 2004	230.219
10	2010 Haiti earthquake	Port-au-Prince , Haiti	January12, 2010	222.000

Table 2-1: The ten deadliest natural disasters

2.4. Risk, impact and vulnerability

According to the office of the United Nations Disaster Relief Co-coordinator (UNDRO, 1982) vulnerability can be defined as "the degree of loss to a given element or set of elements at risk resulting from the occurrence of a natural phenomenon of a given magnitude". It is expressed on a scale from 0 (no damage) to 1 (total loss)", when the risk becomes tangible and impending, there is a distinct threat of disaster. Hence the sequence of a disaster is as follows:

Hazard ⟶ risk ⟶ threat ⟶ disaster (impact) ⟶ after math

The United Nations Disaster Relief Office (1982) offered a wider definition, from that definition the concept of risk can be seen in three components.

- The elements at risk (E) comprise the population, properties, lands, economic activities, public services which are under the threat of a disaster in a given area;
- Specific risk (Rs) is the degree of loss likely to be caused by a particular natural phenomenon. It may be expressed as the natural hazard, H times the vulnerability;
- The total risk (Rt0 consist of the number of lives likely to be lost, the person injured, damage to property and disruption caused by a particular phenomenon. It is the product of the specific risk (Rs) and the elements at risk (E):

$$Rt = (E)\ (Rs) = (E)\ (H, V)$$

According to Alexander (1991) looked at another way, human vulnerability is a function of the costs and benefits of inhabiting areas at risk from natural disaster.

Total Vulnerability =	risk amplification measures	-	risk mitigation measures	+	risk perception factors

2.4.1. Vulnerability

According to Pelling (2003), variety of researchers has conceptualized the components of vulnerability as exposure, resistance and resilience.

The International Federation of Red Cross (IFRC, 1993) divided vulnerability into three component; material, organizational and socio-psychological. Vulnerability of a community or society to natural disaster can be derived from many factors: population growth and density, unplanned human settlements, poor construction and poverty. Societies in developed countries, have adopted strong regulations to reduce risk and developed strategies to cope with the hazard, using earthquake proof structures for buildings and zoning efforts can minimize the impacts of a disaster and reduce the vulnerability of people living in hazard areas. Vulnerability reduction requires a holistic understanding of the complex interactions between the physical, environmental and social factors that contribute to it (Cardona, 2003).

2.4.2. Resilience

While minimizing exposure is important for reducing vulnerability, recent academic analysis has focused on the ability for a community or society to cope with and adapt to hazard impacts, in many cases rendered synonymous with the concept of resilience. Resilience is the ability of a community exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a short time manner and reconstruct their livelihood in an efficient way.

2.5. Emegency Mmanagement

Disaster could in fact, be reduced if not prevented that's the reason why the United Nations promoted the Disaster Risk Management (DRM) through the International Strategy for Disaster Reduction (ISDR).
According to Blaikie., et al. (2004) any emergency management can be seen as the continuous process by which all individuals, groups, and communities manage hazards in an effort to avoid or ameliorate the impact of the disasters resulting from those hazards, actions taken depend in part on perceptions of risk of those exposed.

2.5.1. Definition

Emergency management called also disaster management can be define as the discipline dealing with and avoiding risks that involves, preparing for disaster before it occurs, (disaster mitigation and preparedness) , and supporting and rebuilding the society after the disasters have occurred (response and recovery). Within the European Union (EU) the term civil protection is used instead of emergency management and it refers to systems and resources approved by government to protect the civilian population, in the event of natural or human made disasters.

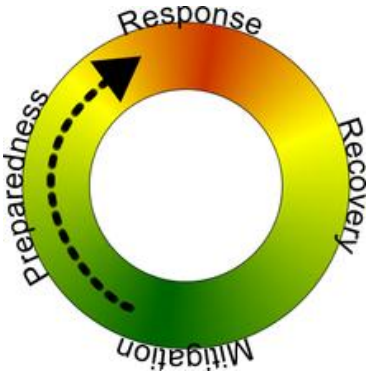


Figure 2-3: Emergency cycle

Students of disaster tend to characterise the process of reconstruction is characterised by students in the field of disaster according to the model of disaster propounded by Kates and Pijawka (1977) in which there are four phases, emergency action, and recovery of basic services, replacement reconstruction and development reconstruction.

2.5.2. Risk assessment

Risk assessment is the first step designed to find out what the problems are, this involves an evaluation of the significance of a risk, either quantitatively or qualitatively.

In practice, quantitative risk assessment has not been attempted for many environmental hazards but according to Fournier d'Albe (1979) can be conceptualized as:

$$\text{Risk} = \frac{\text{hazard (probability)* loss (expected)}}{\text{Preparedness (loss mitigation)}}$$

Risk assessment can be defined as the methodology to determine the nature and extent of risk by analyzing the potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, livelihoods and the environment on which they depend ((UNDP, 2004).

2.6. Pre-Disaster Activities

2.6.1. Mitigation

Mitigation is the methodology to prevent hazards from developing into disasters, or to reduce the effects of those disasters when they occur.

Hazard mitigation involves action taken before a disaster to decrease vulnerability, through measures that reduce casualties and exposure to damage and disruption. Such measures may include land-use regulations that reduce hazard exposure and buildings codes and construction practices designed to ensure that structures resist the physical impacts created by hazards. The mitigation phase differs from other phases because it focuses on long-term measures for reducing risk. The implementation of mitigation strategies can be considered as part of the recovery process if applied after a disaster occurs.

Mitigation measures can be structural or non-structural. Structural measures use technological solutions. Non-structural measures include legislation, land use planning. Education, training and awareness about risk are very important part of mitigation.

Micklin (1973) divided the way in which mitigation can be seen in four categories:

- Engineering mechanisms include technological innovations and applications.
- Symbolic mechanisms involve culture and its constituent norms and roles.
- Regulatory mechanisms define public policy and social control.
- Distributional mechanisms specify the movement of people, activities and resources.

2.6.2. Preparedness

Preparedness is a continuous cycle of planning, organizing, evaluation and improvement of activities to ensure effective coordination and the enhancement of capabilities to prevent, protect respond and recover from natural disasters or man-made disasters.

Preparedness encompasses action undertaken before disaster impact that enable social units to respond actively when disaster strike. As stated by Coleman (1978) the key to NASA's success in reaching the moon was that all the participants were impressed not only with their role in getting the rocket off the ground, but more importantly with how their roles interfaced or interacted with other roles this to highlight how importance it is for all components involved to work together.

Preparedness can be divided in two parts: Organizational preparedness activities include developing emergency response plans, training employees and response personnel on what to do in an emergency situation (Japan with the training of the population by simulating an earthquake or Tsunami).

Common preparedness measures include:

- Communication plan with easily understandable terminology.
- Development and exercise of emergency population warning methods combined with emergency shelters (e.g. tsunami warning system).
- Proper maintenance and training of emergency services.

2.6.3. Response

Emergency response consists of actions taken a short period prior to, during and after disaster impact to reduce casualties, damage and disruption and to respond to the immediate needs of disaster victims. These measures include:

- Detecting threats;
- Disseminating warnings;
- Evacuating threatened population;
- Providing emergency care;
- Providing emergency shelter;
- Humanitarian assistance;
- Clean-up, temporary repairs and restoration of services;
- Damage assessment and identification of priorities for recovery.

2.6.4. Recovery

The aim of the recovery phase is to try to restore the affected area to its previous state as possible. Recovery efforts are concerned with issues and decisions that must be made after immediate needs are addressed. The efforts are primarily concerned with actions that involve reconstruction such as rebuilding destroyed properties, finding new land for reallocation. The recovery phase should take into consideration the capacity to build back better, aiming to reduce the pre-disaster risks inherent in the community and infrastructure.

Measures such as, land use control, regulations, prohibitory, moratoria and compulsory purchase of land can be incorporated in the reconstruction processes for further risk management.

According to Mader (1980) the chances of implementing a better recovery investment and zoning strategies increase when four factors are present:

1. land use planning measures must be adapted to fit post disaster needs and opportunities;
2. there should be local reliance on international capabilities rather than only dependence on external resources;
3. the community must have knowledge of requirements for external assistance;
4. flexible administration for external assistance programmes.

2.6.5. Reconstruction and land use

According to the United Nations office for humanitarian affairs (UN-OCHA, 2008) the keys steps in early recovery related to land should be as follow.

- Implement interim tenure security prior to the beginning of house reconstruction
- Support rapid inheritance determinations based on family agreements
- Revise land use and spatial planning instruments to facilitate safe reconstruction
- Design and obtain fund for programmes to make land available for renters and informal occupiers
- Identify suitable land for resettlement and infrastructures
- Advocate and support improved regulatory framework for land acquisition
- Establish monitoring, grievance and information gathering systems relating to land and property rights, and start upgrading of tenure security on illegal, informal and customary settlements.

2.6.6. Land use planning in recovery phase

In the recovery period when rebuilding properties and infrastructures some restrictions should be taken to reduce damages and casualties on land (P. Blaikie, et al., 1994).

- Prohibition of development in high hazard areas;
- Law density zoning to limit the number of dwelling units that can be built in hazardous areas
- Density bonuses to compensate developer with increased density outside of hazardous areas in return for reduced density in areas subject to hazard;
- Reduced property taxes for parcel located in hazardous areas developers have dedicated to open space uses.

2.6.7. Summary

There are many types of disaster that can have different impacts on land. Disasters such as tsunami earthquake and landslides can destroy land, boundaries and land records but disasters like hurricane can only destroy properties. Preparedness should be a continuous cycle and mitigation should be based on long term measures for risk reduction.

Omissions and deficiencies in development law as well as negligent land use planning practices can lead to excessive losses in natural disasters.

3. NATURAL DISASTERS, IMPACTS AND ACCESS TO LAND

3.1. Introduction

In chapter two, I mentioned the different types of disaster and their characteristics. Chapter three is focusing on the two types of disasters related to chapter 2 case study areas (earthquake and tsunami) with their overall impacts on land and related records (degree of destruction, displacement and death). This chapter described also how people access land (through the different settlement options and land provision for reconstruction) defined by law (national and international), principles protecting the IDPs at all stage of their displacement up to their return (Deng's principles) and those providing guidance in addressing legal and technical issues concerning housing, land and property restitution for renters, informal landowners, squatters and inheritance cases (Pinheiro principles).

3.1.1. Earthquake

The study of earthquakes is known as seismology, a word derived from a Greek word meaning "to shake." Defined by scientist, an earthquake is a sudden shake of the earth's crust caused by the tectonic plates colliding. The vibrations may vary in magnitude. The underground point of origin of the earthquake is called the "focus". The point directly above the focus on the surface is called the epicentre. Earthquakes by themselves rarely kill people or wildlife. It is usually the secondary event that they trigger, such as building collapse, fires, tsunami and volcano that are actually the human disaster.

Earthquake can vary widely in intensity from seismic activity which is usually detectable using sophisticated devices, to devastating earthquakes which can level cities and trigger tsunami. The earth's outer layer, or crust, is composed of two sections: the lithosphere, a Greek word meaning "rocky sphere," and the athenosphere, a thick layer of liquid which rest on top of the upper mantle. The liquid rock of the upper mantle keeps the crust in constant motion, with the edges of continental plates being pulled slowly apart or together as they float on the athenosphere. The movement of these plates is what triggers earthquakes. The magnitude of earthquakes is usually measured in the Richter scale, first developed by C. Richter in 1953 (Wikipedia, 2010b).

3.1.2. Tsunami

Tsunami (pronounced soo-nahm'-ee) is Japanese for "Harbor wave" but is actually a series of waves usually generated in the deep ocean, causing massive amounts of damage upon landfall. Often these quakes occur at boundary lines where tectonic or continental plates meet. When the plates push against each other, pressure builds over time until a critical point is reached. The plates slip and thrust past each lifting the seabed floor. Gravity forces the water column to regain its equilibrium. In the process the displaced water rushes outward in a 360 degree circular pattern forming a series of radiating waves like enormous "ripples."

Though a tsunami in open ocean rarely reaches higher than a few feet(1+meter) it is a very deep wave packing lost of power, making it different from surface disturbances, like ripples or wind generated waves. A tsunami crest can be 620 miles long (1000kilometers), but because the amplitude or height is minimal it cannot usually be detected in open ocean (Wikipedia, 2010b).

3.2. Disaster impacts on land

Natural disasters such as tsunami and earthquake damage and destroy land and others resources vital to peoples 'livelihoods. Landowners are killed, documentation and records are destroyed and they often erase demarcations. Tsunami can lead to long term inundation, pollution and salinization of lands. After natural disasters, a number of issues arise around the relocation of affected communities, the reconstruction of infrastructure, the restitution of rights and rehabilitation of livelihoods.

3.2.1. Degree of destruction

According to UN-HABITAT (2010) land issues emerge after natural disasters as a result of loss of life, damage to land, housing and land records.

Land: after natural disasters there is a need to find new land for resettlement for the affected communities during the emergency phase and for those with no or informal tenure during the reconstruction phase. The extent of physical destruction or damage to land is a key variable after a natural disaster. There is a need to assess the amount of land lost and the area affected to know exactly the amount of land we need for shelter and relocation(UN-HABITAT, 2010).

Land and related records: natural disaster leads to loss or damage to land records, cadastral data, and land registry books including even personal identity records. This situation often delays recovery and leads to discrimination against vulnerable people. Disasters victims need to establish their legal identity as well as the nature of land rights they are holding before the disaster, as well as the boundaries of their property in order to achieve durable shelter solutions and secure their rights to land (UN-HABITAT, 2010).

3.2.2. Displacement

Natural disasters induce large migration of people from the affected areas to a most safe area. The displaced people in the case of natural disasters are called internally displaced persons (IDPs) and they are the most vulnerable people. Women and children are particularly vulnerable.

The issue of land and housing right in post disaster is characterized by social economic and institutional disruption. The question of land and property rights is one of the major threats to stability in the post disaster context within the reconstruction period. Rights need to be defined and clear ownership established (UN-HABITAT, 2010).

For relocation of displaced population emergency shelters is needed. If those are poorly planned or located, in flood areas like in Haiti giving rise to further risks, host communities should be involved in the construction of shelters specially when sometimes emergency shelters becomes long term in nature without the inhabitants being granted secure rights to land (UN-HABITAT, 2010).

3.2.3. Deaths

Natural disasters killed titleholders, destroyed land records. Inheritance and documentations (identity cards, land certificate) issues becomes points of dispute in particular where such documents have been lost or have not been regularly updated.

Deaths of family member-particularly male heads of household may raise particular problem in certain societies where inheritance should be determined according to customary, religion or others practices that may affect land and property rights of women, orphans. Those who inherit rights to land may miss out on housing assistance during the reconstruction phase if they cannot present legal evidence of their rights.

