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LAND TENURE AND DISASTER RISK MANAGEMENT

RÉGIMES FONCIERS ET GESTION DES RISQUES DE CATASTROPHE

TENENCIA DE LA TIERRA Y GESTIÓN DE RIESGOS DE CATÁSTROFES

ABSTRACT

DISASTER RISK MANAGEMENT

LAND RIGHTS

LIVELIHOODS

The frequency of natural disasters has been increasing since the 1950s. The most vulnerable groups are more likely to live on disaster-prone land, and are at greatest risk of displacement and loss of livelihood assets in the event of a disaster. For the more severe natural disasters, temporary or permanent resettlement of large numbers of people is necessary. Natural disasters can also create circumstances where land speculation and land grabbing occur; good governance of land is critical in the emergency response and recovery phases. Drawing on existing literature and case studies examining land tenure issues after natural disasters, this paper makes recommendations on responses to land issues

RÉSUMÉ

GESTION DES RISQUES DE CATASTROPHES

DROITS FONCIERS

MOYENS DE SUBSISTANCE

La fréquence des catastrophes naturelles s'est accrue depuis les années 1950. Les groupes les plus exposés sont généralement ceux qui vivent dans des zones sujettes à ce type de phénomène et qui risquent ainsi davantage d'être déplacés et de perdre leurs moyens de subsistance. En cas de catastrophe grave, il est nécessaire de réinstaller un grand nombre de personnes de manière temporaire ou permanente. Les catastrophes naturelles peuvent également créer des circonstances propices à la spéculation foncière et à l'accaparement de terres. Une bonne gouvernance foncière est essentielle pour gérer l'urgence et la reconstruction. En s'appuyant sur

SUMARIO

GESTIÓN DE LOS RIESGOS DE CATÁSTROFES

DERECHOS DE LA TIERRA

MEDIOS DE VIDA

La frecuencia de las catástrofes naturales viene aumentando desde la década de 1950. Los grupos más vulnerables tienen más probabilidades de vivir en zonas expuestas a catástrofes y corren un mayor riesgo de verse desplazados y perder sus medios de vida en casos de catástrofe. Las catástrofes naturales más graves hacen necesario proceder al reasentamiento temporal o permanente de muchas personas. Las catástrofes naturales pueden también crear circunstancias que favorecen la especulación de la tierra y la apropiación de tierras; una buena administración de la tierra tiene una importancia decisiva en las fases de respuesta de emergencia y recuperación.

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within the context of a Disaster Risk Management framework. Recommendations are also made for improvements in land policy and legal frameworks, and formal recognition of historical attitudes to land, as part of an adaptation and mitigation process to improve the resilience of the more vulnerable members of society. Considering land issues in the various stages of disaster risk management will help to protect displaced people's land rights, and allow them to return successfully to their pre-disaster land and livelihoods where appropriate.

la documentation et les études de cas existantes qui traitent des questions de régimes fonciers à la suite de catastrophes naturelles, le présent document fait des recommandations en matière de résolution des problèmes fonciers qui s'inscrivent dans le cadre de la gestion des risques de catastrophe. D'autres recommandations concernent les améliorations des politiques et cadres juridiques fonciers, et la reconnaissance officielle de la place des comportements fonciers historiques dans un processus d'adaptation et d'atténuation destiné à améliorer la résistance des personnes les plus vulnérables. L'examen des questions foncières à divers stades de la gestion des risques de catastrophe contribuera à protéger les droits fonciers des personnes déplacées, et leur permettra de réussir, le cas échéant, leur retour aux terres et aux moyens de suabsistance dont ils disposaient avant la catastrophe.

Basándose en la literatura existente y en estudios de casos en los que se examinan cuestiones relacionadas con la tenencia de la tierra después de catástrofes naturales, en el presente estudio se formulan recomendaciones sobre las respuestas a las cuestiones relativas a la tierra en el contexto de un marco de gestión de riesgos de catástrofes. Asimismo se formulan recomendaciones con vistas a mejorar el marco jurídico y el marco de políticas agrarias y a reconocer formalmente las actitudes históricas ante la tierra, como parte de un proceso de adaptación y mitigación encaminado a aumentar la resistencia de los miembros más vulnerables de la sociedad. Considerar las cuestiones relacionadas con la tierra en las varias fases de la gestión de riesgos de catástrofes ayudará a proteger los derechos sobre la tierra de las personas desplazadas y permitirá que estas puedan regresar a las tierras que trabajaban antes de la catástrofe y recuperar sus medios de vida cuando convenga.