Disaster impacts	Areas affected	Associated land issues
Destruction	Land Housing Infrastructure Land records	New suitable land for shelter, livelihoods Tenure security for house reconstruction Land and property disputes Hazardous land, risk reduction
Displacement	Shelter Protection Livelihoods	Site selection, planning and management Secure access to land for vulnerable groups Secure access to land for livelihoods, housing ,land and property rights for displaced persons
Deaths	Shelter and protection	Secure access to land for durable shelter solutions, secure access and rights to land for widows and orphans

Table 3-1: Summary of potential disaster impacts on land and human relationships with land
Source UN-HABITAT, 2010

3.3. Access to land after disaster

3.3.1. Introduction

Disasters such as tsunami and earthquake disrupt land and the relationships between man and land (destruction of land and loss of lives). After such disasters, land records and personal identities are destroyed, boundaries are dislocated and title holders are killed. People required relocation because their land is destroyed, submerged or uninhabitable as a result of the disaster and landholders required new forms of land documentation, identity documents and death certificate for inheritance (temporary certificate of ownership), there is a need to find new land for transitional shelter, clarify ownership and

resettle victims if they cannot go back to their formal place of living.

3.3.2. Laws, principles and standards

After a disaster many organizations (United Nations agencies, NGOs and aid organizations etc) are involved in the recovery and reconstruction phase. The legal framework in most countries consists of national law, including religious and customary laws, as well as relevant international law. National laws may be insufficient for the response requirements, if there are gaps in the national legal framework, legal guidance on how to fill them with appropriate international human rights and humanitarian law should be sought (UN-OCHA, 2008).

Principles provide practical general or normative guidance as to how affected population should be assisted. Principles and standards act as practical expression of national law and international humanitarian and human rights law. These include guiding principles (UN-OCHA, 2008) and Pinheiro principles (COHRE, 2005), handbook for emergencies (UNHCR, 2007) and Humanitarian Charter and Minimum Standards in Disaster Response (the Sphere Project, 2004).

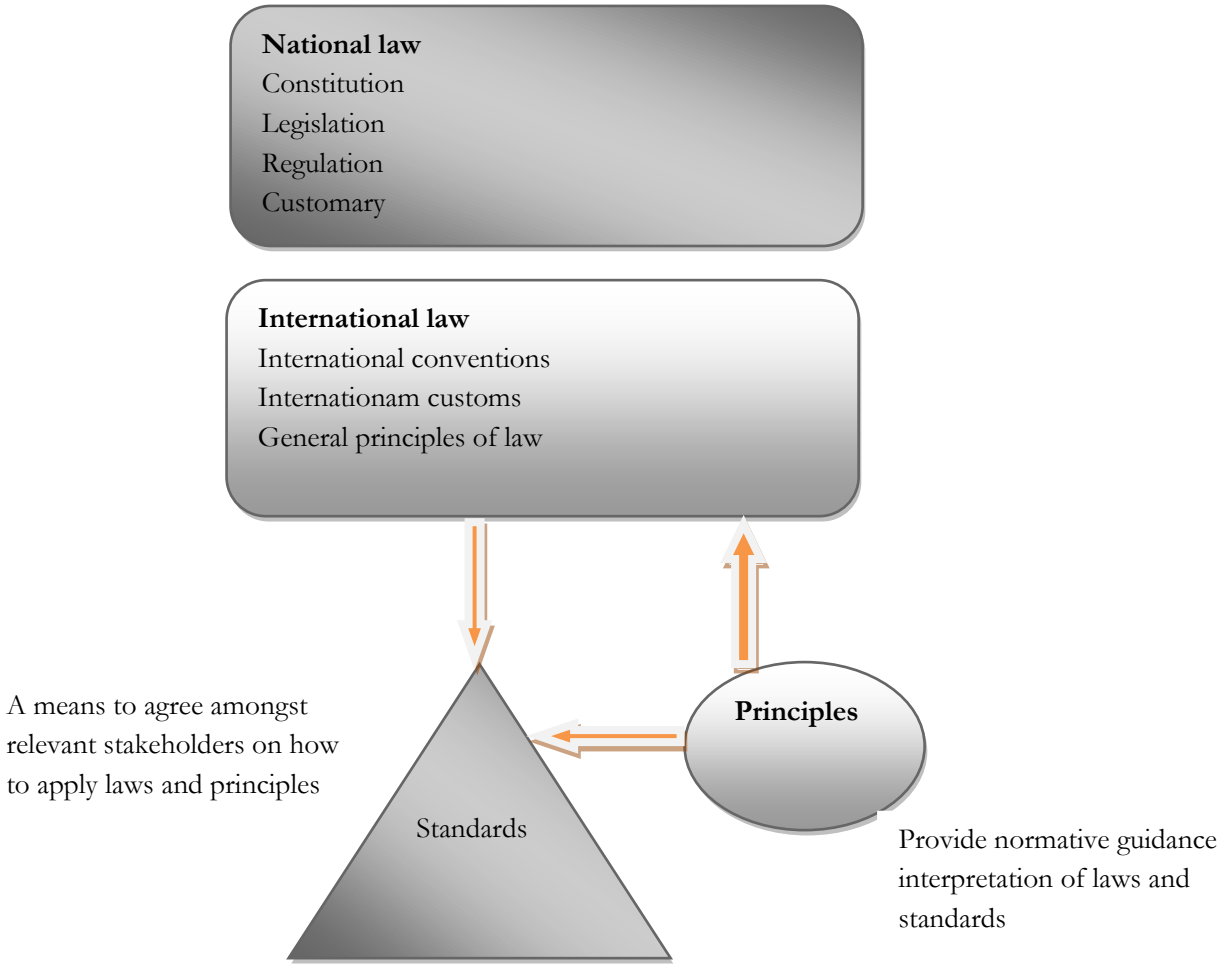


Figure 3-1: Relationship between law, principle and standards (OCHA, 2008)

3.4. Guiding Principles on international displacement (UN/OCHA 1998)

Also called Deng's principles: these principles describe the rights of the internally displaced at all stages of their displacement up to their return or resettlement. Not legally binding, the principles are based on binding law and provide valuable practical guidance for governments, authorities' intergovernmental organizations and NGOs in their work with the internal displaced population (IDP).

3.4.1. The Pinheiro principles

The Pinheiro principles (2005) are designed to provide practical guidance to states, UN agencies and the broader international community on how best to address the complex legal and technical issues surrounding housing, lands and property restitution.

The principles provide a consolidated and universal approach to deal with outstanding housing and property restitution claims and are grounded firmly within existing international human rights and humanitarian law.

Principles 2: Rights to housing and property restitution
Principle 5: Rights to be protected from displacement
Principle 13: Accessibility for restitution claims procedures
Principle 15: Housing, land and property records and documentation

3.5. Settlement options

When a population is displaced, people decide for a variety of reasons to choose options for their settlement. Six options have been categorized from the choices made by displaced populations following disasters(UN-OCHA, 2008).

3.5.1. Option 1: host families

This settlement options involves sheltering the displaced population within the households of local families, or on land or in property owned by them. This is the option used in Haiti due to weak governance and lack of preparedness. The host families receive compensation.

3.5.2. Option 2: urban self-settlement

Displaced populations may decide to settle in an urban settlement or in parts of it unaffected by the disaster, occupying unclaimed properties, land or settling informally. City: displaced population may be moving to an area of the city unaffected by the disaster, or they may rent or occupy less damaged and unclaimed properties or land in the city or in the other city which they have fled.

Government: property or land may be available by government for temporary occupation by requisition or by the payment of compensation or rent.

The weakness of urban self settlement is the lack of formal ownership rights for land or property for the affected population.

3.5.3. Option 3: rural self-settlement

Rural self settlement takes place when displaced populations settle in rural land that is owned collectively, rather than privately.

Government: land or property may be made available by government for occupation, whether by requisition or by the payment of compensation or rent.

3.5.4. Option 4: Collective centers

Collectives centers also referred to as mass shelters are usually transit facilities located in pre-existing structures. Collective centers are not long term accommodation. They are either constructed in rural or urban areas sometimes in developed countries as part of the preparedness plans, or existing structures such as school s, sport centers , barracks(in Indonesia after the tsunami most of the victims have been taken to army barracks) requisitioned after disaster to accommodate displaced persons temporally.

3.5.5. Option 5: self-settled camps

A displaced community or displaced groups may settle in camps independently of assistance from government, local authorities or aid community. Self-settled camps are often sited on state owned land or communal land usually after negotiations with the local population over use or access. Difficulties over settlement in camps may arise with owners of the land and/or local communities. For this reasons, negotiations should begin as early as possible, to ensure that displaced population are able to have security of settlement during their period of displacement. Negotiation should also include details of the condition in which the land should be returned.

3.5.6. Option 6: planned camps

Planned camps are places where displaced populations find accommodation on purpose built sites and a full services infrastructure is provided. This is the option for temporally shelter used to accommodate most disasters victims. The land is provided by government with the help of NGOs aid communities and international agencies. Land can be public state owned land, expropriation from private land owners by compensation or rent.

3.6. Land provision for reconstruction for landholders (OCHA,2008)

Land provision can be a major delaying factor in settlement planning as it will be a scarce commodity after disaster. Land is usually allocated to landholders by government or local authorities and can vary in forms, according to the countries laws and legislation.

3.6.1. Transfer or allocation of public land

After the first week of trying to rescue survivors and save lives, come the time for government to use its power as authority to provide land for temporary relocation of the affected population. Land that is registered in the name of the state and used for public utilities, such as, roads, schools, hospitals and other public buildings is called public or state land according to countries legislation. State land must be assessed recorded in a good cadastre this means good governance. This land is given often to affected population for temporal or permanent housing after disaster.

3.6.2. Private land purchasing

If public land is not available in a sufficiency way, or if the government does not have recorded and registered public land which is the case in many developing countries (there is no registration of public lands) because of a very week cadastre, the state purchases land from private owners to relocate the affected communities with the help of bilateral or multilateral donors and international aid agencies.

3.6.3. Expropriation from private land owners

The state can in extreme cases if public land is not available or sufficient, according to the country legislation, land can be taken from private owners by expropriation against far compensation (with the help of NGOs and donors).In most countries the government has to expropriate land due to the large number of people to whom land should be given.

3.6.4. Partnership with private land owners

In some cases the government provides land for relocation to the affected communities by signing a rent agreement with the private or community land owners with the help of the bilateral or multilateral donors. Most of the time this land is used for planned camps for the displaced population. Planned camps are places where the population finds place for accommodation on purpose built sites and a full services infrastructure is provided (health, water, food and even school for the children is sometimes provided).

3.6.5. Development of vacant and undeveloped land

A disaster is sometimes seen as a window of opportunity, as it may be used to develop an undeveloped land and allocated it to affected community. In many cases vacant or undeveloped lands that are not used by the state is given to people after a disaster for resettlement either for a temporarily period or permanent period. It's an opportunity to those, without legal tenure (informal landholders, squatters, renters) to gain a legal land rights. The land is usually developed by NGOs, international financial institutions and donors.

3.7. Tenure security and documentation

After the period of response some weeks or months the displaced populations are willing to go back to their pre-disaster living place to reconstruct their livelihoods. New personal identity card and death certificate for widows or children's for inheritance this mean new land documentation.

The restoration of land owner's personal identity is crucial for response and reconstruction activities. The authorities should adopt interim tenure security measures, and support rapid determination of inheritance entitlements. The Pinheiro principles and the international humanitarian law should be taken into consideration from the respond phase to long term phase.

According to the UN/HABITAT land is an increasingly scarce commodity particularly for the poor. Most of inhabitants of the urban areas are tenants or squatter. In rural areas people and families without land tenure constitute also a big group. These groups, renters, squatters, informal land rights holders often fall outside post disaster housing and land provisions, as all reconstruction programs take as their basis for reconstruction house or land ownership.

World	Owners	Tenant	Squatter	Other
	42	34	19	5

Table 3-2: Urban Housing tenure worldwide, per cent: (Source, UN-Habitat 2003)

Disaster destroyed land records. In addition there was widespread obscuring, alteration or destruction of boundaries. To facilitate reconstruction, early establishment of tenure certainty is necessary to ensure that reconstruction occurs in the right place for the right people. Community based mechanisms provide a rapid means to confirm rights and boundaries so as to allow settlement planning and reconstruction. Community based mechanism are useful where land records are limited or have been destroyed (this is the case in Haiti and Ache).they can include signed statements of ownership confirmed by neighbours and officials and verified with existing documentary records. Over time community based tenure documentation must be consistent with legal records and requirements and integrated into formal land administration systems. Participation came in different ways, CDA in Aceh and owner-driven approach in Pakistan.

3.8. Land for vulnerable groups

During the reconstruction phase land should be provided for all the affected persons without any discrimination whether they are a landowners or not before the disaster.

3.8.1. Widows and orphan

It's the responsibility of the authorities to design and obtain funding for programmes to facilitate access to land and property for women and children.

Securing inheritance rights is essential in all contexts, particularly when there is a high mortality rate. Entitlements must be ascertained as part of tenure security measures in order to avoid conflict and inequality of access to land. Field research in Aceh revealed a number of cases where returning widows or daughters had been denied legitimate land claims. These dispossessory acts commonly took the form of arguments that the female claimants could not obtain land unless they married (or remarried). It's important to support rapid inheritance determinations based on family agreements, in parallel with house reconstruction, support rapid mechanisms to restore legal identity records and determine inheritance rights to land, with special measures to protect the entitlements of women and children.

3.8.2. Renters and illegal or informal land occupiers

Renters or secondary right holders form the residual category of displaced persons who may not be able to go back to their former place of residence after a disaster. Renters may not afford to pay rent, for squatters on public or private land access can be denied or their house will not be rebuilt due to illegal occupancy.

A disaster offers the opportunity to build back safer. Building back safer includes the provision of tenure security for all victims of a disaster (renters, squatters and informal land right holders). The case of this category of vulnerable population must be taken into consideration for relocation and reconstruction. The government should undertake a census survey and seek the stakeholder's agreement on renters and squatters entitlement to land and housing.

Access to land for victims who are not land owners may be secured in a number of ways including:

- Purchase of land on the private market with assistance from donors and international financial institutions;
- Acquisition of land by the government, acquisition of land by NGOs with the assistance of international financial institutions and bilateral and multilateral donors,
- In the case of customary systems, grant of land to the affected populations with the consent of the community.

3.9. Summary

Different disasters can have different impacts on land and people. Disasters such as Tsunami and earthquake can have a big impact in term of destruction (land and boundaries are destroyed), displacement (they lead to a large scale displacement of people) and death (landowners are killed). Inheritance, gender informal landowner's and renter's cases have to be taken on the land issues agenda for post-disaster reconstruction according to principles protecting the IDPs and vulnerable groups. Tenure security is very important for any reconstruction process. Different options exist for transitional settlement and for land provision for reconstruction.

4. LAND ISSUES BEFORE THE DISASTER

4.1. Introduction

Chapter 3 described the two types of disaster that affected the study areas and their impacts on land and people, the principles protecting IDPs, the guiding principles to address legal and technical land issues after disaster and the different settlement options and land provision for reconstruction. The chapter 4 described land issues before the disaster in the 3 cases (Indonesia, Pakistan and Haiti).

4.2. The Asian Tsunami

Figure 4-1: Indonesian map

4.2.1. Background

Indonesia has an area of some 1.9 million square kilometers supporting a population of about 215 million people. There are an estimated 80 million parcels of land, but in the 45 years since registration of land was established under the Basic Agrarian Law, only 30 million of these have been registered (Heryani & Grant, 2005)

The Dutch began to colonize Indonesia in the early 17th century. Japan occupied the islands from 1942 to 1945. Indonesia declared its independence after Japan surrenders. But it required four years of intermittent negotiations, recurring hostilities, an UN mediation before the Netherlands agreed o transfer sovereignty in 1949. Indonesia is now world's third largest democracy and has the world's largest Muslim population.

Indonesia is located in the southern Asia, archipelago between the Indian Ocean and the Pacific Ocean. It covers a total area of 1.904.569sq.km (land 1.811.569sq.km, water 93.000sq.km).

GDP $962.5 billion (2009), GDP real growth rate 4.5% (2009), GDP per capita $4000

GDP composition by sector agriculture 15.3% industry 47.6% services 37.1%.

4.2.2. The tsunami impacts in Aceh and Nias

The Indian Ocean tsunami disaster involved major earthquakes on 26 December 2004. The earthquake created a massive and destructive tsunami. The disaster killed over150.000people, damaged or destroyed 200.000homes and displaced over 500.000 persons.

The land-related impacts may be summarized as follows.

- Around 667.000 ha of land, including 300.000private land parcels and 74.000 ha of agricultural land, affected by mud, salt and sand erosion with 5000-7000 ha of land suffering permanent loss of fertility.
- Severe damage to 4 national land agency (BPN) including the Banda Aceh office.
- Mortality rates up to 30% of BPN staff in Banda Aceh alone.
- Destruction of most land records in affected BPN and local government offices.
- Loss of personal identity records for most disaster victims.
- Significant inundation and subsidence of coastal land, with as many as 15.000 private land parcels rendered uninhabitable.
- Widespread obscuring or alteration of boundary markers (BRR, 2005)

In some affected areas, land parcels were lost. The original location has become as sub-merged by several meters of seawater. As observed by satellite imagery before and after tsunami took place, the land parcels located mostly along the west coast of Banda Aceh city (e.g. in Ulee Lhue village- Meuraxa sub-district) is sub-merged areas. At least 15.000 parcels remained under the water ((BPN, 2009).

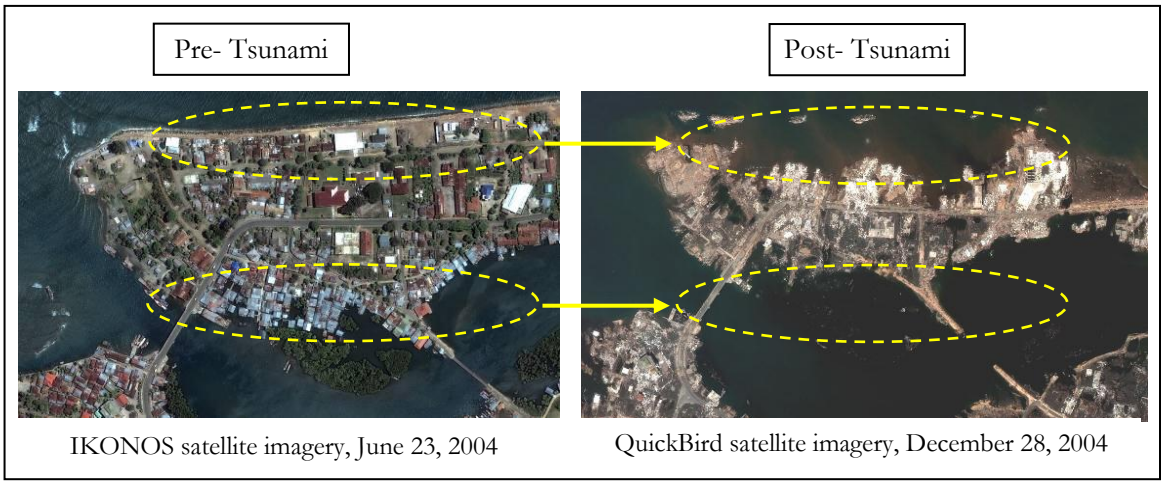


Figure 4-2: Parcels in Ulee Lhue, Meuraxa sub district, (Source: (BPN, 2009))

Land parcel boundary in affected areas could not be identified. The physical evidence of parcel boundary either man made (e.g. stakes monument) or natural object (e.g. terrace of embankment) has destroyed and wiped away by the tsunami. It was common in Banda Aceh, that elders people and neighbour can recognized the parcel boundary. But, unfortunately, the disaster has also washed away some of them. As the consequence, the identification of the parcel boundary became difficult.

Figure 4-3: Land parcel boundaries were disappeared due to Tsunami (Source: (BPN, 2009)

4.2.3. Land administration

Indonesia has been for more than 350 years under the Dutch colonial power. Land laws became a dualism between western and traditional land laws. In the areas supported by western land laws, land registration was supported with cadastral maps and surveys and on the other hand, the various Indonesians kingdoms were stipulating their own regulations for the lands in their territory (Heryani & Grant, 2005).

The basic agrarian law of 1960 ended this situation by creating a national land law based on the utilization of traditional concepts, principles, systems and institutions. In general land status can be divided into either state land or private land. Private land is either registered or not and state land is defined as land without any right attached to it.

There are more than 200 ethnic group and sub-ethnic groups and traditionally there have been inter-island migrations between these groups. These differences are evident in term of the various relationships with land, and the existence of varying degrees of customary systems of land administration. "The customary systems cannot be categorized as uniform across Indonesia however a common theme is the notion that land is spiritual or social and community owned, rather than an economic commodity" (Heryani & Grant, 2005).

4.2.4. Land tenure system

Indonesia land status can be divided into two groups, state land and private land. Private land is land with a certain right on it, either registered or not (yet). There are two sub categories of state land:

- State land the right on which has been designated to person or a legal entity and
- Free State land or state land without any right attached to it.

There are presently five types of basic tenure with Hak Milik the highest and nearest freehold tenure. These are:

- Hak Milik (freehold)
- Hak Guna Usaba (cultivation only)
- Hak Guna Bangunan (building only)
- Hak Pakai (use only)
- Hak Pengenolaan (land management only)

Except the Hak Milik the other rights are specific and temporary. The inherent need for periodic renewal is viewed by many as an automatic process for extracting fees rather than a bona –fide tool for effective land use management.

Rights in land are recorded in two systems: (i) private conveyance and (ii) registration of deeds.

(i)Private conveyance is not regulated; however it is accepted by the courts as an informal, but not illegal transfer. This is based on the legal principle that the title is transferred at the time of payment in cash, registered or not. The passing of the documents agreeing to the transfer is done in private, usually witnessed by two persons.

(ii)The system that is formally adopted is the registration of Deeds. A copy of all agreements that affect the ownership and possession of the land must be registered at the land office.

In Indonesia the registration system is not guaranteed by the state (negative system). According to Heryani and Grant (2005) the principle is to protect the real owner from the risk of registration of the wrong one. The real owner can claim his/her ownership through court proceedings and if it is confirmed by the court, the new ownership is registered according to the court decision. In this system he registers are treated as primary evidence rather definitive proof.

4.2.5. Land context in Aceh and Nias

The area covered before the tsunami is notable for its neat land parcels, and readily identifiable land boundaries. This orderly urban area was not subject to high rates of land title certification. Approximately 300,000 land parcels in Aceh were directly affected by the tsunami (170,000 urban/130,000 rural). It is estimated that 60,000 affected land parcels were registered with the National Land Agency (BPN), of which around 40,000 were in urban areas. It follows that approximately 27% of all tsunami-affected urban land parcels were registered with BPN.

Figure 4-4: Aceh before the tsunami

Uncertificated urban areas in Aceh were not slums or informal settlements. They did have access to ordinary public services and infrastructure. They were not the product of unregulated urban development and high rates of rural-urban migration. Even under the official classifications of BPN, unregistered urban areas in Aceh were deemed to be held under customary rights of ownership (hak milik adat). "While in historical terms unregistered land parcels in Indonesia may have faced risks of expropriation without adequate compensation than registered parcels, urban areas of Aceh have not experienced extensive dispossession without compensation on the basis that unregistered landholders lacked legal right to their land "(Fitzpatrick & Zevenbergen, 2007).

- *Individualized forms of land ownership:* Individuated land ownership seems far more common in Aceh than in other parts of Indonesia, particularized highly communal areas such as Bali and West Sumatra. Family-based customary ownership rights (hak milik adat) are the norm not only in relation to residential land, but also rice fields and gardens. "This predominance of individuated land rights is most likely due to the generational effects of Islamic inheritance principles in Aceh.

Islamic principles favor family ownership because they develop property directly from parents to sons and daughters" (Fitzpatrick & Zevenbergen, 2007).

- *Common property arrangements.* Outside the areas covered by the family-owned land parcels, rural Acehnese have a strong sense of village territory (the commons). In Acehnese custom, village members can access and use village land with permission from village leaders. "This customary mechanism took on particular significance after the tsunami because it opened the possibility of villagers to relocate to higher ground, without necessarily purchasing land or seeking permission from the state" (Fitzpatrick & Zevenbergen, 2007).

4.2.6. Summary

The basic agrarian law of 1960 ended the dualism between western and traditional land laws in Indonesia. Due to the large number of ethnic groups there are various degrees of customary system of land administration in Indonesia. The registration system is not guaranteed by the state. The land administration is almost informal in Aceh and the land tenure is family–based customary ownership rights.

Before the disaster only 27% of urban land parcels are registered in Aceh and land records were almost destroyed.

4.3. Impacts of the Pakistan 2005 earthquake

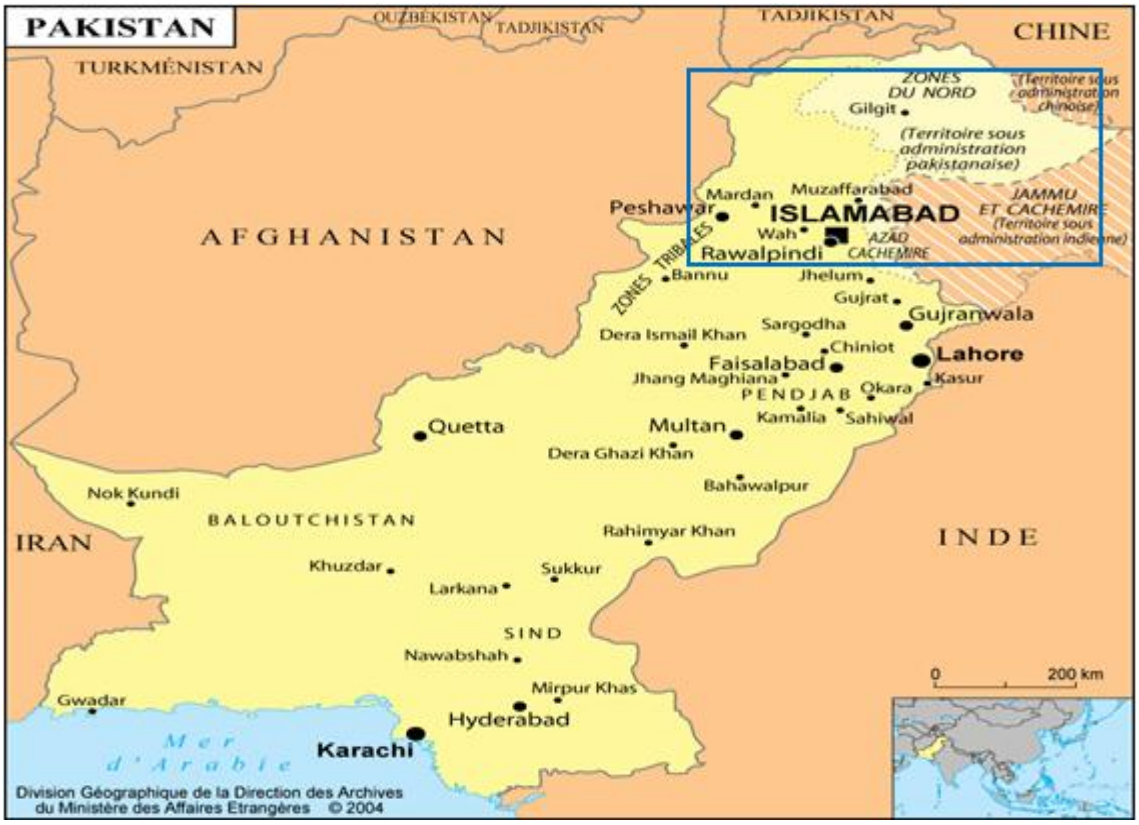


Figure 4-5: Pakistan map

4.3.1. Background

The Islamic Republic of Pakistan is the seventh most populous nation in the world and the second most populous Muslim nation. Physically it is dominated by the river Indus, flanked by the Baluchistan plateau and Suleiman mountains out of one hundred and twenty four in Pakistan, which were in the northern part of the country, at the base of the Himalayas, and affected some3.5% of the land area in two distinct

political-administrative areas, the state of Azad Jammu Kashmir (AJK) and the North West Frontier Province (NWFP).

Pakistan gained its independence from Great Britain on august 14, 1947. East Pakistan broke away as the republic of Bangladesh in 1971. The princely state of Jammu and Kashmir remained disputed territory between India and Pakistan since 1947. Azad Jammu and Kashmir has been administered s an autonomous state within Pakistan since the UN ceasefire of 1949.

Pakistan has an area of 796.096 squares kilometers. Early 2009, the country's population is estimated at about 181 million inhabitants.

The economy of Pakistan is the 27the economy in the world in terms of GDP, with a GDP of 430 billion dollars in 2008. With a population of 181 million inhabitants, GDP per capita in purchasing power parity was about $2.624 in 2008.

4.3.2. The impacts of the Kashmir earthquake

The 2005 Kashmir earthquake occurred in two provinces the Azad Jammu and Kashmir (AJD) province and the north western frontier province (NWFP) called now Kyber-Pakhtunkhwa province. It occurred at 08:52 local time on October 8, 2005. It registered a magnitude of 7.6 making it similar in size to the 1906 San Francisco earthquake, and the 2009 Sumatra earthquake.