INTRODUCTION

There is evidence of an increase in the frequency of natural disasters in the last few decades. According to the IPCC Fourth Assessment Report (IPCC, 2007), climate change is very likely to lead to an increase in the frequency and intensity of some extreme weather events, such as heat waves, tropical cyclones, floods and drought. A list of natural disasters since 1975 involving more than 10 000 fatalities shows that five out of the ten worst disasters occurred between 2003 and 2008 (ISDR, 2009). Wisner and Luce (1993, p.130) argue that "disasters produce more marginal people – people who have survived but are unable to recover their livelihoods, who are destitute and forced to live in even more vulnerable situations". Wealthy groups have financial reserves that enable them to recover more quickly (Cosgrave, 2008). Meanwhile, the most vulnerable groups are more likely to live on disaster-prone land, and are at greatest risk of displacement and loss of livelihood assets in the event of a disaster. In these situations, natural hazard mitigation strategies will often involve more than one location of livelihood, ideally within different microclimates.

Once displaced people lose their connection with their associated livelihood assets, they are more vulnerable to the shock of the disaster and have more difficulty resuming livelihoods

Displacement of many people is common after a major natural disaster. People may also become landless due to the death of a family member, an inability to prove prior occupation, or from damage to the land that leaves it unusable, even pre-disaster. Once displaced people lose their connection with their associated livelihood assets, they are more vulnerable to the shock of the disaster and have more difficulty resuming livelihoods. If livelihoods are not resumed they face the prospect of selling assets at reduced prices to feed their families. Some of these effects are short-term, in which case they are able to resume living on their land and can recommence their livelihoods during the emergency recovery or reconstruction phases. However, some households lose access to their pre-disaster livelihoods and are unable to return to their land.

The most vulnerable households are those that rely on access to land with insecure tenure. These include sharecroppers, farm labourers, or informal settlers. Secure land tenure allows claims to land to be validated easily and underpins the return of displaced people to their livelihoods, to

food production and to activities aimed at rebuilding their lives. The most vulnerable family members include women, children, the elderly and those with disabilities. Ethnic minorities can also be very vulnerable.

In many of the developing countries that are most at risk of natural disasters, a vast majority of the population have insecure land tenure. This presents a problem when a disaster occurs and decisions concerning restitution need to be made quickly, to allow the rebuilding and resumption of livelihoods. In many countries, legally-recognized land titles do not exist; other records or verification from community elders may be needed to provide evidence of property rights. Property rights existing before the disaster can be very complex and involve overlapping or communal rights. There may be little protection for property rights in land policies or in the legal framework. When a disaster occurs, groups whose rights to land are informal yet socially legitimate (such as tenants, or sharecroppers, or farm labourers), or those who have been occupying land illegally (e.g. in informal settlements or as squatters), are vulnerable to land grabbing or resettlement without compensation (Brown and Crawford 2006; Cosgrave 2008).

In many of the developing countries that are most at risk of natural disasters, a vast majority of the population have insecure land tenure

A review of the literature reveals considerable discussion of land issues following natural disasters. Many of the land issues have been discussed for some time, e.g. D'Souza 1986, Pantelic and Srdanovic 1992, Wisner and Luce 1993, and Oliver-Smith 1996. However, following the 2004 Asian tsunami, interest in land issues has increased. Starting in 2006, several case studies were commissioned by UN agencies on land issues following natural disasters. In 2007, the Inter-Agency Standing Committee, the main United Nations mechanism for inter-agency coordination of humanitarian assistance, agreed to coordinate efforts concerning land tenure issues following natural disasters. This work has commenced and will result in a set of guidelines developed by UN-HABITAT, FAO and UNDP for addressing land tenure issues after natural disasters.

Lessons from recent natural disasters have highlighted several threats to landholders. First, there are material threats caused by displacement, include the risk of land grabbing and coercion to sell, 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. These include damage to property, degradation, loss of official records, a reduced capacity of authorities to carry out their duties, and damage to boundary marks. The third type of threat is administrative, post-disaster. These include limited public sector capacity, planning rule changes and inadequate compensation. The final threat relates to legality and human rights, and includes discrimination and inappropriate land acquisition for resettlement (Williams 2006; Fitzpatrick 2006).