The land affected area was equivalent to the combined land area of Belgium and the Netherlands approximately 30.000 square kilometers. Largely a mountainous area, it caused massive landslides, physically destroyed land and causing floods.

- 30.000 square kilometers of land affected.
- 80.000 people killed.
- 70.000 seriously injured
- 600.000 houses destroyed
- 3, 5 million people made homeless.
- 5 million people were affected
- 10.000 families physically lose their land (source ERRA).

4.3.3. Land administration in Pakistan

The land administration system in Pakistan aims at land revenue assessment and tax collection. The system is organized on the traditional land registers and cadastral maps in paper formats, and their maintenance is mainly dependent on the works of the local administrator called Patwari at the grass-root level within his revenue area (Home & Qazi, 2008).

In Pakistan land is a provincially controlled domain and the Land administration is decentralized down to the village level (Annex 5 list of legal Revenue Law). The system has been in place for centuries and remained intact and effective. The state /provincial governments are responsible for land matters, with a complex bureaucracy for local land management, through their Revenue Departments and district administration. Revenue knowledge is concentrated at the village level with the lowest revenue official the Patwari (usually responsible for 10 to 15 villages) maintaining collective knowledge and detailed information on land in the record of rights.

The provincial system as described by Annex 5 list of legal Revenue Law consists of:

The chief land commissioner is responsible for recovery of government dues/agricultural incomes tax, land revenue, ushr (religious tax), mutation fees and stamp duty registration fees. He frames laws/rules/policies relating to revenue matters and also provides guidelines for maintenance of record of rights. He also supervises revenue work of commissioners, Deputy Commissioners Assistant Commissioners and other officers/courts in the province.

The chief settlement commissioner is responsible for preparation and execution of policies for disposal of state land for different purposes such as agricultural purpose in rural areas residential purpose in rural/urban areas commercial, industrial, charitable and religious purposes.

The Provincial Relief Commissioner is appointed under the Prevention and Relief Act 1958. He has the responsibility for laying down policies and plans for disaster management in the province. He provides maintenance and restoration of law and order situation in areas affected by disasters for extending relief to the affected population.

At tehsil level, a 'tehsildar' is the name given to a land officer in charge of a tehsil. Tehsildar is primarily a revenue officer and is responsible for the collection of land revenue and other dues payable to the government. He draws up reports and recommends remission or suspension of revenue, brings the land records up to date, sits in court to settle disputes regarding tenancy, arrears of rent, ejectment of tenants and entries in the account books.

The Kanungo supervises the work of Patwari. He is the only link between the Tehsil officer and Patwari. Each Tehsildar is assisted by an Officer Kanungo whose main duty is to consolidate information on the performance of the Patwaries. The Patwari is lowest functionary of the revenue department. He maintains and updates the record pertaining to his revenue area.

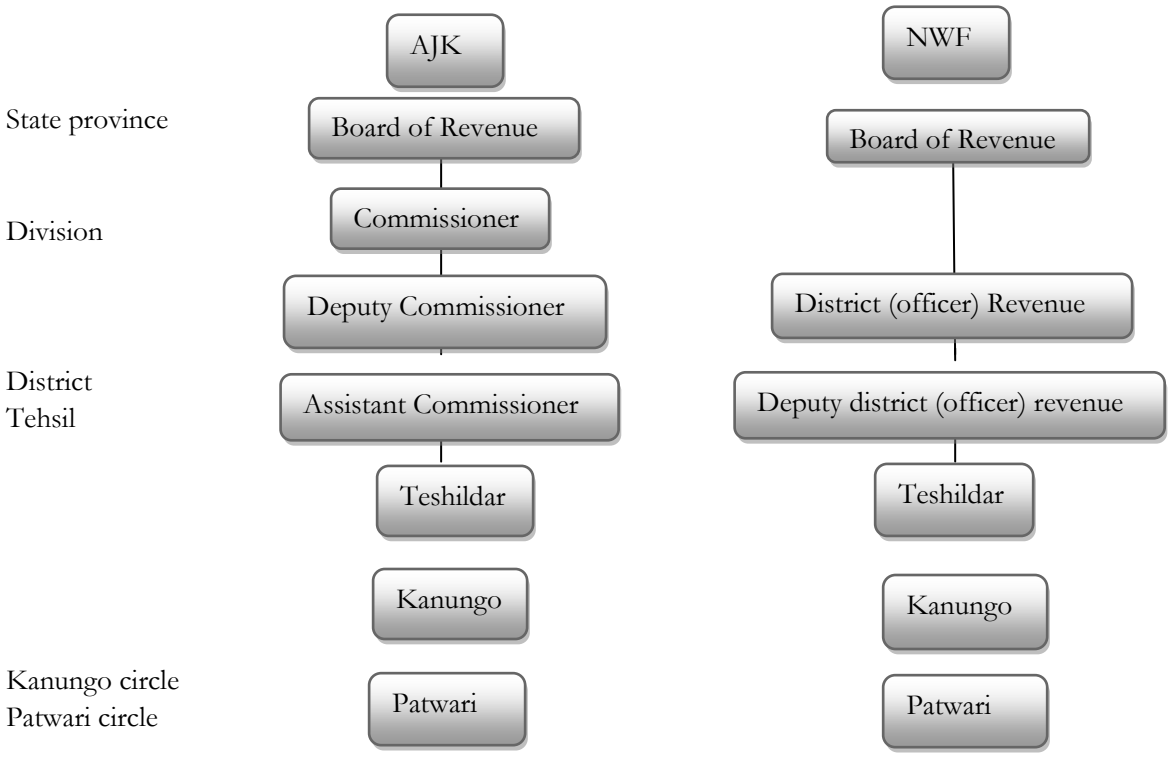


Figure 4-6: Structure of Revenue System in AJK and NWFP (source Home and Qazi, 2008).

4.3.4. Land tenure

Pakistan has an ancient land tenure system. In the NWFP land tenure remains semi –feudal, dating back to Mughal time. The system was adopted and reformulated under British colonial rules to establish a revenue administration and a system of patronage, and feudal landlords historically had strong power. In the state of AJK, by contrast, following Sikh rule (1819-46) and land reform in the 1950s land is either owned by government or by individual land owners, and most land is managed by the Land Revenue Department instead of feudal intermediaries, allowing individual owner occupation (Home & Qazi, 2008).

Various forms of tenancy exist, conferring different levels of legal security, as follows:

- Lease tenants; under a yearly lease, with the tenant bearing all costs and takes all the produce to pay the rent. Tenant can be registered as a tenant, and at the end of the tenancy period cannot be evicted without court intervention.
- Agricultural workers: the landlord hires wage laborers to cultivate the land, the worker being not a legal tenant and not entered in the revenue record.
- Government tenants, with leases issued by auction or negotiation. Such tenants are entered in the revenue records with consequent legal protection.
- Illegal occupants of state land: periodically the government allots such land, and illegal occupants have first right for allotment, with revenue officials fixing the lease terms (including a fine for illegal occupancy), after which the name is added to the revenue record.
- Shamlat or communal land was limited to 25% of the total land area of a village, and allows individuals to cultivate proportional shares. In some areas especially the mountainous parts, shamlat land could be individually owned beyond the legal entitlements. For example a person may rightfully own a tenth of the village's shamlat land, while individually cultivating the quarter of it but he has to make payment to other owners.

The Taliban's are said to be building popular support based upon unequal distribution of land and unfair owner-tenant contracts. The insurgents are exploiting deep resentment among landless tenants "engineering a class revolt" with significant implication to the rest of Pakistan (Perlez & Shah, 2009).

Seventy percent of Pakistan's population and 74% of Pakistan's poor live in rural areas; among the rural poor, the incidence of poverty is greatest among agricultural laborers and tenants (Islam, 1996). Poverty in Pakistan is strongly correlated with landlessness. Bagnash (2009) and Escobar (2009) suggest that the Taliban will gain traction wherever they respond to the grievances of the landless.

There are several laws and acts that deal with land, landlords, tenants, assessment and tax collection, agriculture income tax and land acquisitions for public purposes (Home & Qazi, 2008).

Land Revenue Act 1967: adopted and amended by all provinces it deals with the issues of record of rights and land revenue.

NWFP Tenancy Act 1887: it deals with the relationship of landlords and tenants regarding produce of land and ejection of tenants due to non-payment of rent or produce by the tenant to the landlords. Adopted by all provinces it is the only legislation dealing with tenancy rights.

Land Acquisition Act: this act deals with acquisition of land needed for public purpose and determining the amount of compensation to be paid on account of such acquisition.

Transfer of Property Act 1982: the cat deals with the transfer, sale, mortgage lease, exchange and actionable claims in respect of property. It's a very important piece of legislation especially for disputes.

Land Reforms Act: the land reforms laws have been introduced at various stages including the MLR -64 on 7.2.1959, MLR-115 on 12.3.1972 and Land Reforms Act: II on 5.1.1977. The main objective of these land reforms was to determine the individual holdings to a manageable size for improving the lot of peasantry.

4.3.5. Summary

In Pakistan land is a provincial controlled domain and is decentralized down to the village level (Patwari).The pre-disaster land tenure was different in the two affected provinces of NWFP and the AJK.

In NWFP the tenure is feudal system, nearly all the land is owned by the elite composed of few rich families. In the AJK following land reform in the 1950s land is either owned by government or by individual land owners, and most land is managed by the Land Revenue Department instead of feudal

intermediaries like (NWFP), allowing individual owner occupation. The land records did not suffer from the earthquake as they are well kept.

4.4. The Haiti 2010 earthquake

4.4.1. Background

Haiti has a total area of 27,750 km², most of it in the western third of the Hispaniola island and the rest are smaller islands that are near the Haitian coast as: Gonaives, Iles de la Tortue, Les Cayemites, Île-à-Vache and La Navase it become independent in 1804..

For historical reasons, Haiti's patterns of land tenure were quite different from those of other countries in Latin America and the Caribbean. Most Haitians owned at least some of their land. Complex forms of tenancy also distinguished Haitian land tenure. Moreover, land owned by peasants often varied in the size and number of plots, the location and topography of the parcels, and other factors. Haiti is the poorest country in the Americas. It had a nominal GDP of $7,018 billion in 2009 with a GDP per capita of $1255.

Figure 4-7: Haiti map

4.4.2. The Haiti earthquake and the impacts

The 2010 Haiti earthquake was a catastrophic magnitude 7.0earthquake with an epicentre near the town of Leogane, approximately 25km west of Port-au-Prince, Haiti's capital. The earthquake occurred at 16h.53 local time on Tuesday 12 January 2010.

- 230.000 persons died
- 194.000 persons injured
- 1, 3 million people displaced
- 105.000 buildings destroyed
- 200.000buildings damaged
- 30.000 commercial buildings destroyed
- 3500 hectares of agricultural land destroyed

4.4.3. Land administration

In its 26 years of existence, ONACA (Office National du Cadastre) has advanced very little in doing the cadastre for the national territory having covered only 5% of the country, specifically some areas of the Greater Port-au-Prince, and some areas in the Artibonite Valley. DGI (Direction Générale des Impôts) is a dependency of the Ministry of Finance and Economy and has the task of registering all property transactions and titles. They are responsible for titling all public land. The CNIGS (Centre National de l'information Geo-spatial) is part of the Ministry of Planning and was created in 2006 as a result of the fusion between two smaller entities. They collect satellite imagery of the Haitian territory with modern technology and qualified personnel and, similar to the function of ONACA, provide different layers of information on the land, which they proceed to sell as services and products to other institutions that need such information.

The DGI has a decentralized system with offices in each commune, extending operations throughout the country. Since 1824 the central office has amassed a registry of 2500 books, none of which have been digitalized, and which are currently in a highly precarious situation in the basement under the debris of the fallen DGI building in Port-au-Prince.

4.4.4. Land tenure

The three major forms of land tenancy in Haiti were ownership, renting (or subleasing), and sharecropping. Smallholders typically acquired their land through purchase, inheritance, or a claim of long-term use. Many farmers also rented land temporarily from the state, absentee landlords, local owners, or relatives. In turn, renters frequently subleased some of these lands, particularly parcels owned by the state. Renters generally enjoyed more rights to the land they worked than did sharecroppers. Unlike sharecroppers, however, renters had to pay for land in advance, typically for a period of one year. The prevalence of renting made the land market very active.

65% of the population lives in the countryside, but very few actually own the land they work. Instead, large landowners "Grandons" own or run large tracts and rent land out in an exploitative sharecropping system.

Another peasant residing far away was a variation of sharecropping. Jérans were generally paid in-kind for their custodial services.

Law versus custom: Two parallel but interactive systems, one legal and the other customary, mark land tenure arrangements in Haiti. There is a lively land market in rural Haiti; however, most mountain peasant land is bought and sold without updating title, and most sales do not pass through the notarial system.

Formal land tenure system: Peasant holdings are firmly grounded in the concept of private property. Land succession and inheritance are based on a principle of partible inheritance in which all recognized heirs have rights to an equal share. Formal land transactions and updated title derive from the French notarial system and require payment of sizeable notarial and survey fees. There is no functioning national cadastral system.

Customary land tenure system: In a context of high risk within the formal system, and its judicial insecurity, it is hardly surprising that peasants leverage kin-based rights and obligations within the customary system including extra-legal agreements, local social sanctions, and a visible presence on the land. In effect, the customary system offers a more manageable and less expensive level of risk. In current practice among mountain peasants, customary forms of access prevail, and secure access is not defined primarily by secure and updated title.

Land tenure categories: Categories of access to land include direct access by virtue of ownership and indirect access through tenancy or usufruct. Modes of access include the following:

- ownership via formal or informal purchase, and formal or informally divided inheritance and gifts;

- use rights (usufruct), including designated pre-inheritance plots;
- tenancy in the form of sharecropping or annual and multi-year cash rentals;
- land controlled by Jeran land managers for absentee landlords;
- Leasehold on state land (called domaine privée de l'état), payable annually to the local tax office, the Direction Générale des Impôts (DGI).

4.4.5. Summary

The independence of Haiti has not changed the feudal land tenure. The slaves revolted in Haiti after independence to have access to land, they believed to be owners to replace old masters. The elite does not perceive this as such, instead of owners, slaves had become workers. The mulatto elite appropriated the lands of the settlers reproducing the colonial order with a few adjustments to circumstances.

Haiti did not get a proper land administration system. The land administration is marked by fragmentation of powers and function of institutions involved in the agrarian question. The pre-disaster land tenure is very mixed with few large land owners the "Grandons" and most people with no access to land.

5. LAND RELATED AND DISASTER RESPONSE

5.1. Introduction

Chapter four described the pre-disaster land tenure and land administration system in the study areas and the impact of those disasters on people, land and land related records. Chapter five investigates the response and post disaster land issues. The mechanisms used by the governments of Indonesia, Pakistan and Haiti to allow the affected population to get access to land during the response phase and also to access land and land rights during the reconstruction phase are presented. These as shown during the response phase, rehabilitation phase and reconstruction phase for the affected people. Further attention is given to how the case of informal landowners, renters, gender and inheritance were solved. How principles and guidelines are used during response and reconstruction by the government of the three countries. The chapter looked also into the role of the International Community and NGOs in post disaster.

5.2. The Indonesian government response and reconstruction processes

President Susilo Bambamg declared immediately the Tsunami as national disaster and ordered his ministers to provide emergency relief, medical assistance, food and shelter for survivors. The government provided state land on which he built temporary shelter for the affected communities with the help of NGOs.

The National Coordinating Board for Disaster Management and Internally Displaced People Affairs (BAKORNAS PBP) coordinates disaster prevention, mitigation response and recovery in Aceh and Nias.

5.2.1. Displaced population

Meeting the needs of displaced people after a natural disaster is always a complex challenge. The displaced populations were taken to emergency camps built on state land and other displaced people went to live with their extended families or host communities. Some of the displaced people stayed in spontaneous settlements because they did not want to be far from their land. People living in spontaneous settlement were relocated in 40 camps ruled by the Indonesian government almost by force. Critics argue that the Aceh relocation shows many of the same elements as the transmigration programme of the 1980s and the forcible relocation of villagers following declaration of martial law in Aceh in May 2003.

Oxfam (2005) noticed that during the relocation the government with the coordination of the Indonesians Armed Forces transfers about140.000 IDPs from emergency camps to barracks and provided each IDP with a monthly grant of 90.000 rupiah ($9). Also according to Oxfam (2005), Barracks are built to conform to international standards, 30 meter long wooden barracks equipped with electricity and water supplies.

5.3. The Master plan

A Master plan for the reconstruction of tsunami –affected areas of Aceh and the island of Nias was issued in April 2005 by the Indonesian government. The master plan identifies reconstruction of land rights as a key element of the rehabilitation process, which was to run from April 2005 to December 2006. Those are the steps proposed in the Master plan in relation to land rights.

- An audit of the physical condition of land (obscured boundaries; unsafe, submerged or contaminated land etc.).

- Replacement of lost land records and systematic issue of new title certificates for previously unregistered land.

The master plan also sets out spatial plans for reconstruction that included relocation of facilities and establishment of coastal Buffer zones.

5.4. The Reconstruction and Rehabilitation Agency (BRR)

The reconstruction of Aceh and Nias was a big task because of the degree of destruction, to help reconstruct Aceh and Nias the government of Indonesia created an agency called (BRR) Reconstruction and Rehabilitation Agency in April 16, 2005 for a period of 4 years. The mission and role defined by the Indonesian government to the BRR are as follow:

- Mission was to restore livelihoods and strengthen communities in Aceh and Nias by designing and overseeing coordinated, community-driven reconstruction and development program implemented according to the highest professional standards.
- Role was to act as the lead government agency responsible for post-tsunami rehabilitation and reconstruction, coordinating agency to ensure transparency, accountability and speed reconstruction of Aceh and Nias deliver necessary humanitarian assistance for Tsunami affected displaced families, provide guidelines for housing policy , provide design and implementation of a barrack decommissioning plan.

5.5. Community mapping

Community mapping involves agreements by survivors as to land ownership and boundaries. Local survivors and NGOs started the community land mapping to allow them began the housing reconstruction. The primary instigators were sub-district heads (camat), village heads (keucik) and local survivors of the tsunami. These community maps did not mention owners name and did not determine inheritance.

The legal validity came in mid-2005 with the issue of a number of guidelines by BRR. These guidelines included steps relating to community land mapping. Soon after, BRR issued a regulation containing the manual of RALAS project. In addition to village maps the 2005, RALAS manual led to the use of forms in which land owner victims made statements of ownership that were signed by neighbours and the village head (keucik).”The community mapping by survivors and NGOs with the support of key stakeholders as Bappenas, UN-HABITAT, UNDP and World Bank led to the adoption of the community driven adjudication of land rights as the primary basis for re-establishing tenure certainty in Aceh” (Fitzpatrick & Zevenbergen, 2007).

5.5.1. Community driven adjudication

Through RALAS, particularly by Community –Driven Adjudication, BPN aims to ensure that community led process are conducted to a standard that will have a strong legal basis for future titling. It should be emphasized here that the roles of NGOs in CDA included: facilitating community agreement on ownership and boundary demarcation; facilitating community-based dispute resolution; independent monitoring of land reconstruction; strengthening community institutions and decisions –making processes with special attention to the rights of women, children and orphans.

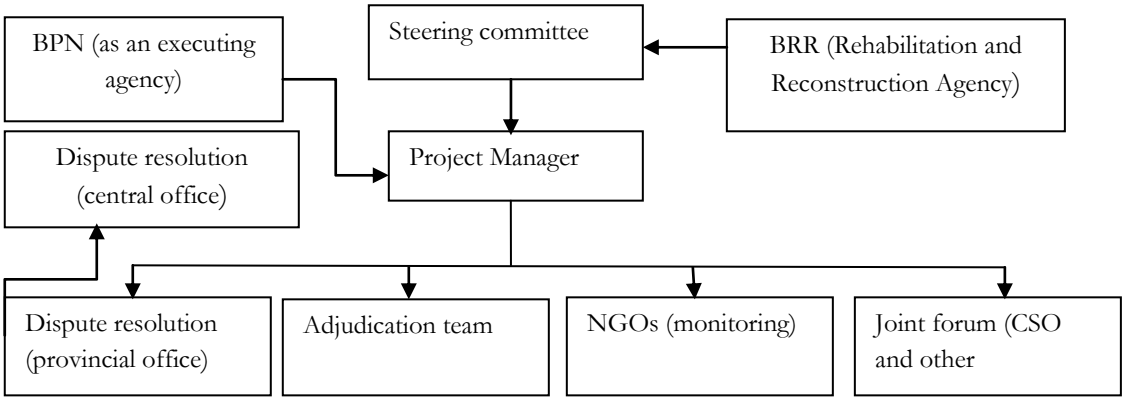


Figure 5-1: Organization of CDA (RALAS, 2005)

5.6. Reconstruction of Land Administration Systems in Aceh and Nias (RALAS)

Land issues are very important for any reconstruction project in post disaster. For the reconstruction of the affected areas by the tsunami in Aceh and Nias the government of Indonesia established in May 2005, the Reconstruction of Land Administration Systems in Aceh and Nias (RALAS), run by BPN the National Land Agency. RALAS is the primary formal, mechanism for establishing tenure security after the tsunami. The core element of RALAS is a program of systematic land title certification based on community – driven adjudication of land rights. According to BPN regulations, under RALAS community-driven adjudication, each landowner signs a statement of ownership that is endorsed by her neighbors and the village chief. Where the landowner is deceased, the RALAS manual establishes a procedure for identification of heirs by the village chief and the village imam. This process involves family members completing a standard form that identifies the heirs, and the land that they have inherited. This agreement is acknowledged by both the village head and the imam, and confirmed by a mobile Syariah Court.

Once community-given adjudication is complete, a BPN team surveys land boundaries and verifies the accuracy of all community land agreements. After surveying and verification has been completed, BPN produces a community land map that lists landowners and the boundaries of their land. This map is displayed in the village for 30 days, in which time village members may lodge relevant objections. If no objections have been raised within the 30 days period, BPN will issue land certificates to land owners within 90 days of the commencement of survey work (BPN RALAS manual Annexure 1).

5.6.1. Boundary reconstruction

Land reconstruction process after a disaster is indeed not an easy task to accomplish especially after the tsunami in Aceh that destroyed land, land records, swept boundaries and killed thousands of land owners. Officially, even before the Tsunami Aceh was under Islamic law so many technical, social and legal aspects have to be taken into consideration for the reconstruction. In the case of parcel boundary reconstruction BPN developed a whole matrix of the 16 possibilities of land, owner and document condition that have to be taken into account (Winoto, 2005) and (Haroen, et al., 2005).

Boundary reconstruction is the process of relocating and re-coordinating the boundary monuments in the field which were missing or destroyed. The relocation process was conducted using the previous known coordinates or based on other information sources.

5.7. Access to land

In Aceh the land may be acquired by the landless through three mechanisms. Gift or purchase on the private land market, acquisition by the government and grant of communal village land. Some landless have received land from neighbors, friends or their local communities other have purchased land with the financial assistance of NGOs.

5.7.1. Land acquisition

The process of land acquisition was undertaken by districts and local governments with the financial support of BRR as according to the laws on regional autonomy they have legal authority to do it. In 2006 BRR started acquiring land directly instead of districts or local governments as they issued a regulation on land acquisition. "The Indonesian government has acquired 850ha of land for resettlement in tsunami affected districts", (Fitzpatrick & Zevenbergen, 2007).

5.7.2. Land acquisition by NGOs and international agencies

Foreigners may not purchase land directly in Indonesia according to the Basic Agrarian Law, which came into force on 24 September 1960. As a result of this act land was acquired directly for the NGOs and housing donors by BRR. But according to Oxfam that conducted interviews the acquisition of land by BRR was very slow and sometimes the land delivered is less than expected (Fitzpatrick, 2006). Two years later in 2007 BRR stopped the land acquisition for NGOs.

5.8. Land for vulnerable groups

5.8.1. Renters and squatters

The reconstruction process did not take into consideration the right of renters and squatters in Aceh as they don't have any legal right on the land they occupied before the disaster. While the Master plan identified land rights as key element rehabilitation in Aceh, it made no reference for restoring the land rights of renters and squatters. The RALAS project also made no provision for recording and restoring the lands of renters and squatters.

Regulation No.21/2006 of the Aceh and Nias reconstruction authority (BRR) established distinctions among landowners, renters and squatters. Pre-tsunami landowners who had lost land would receive freehold land and a basic 36m2 house. Pre-tsunami renters and squatters who could not return home would be given a cash payment for land or housing credit. Renters: 40% of a basic 36m2 in Banda Aceh($3000) and squatters 25% of a basic 36m2 in Banda Aceh ($1250). This cash could be used only for housing purposes. Without land of their own renters and squatters would not receive a house from government.

In September 2006 two major demonstrations outside the Banda Aceh BRR office and with the pressure from UNDP and OXFAM that made a memorandum on renters and squatters to Bill Clinton the UN special envoy for tsunami, led to an internal BRR review of regulation 21/2006. In February 2007 BRR announced major amendments to regulation 21/2006, these amendments replaced the program of cash assistance with a policy of free land and housing for renters and squatters.

Amended regulation

From 'able to have proper place of residence' (previous regulation)

↓

'To have an appropriate shelter' (amended regulation).

- Renters and squatters who own land will receive a minimum 36m2 house either from BRR, NGOs or/and international donor.

- Renters and squatters do not own land but has a commitment or a promise from an empowerment partner or other party will receive one parcel land which will be provided by BRR. Renters: 40% of a basic 36m2 in Banda Aceh($3000) and squatters 25% of a basic 36m2 ($1250).
- Renters and squatters do not own land and have no housing commitment from a NGO /donor will receive one unit house type 21m2 on land provided by BRR.

5.8.2. Women and inheritance the Syariah law

Women are more exposed to risk in post disaster, in part because women are particularly subject to displacement and migration.

The application of Syariah law in Aceh is a product of special autonomy. Law No 44 of 1999 allowed the application of Syariah law in Aceh, and law No 188/2001 allowed the establishment or re-establishment of Syariah Courts. Under Qanun 10/2002, the Syariah court has jurisdiction over inheritance, guardianship, and the legal status of missing persons(Fitzpatrick, 2006). The inheritance of land in Aceh is determined primarily at the local level or family consensus. Village leaders are the most significant actors in post-tsunami inheritance disputes. The village head (keucik) is the key decision maker assisted by the village elders (tuha peut), and the imam.

5.8.3. Land records and personal identities

Land records suffered destruction in Aceh after the tsunami. The documentation of land records and personal identities was undertaken under RALAS to reconstruct boundaries and land ownership through the community driven adjudication.

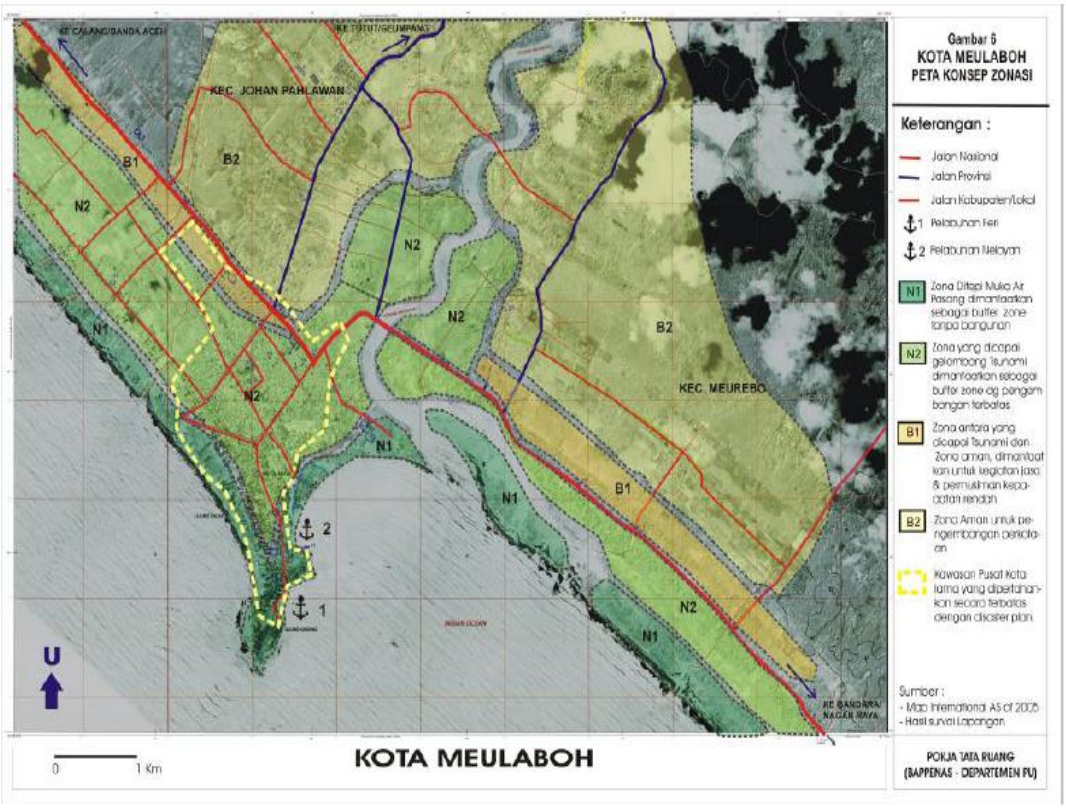
5.9. Mitigation and land use planning

Mitigation the risks of future disaster is a key element of land programming after a disaster. Aceh population is vulnerable to ocean –borne disasters because of their close proximity to sea. In the master plan the mitigation proposal included the relocation of settlements and infrastructures. They involve the creation of buffer zones, green belts and restricted developments areas.

The National Coordinating Board for Disaster Management and Internal Displaced People Affairs (BAKORNAS PBP) chaired by the vice president coordinates disaster prevention mitigation response and recovery.

Some measures taken for mitigation by BAKORNAS PBP
-Improvement of warning system
-Information on community based warning systems an awareness of how to act in the event of a disaster
-Construction of escape buildings.

In Banda Aceh, the master plan proposed a coastal zone, a fishing zone and a restricted settlement zone. The fishing zone alone extends many kilometers in land from the harbor areas of Banda Aceh. The plan for Aceh Barast included a minimum 100 m buffer zone from the high tide marks, to consist of mangrove forests and other protective vegetation. No buildings are allowed in this buffer zone.



V - 17

Figure 5-2: Zoning map of Aceh (Source Master Plan, 2005)

1- Zone N1

Tidewater from zone minimum 100 meters away from the high tide. This zone will be used as a protective facility (a buffer zone) with mangrove forest and other buffer plants according to the coast's characteristics.

2- Zone N2

Zone reached by tsunami waves of more than 1 meter above sea level. The space of this zone will be used as plantation land or City Park with buffer plants serving as a buffer zone and with restricted development of buildings and low density settlements (fish auction market, fishermen's village) with a disaster mitigation plan.

3- Zone B1

Transitional zone (intermediate zone) reached by tsunami waves of less than 1 meter above sea level, located before the safe zone. The space of this zone will be used for service and trade activities with settlements of low to average density.

4- Zone B2

Zone safe from tsunami attacks. The space of this zone will be used as business center, social services and densely populated urban settlements, adjusted to the capacity of local land and existing spatial use.

From a disaster management perspective according to Fitzpatrick and Zevenbergen (2007) the proposal for buffer zone and restricted development areas are laudable ideas, but the design was top-down. Once the population knew about the zoning plans a number of people started to establish their presence in their land on the restricted development areas because of fear to be relocated or not to get compensation on time. Also most of the housing providers went ahead with rebuilding on original land even in the proposed buffer and restricted development area. "Smale scale mitigations (e.g. Roads widening and escape routes) was implemented however mainly as part of the community based village planning rather that top down spatial plans from local or national government"(Fitzpatrick & Zevenbergen, 2007).

Figure 5-3:Map of escape buildings

5.10. Summary

The president of Indonesia declared immediately the Tsunami as a national disaster. The government through the disaster management board BAKARNAS provided relief and state land for temporary shelters.

A master plan for reconstruction of the affected area that identified the reconstruction of land rights as the key element of the rehabilitation process was issued in April 2005.the government of Indonesia created in April 16, 2005 the BRR to act as lead government agency to ensure transparency, accountability and speed the reconstruction of Aceh and Nias and provide guidelines for housing policy. The CDA has been the mechanism for rebuilding land rights. In May 2005 the government established the RALAS project for the systematic land titling and documentation reconstruction.

After pressure from UN and NGOs renters and squatters were provided land in 2007 after BPN amended regulation 21/2006. Aceh being an Islamic province, women and inheritance case was solved by the syariah court.

Government policy was top down and target-driven and allows no space for participation ignoring to recognize that under the Guiding Principles on Internal Displacement, displaced persons can only be relocated with their full and informed consent. Critics argue that the Aceh relocation shows many of the same elements as the transmigration programme of the 1980s and the forcible relocation of villagers following declaration of martial law in Aceh in May 2003.

The master plan in Banda Aceh proposed a coastal zone, a fishing zone and a restricted settlement zone.

The Asian Tsunami has been a global media item. The response of the Indonesian government was very efficient the army played a very important role and also the NGOs and the international community supplied relief and money for rescue and reconstruction. The United Nations agencies such as UN-HABITAT provided guidelines and expertises.

5.11. The Pakistan earthquake

Like all countries exposed to hazards, In Pakistan the federal earthquake relief commission (FRC) is responsible for any natural disaster response. Immediately after the earthquake the FRC took the lead for immediate relief and rescue response. In October 24th, 2005 the government of Pakistan established the Earthquake Reconstruction and Rehabilitation Authorities (ERRA). ERRA as a central agency created decentralized structures such as the State Earthquake Reconstruction and Rehabilitation Authority (SERRA in AJK) and Provincial Earthquake Reconstruction and Rehabilitation Authority (PERRA in NWFP) to coordinate local efforts, with District Reconstruction Unit (DRUs).

5.12. Displaced population

In rural areas the displaced rural population has established for the winter in camps managed either by the Army, the United Nations or NGOs some of them went to their relatives or rent houses in the region. Concerning the urban displaced populations they were established in camps nearby the urban centers of origin. Below is a schematic outline of the various types of settlement in which various population groups lived.

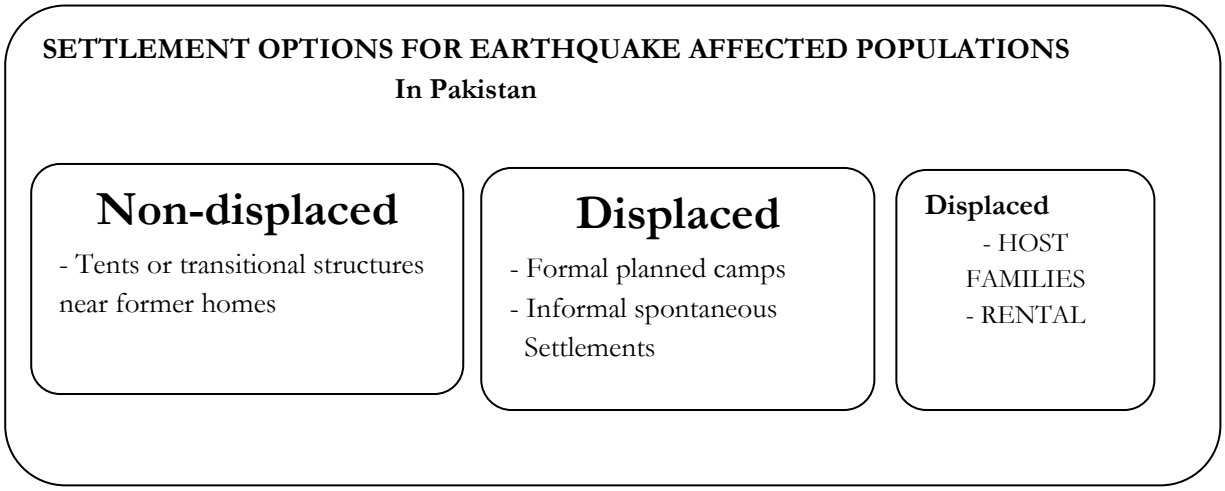


Figure 5-4: Settlement option for displaced population ERRA

The owner driven approach for rural housing reconstruction

The people-centered approach for housing recovery and reconstruction, which had been advocated by UN-HABITAT for the last two decades, was for the first time implemented in Pakistan.
ERRA adopted certain principles that governed its work during the reconstruction phase.

- Owner driven, i.e. owners are in charge of rebuilding their own houses, but technically assisted and inspected
- Training in earthquake-resistant standards, but with familiar building materials
- Rebuild in situ. Policy sought to avoid large scale displacement of populations from rural to urban areas, or to areas outside the earthquake affected zone, relocate settlement only where necessary.

5.12.1. Rehabilitation and reconstruction phase

The government of Pakistan similar to the Indonesian government created an agency called, Earthquake Reconstruction and Rehabilitation Authorities (ERRA) to help reconstruct the affected areas in AJK and NWFP provinces. The main task was not to provide land but a cash support to help the people to rebuild their houses according to some defined standards.

5.12.2. Earthquake Reconstruction and Rehabilitation Authorities, ERRA

Providing land for reconstruction was not the priority of ERRA. Housing reconstruction was the only mission and single important sector. Land issues on the other hand were not considered a priority. For reconstruction ERRA followed the Pinheiro principles (adopted by the UN commission on human rights in the year of the earthquake).

The Pinheiro principles related to 'housing and property restitution for refugees and displaced persons arbitrarily deprived of their former homes, lands properties or places of habitual residence, regardless of the nature or circumstances by which displacement originally occurred'. Among the key rights asserted was that to housing and property restitution. Its other over-arching principles included rights to non-

discrimination between man and woman, right to be protected from displacement, privacy and respect of home, peaceful enjoyment and freedom of movement (Home & Qazi, 2008).

5.12.3. Rural housing

The rural housing reconstruction adopted an 'owner-driven approach' which became the corner stone of ERRA's reconstruction strategy, and the main idea was making the home-owners responsible for the process of rebuilding their houses themselves or through local artisans, but in accordance with ERRA standards. This process lead to the establishment of village level reconstruction committees which facilitated, trained the survivors for rebuilding their houses (Home & Qazi, 2008).

5.12.4. The urban housing

The urban housing is similar to the rural housing but it's related to urban reconstruction, it targeted those who became landless because of red zones or because of town planning. Nine districts were affected by the earthquake in AJK and NWFP, two relatively major cities and two smaller towns were also destroyed. The total population of Balakot in NWFP was resettled to a new city called bakriyal and 30% of Muzaffarad in AJK was declared red zone so not suitable for living.

Rural Housing Package (Rs).		Urban Housing Package (Rs).	
Tranche1:	25.000 (Initial)	Tranche1:	25.000
Tranche2:	75.000 (Plinth)	Tranche2:	100.000
Tranche3:	50.000 (Lintel)	Tranche3:	50.000
Tranche4:	25.000 (Roof)		
Total package(Rs)	175.000 ($3.000)	Total package(Rs)	175.000 ($3000)

Table 5-1: Rural and urban housing packages (ERRA)

5.12.5. Rural Landless Program

The majority of persons affected by the earthquake were rural. After the recovery phase ended and reconstruction began, camps are decommissioned, the rural landless programme focused on those in the camps who will not be able to go back because they had lost land due to earthquake.

In March 2006, ERRA established the rural land policy that targeted only the land-owners who lost land as a result of the earthquake by giving them a compensation package of 75.000 PKR to purchase land to reconstruct their house.

According to ERRA the definition of landless only included those residents who 'lost land whole or part', and the destruction of land has to be visible to be eligible under rural landless policy.

The criteria for eligibility were very strict, only a person or family owning the land at the time of the earthquake (entered in the land records or a registered sale deed) which was lost in the earthquake in whole or part would qualify.

5.13. Land acquisition

5.13.1. One window operation

The main idea behind the one window which is the final operation of the rural landless programme is to allow the applicants, completing all administrative procedures for land transaction in a single event (buy land and make all the process from the mutation to the registration of the deed in the same day and at the same place by paying a very small amount for revenue mutation procedures), fees which cost an applicant Rs .7500 ($130) was reduced to Rs.100 ($1.5) event and the mutation procedures which can takes an average twelve weeks was reduced to one day.

During the operation a maximum of 12 administrative processes were completed requiring attendance of a mobile bank staff, land verification unit, retired revenue official and official revenue staff including patwari. The verified landless is given a certificate of entitlement which is encashed during the one window operation through the mobile bank to purchase land from a landowner also present at the event. The mutation of the deed is done in the name of the entire family.

5.13.2. Land Purchase process by beneficiaries

For the families eligible under the land policy those are the nine steps developed by ERRA to acquire land.

Step 1 forms A, B, C, D, E, F, and G are available at Land Verification Units at Teshil and district level
Steps 2 landless register at Land Verification Unit – filling an application form (form A), signing an affidavit (form B) and the power of Attorney (form C)
Step 3 Land Verification Unit verifies lists with Patwari and ERRA housing Programme through field inspections (Three verifications; V1: cross check with housing programme database, V2: revenue record check, V3: cross check through field visit)
Step 4 Land Verification Unit issues a letter of entitlement to landless (form D)
Step 5 landless negotiate with sellers
Step 6 landless submit details of seller to Land Verification Unit (Form E)
Step 7 land verification unit call landless, seller, mobile banks, Patwari and large public at one location
Step 8 One Window Operations:

- Land verification unit issues an order cheque to the buyer
- Tehsildar mutates the land in the name/s of the landless and their family members
- The buyer shall cash the cheque at the mobile bank and pay the seller the sale price in the presence of all stakeholders

Step 9 LIMS takes a picture and gives it to buyer and seller, and uploads in the database.

5.13.3. Land purchase in NWFP for rural housing

In the state of NWFP, PERRA was in charge of reconstruction program. Land tenure remains semi feudal, dating back to the Mughal times and even before. The system was adopted and reformulated under British colonial rule to establish a revenue administration and feudal landlords have power in that province over the tenants. Most of the land is hold by small group of rich families. That the reason why 30.000 families as tenants were not eligible according to the land policy edited by ERRA.

5.13.4. Land purchase in AJK for rural housing

SERRA was in charge of the reconstruction program in AJK. In the state of AJK, by contrast to the land tenure in NFWP, following Sikh rule (1819-46) and land reform in the 1950s, land is either owned by government or by individual land owner and most land is managed by the Land Revenue Department instead of feudal intermediaries, allowing individual owners, that's the reason why in AJK, all owned their lands and were eligible to the rural housing program according to the ERRA land policy.

5.13.5. Land acquisition for resettlement by ERRA for urban housing

ERRA mission was the rehabilitation and reconstruction of affected areas true the rural housing programme for the people who lost land in rural areas and urban housing programme for those who lost land in urban areas. when it became impossible to reconstruct the cities of Muzaffarabad and Balako thousands of people required relocation, so the official land acquisition procedures has to be invoked and purchased funds voted by the government (Home & Qazi, 2008). Section 17 of the land acquisition act 1894 allowed special powers in case of emergency and was invoked for land acquisition. This process is for land acquisition by ERRA and the land is mutated in the name of ERRA.

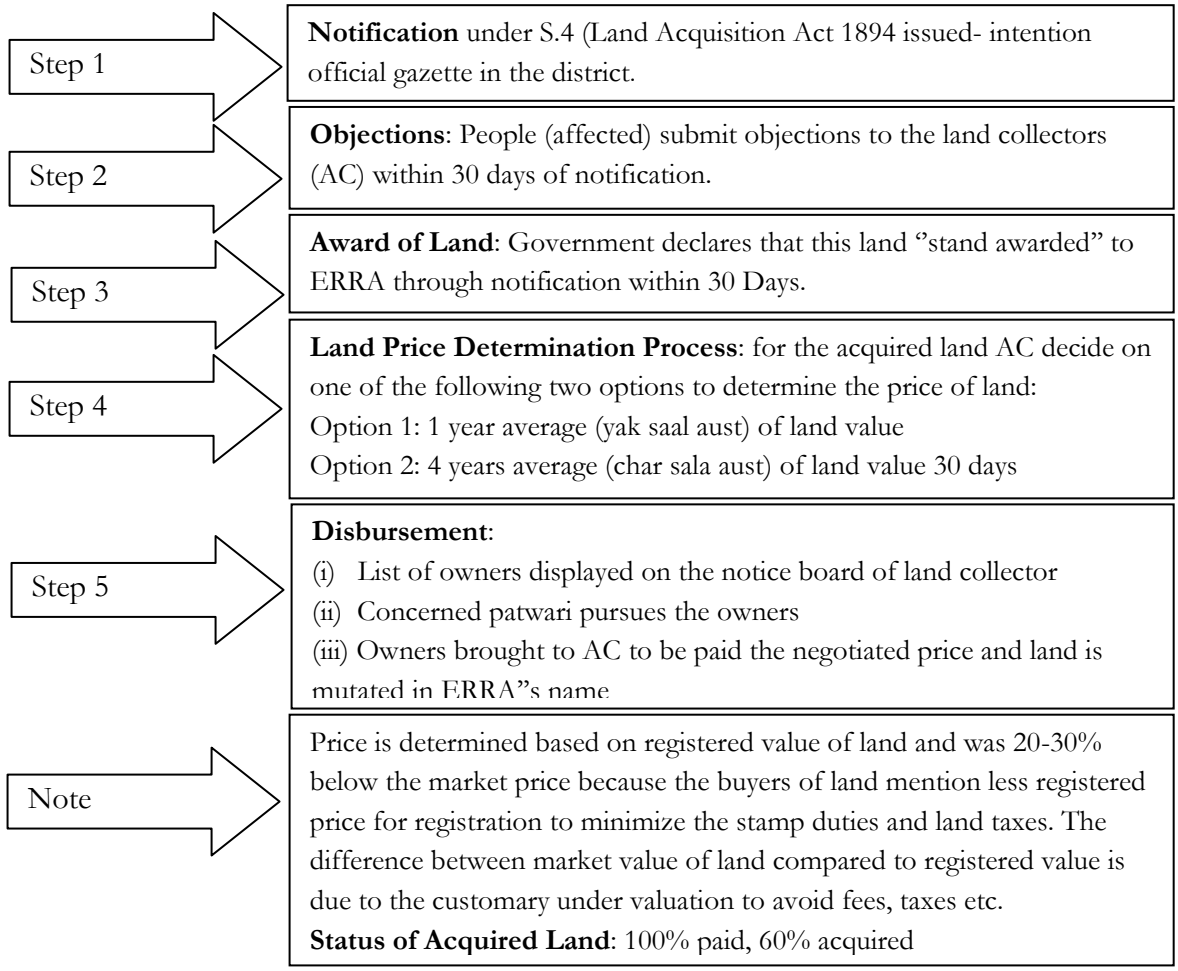


Figure 5-5 : Land Acquisition Process for Resettlement ERRA

5.14. Land for vulnerable groups

5.14.1. Renters and squatters

Due to the land tenure system in Pakistan few people are squatting land in the affected provinces. There was a modification later in the land policy to take the case of tenants who were living in the NWPF. The tenants where addressed through the rural land housing program. ERRA adopted a policy in which they developed a Memorandum of Understanding (MOU) in which tenants got access to the rural housing subsidy for reconstruction irrespective of their status of tenants.

5.14.2. Women and inheritance

The impact of disaster depends on the nature and intensity of the vent, but in all cases the impact varies according to the degree of vulnerability of the social groups that constitute the affected population. Women are more severely affected because they are more vulnerable socially and economically than men in most societies (Maithreyi, 1997).

ERRA as policy transferred the housing Memorandum of Understanding and any compensation to the widows. ERRA developed a specific social protection strategy identifying women headed households, widows and orphan. The rural landless program insured the mutation of new land purchased was in the name of all members of the family included women and children. Pakistan being an Islamic country, the shariat was applicable in all cases to inheritance of a deceased Muslim.

5.15. Land records and personal identities

Compare to the Asian tsunami in Pakistan Few land records were lost in the earthquake and the sub-registries at community/ patwari level recorded all changes (or mutation), so that there were relatively few dispute over ownership, and limited opportunity for land speculation.

Establishing eligibility required good records of both individual and land records. CNIC (Computerized National Identity Cards) system avoided many of the problems of abuse encountered in Aceh. The CNIC facilitated accurate beneficiary identification and allocation of grants.

5.16. Mitigation and land use planning

After the earthquake, the World Bank's loan agreement included a condition that the government of Pakistan assesses the extent of hazardous land in both rural and urban areas. Hazard risk mapping identified areas susceptible to future earthquake, landslides and rock falls.

Hazard categorization
A. High Hazard Zone In the hazard-zonation map this zone is considered to be an area where the probability of occurrence of a disaster of high severity or magnitude, within a specific period of time in the limit of the boundaries of the zone, threatening to the elements at risk e.g. people, property infrastructure.
B. Moderate Hazard Zone This zone is where either the severity of the disaster is not very high and or the recurrence period of the vent is larger and the disaster process could be managed with mitigation.
C. Low Hazard Zone This zone includes the areas where the probability of occurrence of the disaster is either low or the elements at risk could be saved by mitigation measures.

Figure 5-6: Hazard categorization (source ERRA)

Figure 5-7: Hazardous land areas in Mansehra

5.17. Summary

The response from the Pakistan government was not so quick after the earthquake due to the inaccessibility and sensitivity of the affected areas. The federal relief commission and the military provided rescue and relief and provided shelters for the IDPs. The NDMA was created only in 2006.

The Pakistan government created ERRA for the reconstruction of affected areas, with the policy of providing cash compensation instead of land to those who lost their land to reconstruct their houses.

ERRA adopted the owner-driven approach for rural housing reconstruction. The urban housing programme targeted only those who have to be relocated because of town planning.

Due to land tenure system in the two provinces only in NWFP renters were found and provided compensation later. Inheritance case was solved according to shariat law. Land records did not suffer from the earthquake and documents were well kept by NADRA.

The government mapped the risk areas and identified those susceptible to earthquake, landslides or rock fall. ERRA made the military-led government the key player in the reconstruction phase at the expense of provincial assemblies. Army officers represented the government of Pakistan at every stage of decision.

5.18. Haiti earthquake

A disaster can sometimes be indicative of the socio political bankruptcy of a state. The case of Haiti is a clear example of that bankruptcy.

5.18.1. The response

The impact of the earthquake was so destructive that the Haitian government was unable to respond for many days. The only solution one week after the disaster was to provide free transportation to the population of Port-au-Prince to move out of the city to the county side or hosts families. Later the government made available public land for resettlement to the displaced persons, but the lands can accommodate only a very limited number of people.

It seems very difficult for the government to find or expropriate private land or even rent suitable land and large enough to accommodate so many people in the international standards listed in the Guiding Principles on Internal Displacement. Authorities have been unable to find necessary land for resettlement for the affected community. People were squatting open spaces, private land, streets, schools and hospital sites and even the famous Petionville- Golf Club.

Many humanitarian agencies, national and international are doing on an ad hoc, informal agreement with landowners and local governments that give them land tenure rights, which must be renegotiated every three to six months to establish camps.

5.18.2. The displaced population

The population affected by the earthquake is living in camps and makeshift shelters in and around Port-au-Prince. According to recent estimation of the office for the coordination of humanitarian affairs 460 sites with a total of 1.17 million people were registered only in the city of Port-au-Prince the largest camp in the capital is home of about 50.000 people. The population in the camps is not willing to go back because in many cases people have better access to basic services, like water and latrine, in other cases people are afraid to go back because they were renters before the disaster. Security of ownership is so weak that people are using rubble as the best insurance against squatting on their property.

5.19. The Interim Haiti Recovery Commission

The Interim Haiti Recovery Commission(IHRC) creation was announced at the United Nations headquarters in New York on march 31, 2010 at the international donors conference "Towards a new Future for Haiti" and was formally established (approved by Haitian lawmakers) in April 2010.The Commission will oversee the implementation of the Government of Haiti's Action Plan for National Recovery and Development, ensuring that international assistance is aligned with the priorities of the Haitian people and their Government, ensuring accountability and transparency. The Commission is Co-chaired by His Excellency Mr. Jean Max Bellerive, Prime Minister of the Republic of Haiti and his Excellency Mr. William J. Clinton, former President of the United States of America.

Members of the Commission's governing board include representatives from:

- The Haitian government, parliament and judiciary;
- Donors including Brazil, Canada, CARICOM, the European Union, France, Inter-American Development Bank, Norway, Spain, United States, Venezuela and the World Bank; and
- Haitian labour unions and the private sector.

In addition, representatives of the Haitian and international civil society organizations, and the Organization of American States will participate as non-voting members.

5.19.1. Reconstruction

The earthquake has highlighted the problem of land in Haiti. According to an estimation of the Organization of American States 80% of land belongs to private in Haiti especially to few land owners known as "Grandons", preventing the state from launching major programs to relocate the affected population.

Dispute over land ownership, which could take years to be resolved are hampering the reconstruction in Haiti. The Haitian government and international aid agencies are trying to rebuild new homes for about 1.5 million people living in makeshift camps, but before starting reconstruction there is a need to determine who owns the land, a major challenge after the earthquake which destroyed a high number of property titles and registry records. Another problem is land grabbing which was endemic in the slums before even the earthquake and that now generalized because of lack of clarity of land titles. According to the United Nations less than 5% of land in Haiti is officially recorded in the records of public land, which aggravates the difficulty of establishing who owns a land. Most land is transmitted orally from one generation to the other with the prevalence of informal land ownership. Hernando de Soto (2000), in his celebrated book "The Mystery of Capital" estimated that 68 percent of Haitian dwellers and 97 percent of their rural counterparts live in housing for which no one has clear legal title.

5.19.2. Expropriation

Expropriation is foremost an act of public authority, it can therefore be an exceptional measure. The population have eagerly awaited the publication by the government the new standards and the reconstruction plan of the city, in accordance with article 67 of the law 29 may 1963 establishing special rules relating to housing and town planning this article states: "when agglomeration, regardless of its population, has been destroyed in whole or in part as a result of earthquake , fire flood or other disaster, the local administration will be required to establish a deadline set by the department of interior, the general plan of alignment and levelling of the parties to build" this is a prerequisite.

Since the publication of the presidential decree of March 22, 2010 making homes in the plain of Cul-de-sac area of the state and the decree of 2 September, 2010 for expropriation for public utility of some lands nothing has been done yet.

Because of years of instability and the weakness of the government it became very difficult to expropriate land from private landowners "Grandons". That elite, a traditionally corrupting force in Haitian politics, gas the power to bring down any government in Haiti.

According to landowners there must be public benefit to justify the expropriation and only if it is for the "constitution of the public domain for the allocation of some outbuildings to the use of all the community, or the construction of public work." The Haitian Civil Code provides in Article 449, that "No person shall be compelled to transfer his property except for public purposes and subject to fair and prior compensation. "Finally," the principle stated above has constitutional standing, which requires respect from the legislature itself ", since Article 36-1 of the 1987 Constitution, it is prescribed:" The expropriation for public utility may proceed, upon payment or deposit ordered by the courts orders that the right to fair and prior compensation determined by an expert. "

5.20. Bottleneck for reconstruction

The earthquake of January 12, 2010 has left some 200,000 dead and more than a million homeless. In the weeks following the tragedy, the promises of reconstruction aid flooded to Haiti. "While Haitians are preparing for the first anniversary of the earthquake, nearly a million people are still displaced. Less than 5% of the ruins have been excavated and only 15% of the required temporary housing was built "Oxfam denounces. The IHRC is supposed to improve coordination between the various international aid projects, replace state structures and to foster cooperation between donors and Haitian officials. One year after the earthquake reconstruction has not yet started. Critics rained down on the activities of the Provisional Reconstruction of Haiti (IHRC) created in April, led by Bill Clinton, former U.S. President and the Prime Minister of Haiti, Jean-Max Bellerive "The commission has so far failed to live up to its mandate", asserts that Oxfam asks him to end "the quagmire of indecision and delay" which, according to the NGO, characterized his work. Glaring illustration of these shortcomings: the report says that funds have been paid for the construction of temporary housing, but that virtually nothing has been released to clear the rubble, estimated at 20 million cubic meters. But the Oxfam report points to the paralysis of the process, which he attributes to a lack of governance, both within the Haitian government and the international community. Land availability and land tenure issues have hindered the reconstruction in Haiti.

5.21. Summary

Tenure security and land use plan are crucial in a post-disaster reconstruction process and the community participation can be a key to the success of this process.

Effective response to recovery demands cannot be achieved in post-disaster, through top- down, inflexible and standardized approaches. Success is based on a bottom-top approach with full participation of the affected communities (CDA).

	Preparedness	Response	Reconstruction	Mitigation
Indonesia	-Good -Existence of a National Disaster Management Board BAKORNAS -SATKORLAK at provincial level -SATLAK at district level	-Quick -Government declared the Tsunami as national disaster -Institution available BAKORNAS -Active participation of the army -State land provided for shelter -Strong participation and support from International Community and NGOs -Large media coverage -Adoption of a Master Plan -Creation of BRR- -Top-down approach	-International support to rebuilt on pre-disaster land -Creation of RALAS project -Active participation of BPN -CDA as mode of participation -Land provided for housing -Strong collaboration between central and local authorities -Good coordination of reconstruction efforts with NGOs and other agencies - Transparency	-Land use planning partly implemented -Creation of 3 zones 1-Coastal zone 2-Fishing zone 3-Restricted settlement zone -Creation of a buffer zone -Improvement of warning system -Construction of escape buildings

Pakistan	-Not good -FRC only at national level -Lack of national disaster preparedness plan	-Slow -FRC is not well prepared and equipped -State land provided for shelter -Creation of ERRA -Strong participation of the army -No large media coverage -Area difficult to access -Need of Army approval for any strategy from NGOs -Top-down approach	-Rapid -Very political sensitive area -Adoption of rural land policy -Owner –driven approach as participation -Passive role of the civilians and local authorities -Army played a key role -Cash compensation for housing grant -Lack of transparency	-Land use planning really implemented -Mapping of hazardous areas 1-High hazard zones 2-Moderate hazard zone 3-Low hazard zone
Haiti	-Bad -Inexistence of any disaster Management Board	- Very slow -Large media coverage -Lack of disaster management board for coordination -Large support from UN, USA and international community -Renting of private land	-Creation of the IHRC -No reconstruction yet	-No mitigations measures yet

Table 5-2: Summarize findings in chapter 5

6. CONCLUSION AND RECOMMENDATIONS

6.1. Main conclusion statement

This research has been carried out with an objective of investigating how well prepared are the governments in the study area, in terms of disaster management and making land available. The factors that can obstruct or speed the recovery and reconstruction, mechanisms to gain land, land rights and mitigation measures taken for future are also assessed. The study showed that preparedness and mitigation are important components of disaster management and location can speed or obstruct relief and reconstruction. Land issues should be put on the agenda from recovery to reconstruction phase and compensation should be provided to those who lost their lands either they hold it in a formal or informal tenure. Special attention should be given to women and orphans.

6.2. Conclusion

Preparedness

Natural disaster cannot be prevented, but measures can be taken to reduce the impacts. Preparedness measures include public awareness, maintenance and training of emergency services and an emergency plan. Preparedness can be seen as a continuous cycle of planning, evaluating and improving activities to respond and recover from disaster.

For a good preparedness there is a need to have a National Institution that will be in charge of disaster management within a legal framework such as a legislation to be able to expropriate land in emergency cases. Such institutions should include the Army, local NGOs, the Ministry of Lands, Ministry of Physical Planning and Ministry of Home Affairs etc. The study shows the chairman should be a high level political person.

Relief

Relief is an important part of disaster management as it is the prime step to respond to the immediate needs of disaster victims such as, evacuating the population, providing emergency care, shelter and humanitarian assistance. The location of a disaster plays a very important role in the rescue phase. It's easier to access victims in a coastal area than in mountainous area. The earthquake in Pakistan occurred in a very mountainous area very difficult to access, this situation delayed the rescue.

The army being an institution with a geographical reach and command structures, can be trained and equipped to lead emergency relief.

Displacement

A disaster destroys not only land and property but it leads to a large displacement of the population. Displacement is often seen as collateral damage of a disaster. People may be living in spontaneous or unplanned camps, or unoccupied spaces. If not well planned the consequence of a displacement can be the risk of camps to become permanent (Haiti case).

Planning

Planning is a very important tool for disaster risk management. The disaster recovery period is said to be a time with immense potential for confusion and conflict, as different stakeholders put pressure on the government to take action in many different matters.

The land use planning after the tsunami has not been effective in Aceh, as it come too late when people have already finished building houses, but it was successfully implemented in Pakistan before the beginning of the reconstruction phase.

It is necessary to produce a land use plan immediately after the disaster to be ready for the reconstruction phase. Many people return quickly to their land and start reconstruction activities which are often conflicting with risk prevention. Their return is also hastened if they feel their tenure security is under threat. Land use regulations (zoning, building codes) are more acceptable to people who have survived disaster.

Reconstruction

Destruction of houses is one of the most visible effects of natural disaster. Disasters have a greater impact on the built environment of developing countries that industrialized ones.

Housing reconstruction requires both the availability of a safe building site and secure tenure to the land. Community participation is key to success for any reconstruction process. The local community should be involved in the reconstruction process.

Tenure security is crucial as government and NGOs will like to be sure that they are building for the right person at the right place.

It is recommendable to use the Pinheiro principles for any reconstruction process after a disaster.

6.3. Recommendations

a) After almost one year the reconstruction did not start in Haiti due to land issues and political instability that the country is facing since independence.
Strong political decisions should be taken regarding land. Land reform must be priority in Haiti. For the debris clearance it is not the responsibility of NGOs but it should be done by the government with strong financial support from international institutions. Haiti needs expertise and support from United Nations agencies and others countries to establish a clear and strong land administration system.

b) There is a need for further research to investigate how the reconstruction in Haiti was done after the earthquake in terms of access to land and land rights since Haiti is a country where 80% of the land is private. Also the reasons why reconstruction has been so slow compare to the Asian tsunami and the earthquake in Pakistan could be further investigated.

LIST OF REFERENCES

Alexander, D. E. (1991). *Applied Geomorphological and the Impact of Natural Hazards on the built environment*.

Baas, S., Ramasamy, S., Battista, F., & Depryck, J. (2008). *Disaster risk management systems analysis: A guide book*. Rome: FAO.

Bagnash, Z. (2009). Understanding the reality of the Taliban. *Mititary-World News*.

Black, R. (2001). Environmental refugees: Myth or reality?

Blaikie, P., Terry, C., Ian, D., & Benjamin, W. (1994). *At risk: natural hazards, people's vulnerability and disasters*. London: Routledje.

Blaikie, P., Terry, C., Ian, D., & Benjamin, W. (2004). *At Risk: Natural Hazards, People's Vulnerability and Disasters* (Second edition ed.). London.

BPN. (2009). *Reconstruction of Aceh Land Administration System, implementation completion report*. Jakarta, Indonesia: BPN.

Brown, G., & Crawford, A. (2006). Addressing land ownership after natural disasters: An agency survey. *IISD*.

Burton, I., & Kates, R. W. (1964). *The perception of natural hazards in resource management*.

Cardona, O. (2003). The Need for Rethinking the Concepts of Vulnerability and Risk from a Holistic Perspective: A Necessary Review and Criticisme for Effective Risk Management.

Cavaye, A. L. M. (1996). Case Study Research: A Multi Faced Research Approach for Is. *Information Systems Journal*.

Coleman, R. J. (1978). *Management of fire service operations*: Duxbury Press.

Cosgrave, J. (2008). Responding to earthquakes 2008: Learning from earthquake relief and recovery operations.

D'Souza, F. (1986). Recovery following the Gediz earthquake: a study of four villages of western Turkey. *10*(1).

Darke, P., Shanks, G., & Marianne, B. (1998). Successfully Completing Case Study Research: Combining Rigour, Relevance and Pragmatism. *Information Systems Journal, 8*(1).

El-Hinnawi, E. (1985). Environmental refugees. Nairobi, Kenya.

Enemarck, S. (2009). Sustainable Land Administration Infrastructures to Support Natural Disaster Prevention and Managment.

Escobar, P. (2009). Rebranding the long war. *Asia Times Online*.

FIG. (2006). *The Contribution of the Surveying Profession to Disaster Risk Management*. Copenhagen, Denmark: International Federation of Surveyors (FIG)

Fitzpatrick, D. (2006). Addressing land issues after natural disasters: Case study (Aceh, Indonesia). UN-HABITAT.

Fitzpatrick, D., & Zevenbergen, J. (2007). Addressing Land Issues after Natural Disasters: A Study of the Tsunami Disaster in Aceh, Indonesia.

Fournier, d. A., E.M. (1979). Objectives of volcanic monitoring and prediction. *Journal of the Geological Society*.

Glickman, T. S., Golding, D., & Silverman, E. D. (1992). ACTS OF GOD AND ACTS OF MAN: Recent Trends in Natural Disasters and Major Industrial Accidents.

GTZ. (2002). Disaster Risk Management: Working concept.

Haroen, T. S., Achmad, C. B., & Rusmawar, W. (2005). Cadastral Reconstruction in Aceh: A New Concept of Adjudication. [8th South East Survey Congress, Brunei Darussalam,21-25 November 2005].

Hernando, d. S. (2000). *The Mystery of Capital*.

Heryani, E., & Grant, C. (2005). Land Administration in Indonesia.

Home, R., & Qazi, N. A. (2008). *Post Disaster Land Issues Case Study: Pakistan Earthquake*

IFRC. (1993). *World Disaster Report*. Dordrecht: IFRC.

ISDR. (2009). *Global assessment report on disaster risk reduction: Risk and poverty in a changing climate*. Geneva: United Nations.

Islam, N. (1996). *Growth, Poverty, and Human Development*: U.N. Human Development Report Office.

Jansen, K. (2003). Crisis Discourses and technology regulation in a weak state: Responses to a pesticide disaster in Honduras.

Kates, R. W., & Pijawka, D. (1977). *From rubble to monument: The pace of reconstruction*.

Lyons, K., & Satish, C. (2001). *Undertaking land administration projects: sustainability, affordability, operational efficiency and good practices guidelines*: Australian Agency for International Development.
Mader, G. (1980). Land use planning after earthquake. *American Planning Association*.
Maithreyi, K. (1997). Gender Issues: The Patur earthquake.
Micklin, M. (1973). *Environmental population and social organisation*.
Mileti, D. S. (1999). *Disasters by Design: A reassessment of Natural Hazards in the United Nations*. Washington,D.C: Jospeh Henry Press.
Mitchell, D. (2010). LAND TENURE AND DISASTER RISK MANAGEMENT. *LAND TENURE JOURNAL*.
Olivier-smith, A. (1996). Anthropological research on hazards and disasters. *Annual Review of Anthropology*.
Olivier-Smith, A. (2001). Theorizing Disasters: Nature, Culture and Power.
Oxfam. (2005). *Approximative responses and lasting solution for Aceh's Tsunami survivors*.
Pantelic, J., & Srdanovic, B. (1992). Housing reconstruction and earthquake vulnerability: some examples from the developing world.
Paul, V. d. M., & Enemarck, S. (2008). Capacity assessment in land administration. *FIG, Frederiksberg*.
PDNA. (2010). *Haiti earthquake: Assessment of damage, losses, and sectoral needs. Annex to the Action Plan for National Recovery and Development of Haiti*.
Pelling, M. (2003). *Natural disasters and development in a globalizing world*. London: Routlegde.
Perlez, J., & Shah, P. Z. (2009). Taliban exploit class rifts in Pakistan. *New York Times*.
Sheehan, L., & Hewitt, K. (1969). A plot survey of global national disasters of the past twenty years.
UN-ECE. (1996). *Land administration guidelines,with special reference to countries in transition*. Geneva: United Nations.
UN-ECE. (2005). *Land administration in the UNECE REGION: Development trends and main principles*: UNECE.
UN-HABITAT. (2008). *Post-disaster Projects in Asia*: UN-HABITAT.
UN-HABITAT. (2010). *Land and Natural Disasters: Guidance for practitioners*.
UN-ISDR. (2004). *Living with Risk*: United Nations.
UN-OCHA. (2008). *Transitional settlement and reconstruction after natural disasters*: UN-OCHA.
UNDP. (1991). *Mitigation Natural Disaster: Phenomena, Effects and Options*. New York: UNDP-UNDRO.
UNDP. (2004). *Reducing Disaster Risk: A challenge for Developement, UNDP, Geneva,Switzerland*. Geneva: UNDP.
UNDRO. (1982). *Natural disasters and vulnerabilty analysis*. Geneva: office of the United Nations Disaster Relief Co-ordinator.
White, G. (1974). *Natural hazards: local, national, global*. Oxford: Oxford University Press.
Wikipedia. (2010a). *http://en.wikipedia.org/wiki/List_of_natural_disasters* Retrieved october, 2010
Wikipedia. (2010b). http://en.wikipedia.org/wiki/Natural_disaster. Retrieved october, 2010
Winoto, J. (2005). Reconstruction of Land Administration System in Nanggroe Aceh Darussalam (NAD) and Nias. [Expert Group Meeting on Secure Tenure, Bangkok,8-9 December 2005].
Wood, W. B. (2001). Ecomigration: Linkages between Environmental Change and Migration.
Yin, R. K. (1994). Case Study Research: Design and Methods.

APPENDICES

Appendix1: The different types of participations in post disaster

Type of participation	Role of affected population	Level of control
Passive	Informed of what is going to happen or what has occurred.	low
Through the supply of information	Provides information to agency in response to questions but has no influence over the process.	
By consultation	Asked for its perspective on a given subject but has no decision-making powers.	
Through material incentives	Supplies materials and/or labor needed to operationalize an intervention. Receives cash or in –kind payment from the agency.	
Through the supply of materials, cash or labor	Supplies materials and/or labor needed to operationalize an intervention or co-finances it. Helps decide how these inputs are used.	
Interactive	Participate in the analysis of needs and in program conception, and has decision making powers.	
Local initiatives	Conceives, initiates and runs project independently; agency participates in the community's projects.	High

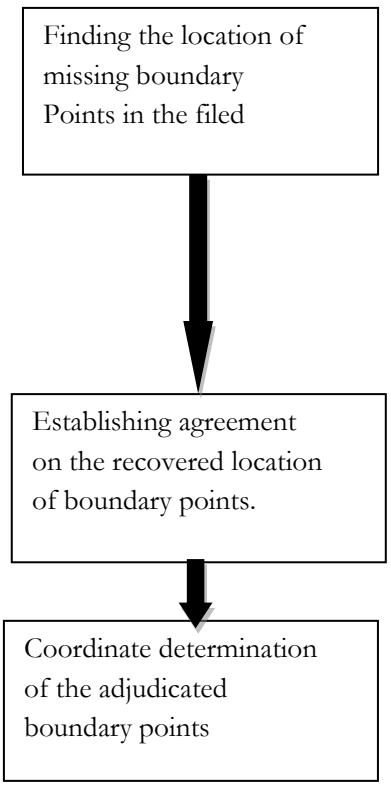
Appendix 2: Possibility of Land-Owner-Document Condition (Haroen et al., 2005)

No	Land parcel	Owner	Land certificate	Official document
1.	Exist	Exist	Exist	Exist
2.	Exist	Exist	Exist	No
3.	Exist	Exist	No	Exist
4.	Exist	Exist	No	No
5.	Exist	No	Exist	Exist
6.	Exist	No	Exist	No
7.	Exist	No	No	Exist
8.	Exist	No	No	No
9.	No	Exist	Exist	Exist
10.	No	Exist	Exist	No
11.	No	Exist	No	Exist
12.	No	Exist	No	No
13	No	No	Exist	Exist
14.	No	No	Exist	No
15.	No	No	No	Exist
16	No	No	No	No

Appendix 3: Forms of communities participations in post disaster reconstruction phase

Reconstruction phases	Opportunities for Community Participation in Reconstruction
Assessment	Conduct housing census; community-led needs assessment, mapping of affected area and changes.
Planning and design	Carry out participatory site planning and site evaluation. Identify targeting criteria and validate household eligibility. Participate in reconstruction training to reduce risk.
Project development and implementation	Owner-driven housing reconstruction. Volunteer; receive direct payment for reconstruction of community facilities (schools, meeting places, and hospitals) rehabilitation of infrastructures and housing reconstruction.
Monitoring and evaluation	Participation in construction supervision, steering committees and social audit (control) committees, and participatory evaluations.

Appendix 4: Parcel boundary reconstruction process in Aceh



- Utilizing GPS technology, if the previous WGS84 coordinates of boundary are known
- Utilizing terrestrial surveying principles, if the previous coordinates are known in local coordinate system.
- Utilizing natural or man-made objects around the parcels, if they are still exist.
- Utilizing the help of aerial photos or satellite imageries of the areas.
- Utilizing information given by the owner (if still alive), inheritor, neighbours, family members and/or community around the affected parcels.

- Consultation and agreement with the owner (if still alive), inheritor, neighbours, family members and/or community around the affected parcels.

- *GPS* surveying
- Terrestrial surveying
- Combination of GPS and terrestrial surveying

Appendix 5: Land use planning map of Aceh BR