In the emergency response sector there has been recognition of the importance of disaster mitigation and preparedness and a move away from Disaster Risk Reduction (DRR) towards Disaster Risk Management (DRM). DRM is a broader concept and includes a management perspective that includes the stages of prevention, mitigation, preparedness, response and recovery (Baas *et al.,* 2008). The aim of this article is to consider how land issues can be incorporated into the various stages of DRM, building upon the existing literature on land issues following natural disasters. The discussion is not intended to cover all the possible land issues that may arise, but rather to provoke discussion on how land tenure issues may be best considered in the context of DRM.

In the emergency response sector there has been recognition of the importance of disaster mitigation and preparedness

The article makes recommendations on responses to land issues within the context of a Disaster Risk Management framework. The author argues that decisions about land tenure should be based on land policies that are developed in line with a DRM framework, as part of a disaster mitigation process. The discussion is limited to hydro-meteorological disasters such as floods, tropical cyclones, storm surges and tornadoes, and geophysical disasters such as earthquakes, tsunamis, avalanches, and landslides. Most of these disasters are 'rapid-onset' and cause extensive loss of life, loss of livelihoods and damage to infrastructure. Drought too is a very significant natural disaster that often has a large impact on people and livelihoods; however, it is not considered here as the slow-onset nature of drought involves a different relationship to land tenure.

CONSIDERING LAND ISSUES DURING THE EMERGENCY RESPONSE

Immediately after a natural disaster the primary focus of the national and international institutions involved is on saving lives and providing medical assistance, shelter, food and water. Human life is at risk and a fast response is needed to control the crisis, restore order and minimize the physical and psychological effects of the disaster. There is little scope or capacity to begin considering land issues at this critical stage. However, if at least some consideration is given to the extent of land issues during the emergency response, the impact on access to land and livelihoods may be reduced. Many land-related responses to natural disasters are long-term considerations, but need to be anchored early so that livelihoods can be resumed as soon as possible. For example, the choice of resettlement sites can have a significant impact on whether displaced people are able to resume their pre-disaster livelihoods. By incorporating this understanding into early recovery planning, the most vulnerable are more likely to be protected.

Applying a rapid assessment of land issues during the emergency response

A rapid assessment provides an overview of the major issues requiring attention. Land tenure issues are not the priority during the emergency response. The focus is on shelter, livelihoods, vulnerability and food security issues, and various rapid assessment tools have been developed to consider these issues during the emergency response (e.g. USAID 2004, FAO and WFP 2005, IFRCRCS 2005, FAO and ILO 2009). Each of these areas are strongly interrelated to land tenure and should therefore incorporate both a) an assessment of the pre-disaster land tenure circumstances and b) changes to these following the disaster. In fact, several of these existing rapid assessment tools do include questions on land tenure. Consideration of land issues in a rapid assessment allows for improved design of early recovery and reconstruction programmes, which will provide better protection against loss of land and discrimination.

In the design of a rapid assessment it is important to consider the land tenure systems that existed prior to the disaster, and the impact of the disaster on households and livelihoods. Also important are issues of capacity, and the damage caused by the disaster to land records, property boundaries, and surveying infrastructure. Table 1 describes the typical information concerning land issues that would be of benefit to the planning of resettlement and early recovery, and should therefore be incorporated into rapid assessments:

It is important to consider the land tenure systems that existed prior to the disaster, and the impact of the disaster on households and livelihoods

PRE-DISASTER CONDITION	Pre-disaster attitudes to land.
	The main features of the property rights and land tenure systems.
	Existing land policies.
	Key land laws and regulations.
POST-DISASTER CONDITION	The impact of the disaster on individual properties.
	The impact of the disaster on communal and customary lands.
	The impact of the disaster on land records.
	The impact of the disaster on vulnerable groups.
	The impact of the disaster on land agencies.
	The demand for resettlement and related needs.

Table 1
Typical land issues to be considered in a rapid assessment

Consideration of land issues in livelihood, shelter and food security assessments will provide information about tenure security and livelihoods that will be important for early recovery and reconstruction, and can feed into more detailed assessments of needs later.

Transitional shelter and resettlement

Addressing emergency humanitarian needs in the first stage of the response involves finding emergency and transitional shelter for displaced people that provides safety and does not threaten the rights of others. Temporary planned resettlement camps may be required where the original land

has been severely damaged, or where security threats exist; this provides important and rapid shelter. However, such camps should not become the default solution, neither should they become permanent. Relocating large numbers of people moves them away from their source of livelihoods and forces them to leave behind assets which are vulnerable to looting and damage. It also damages the social support networks of a community at a time when the strength of the community is most important. Lessons from previous disasters show that people are sometimes happy to move away from a site that is vulnerable to recurrent disasters, but that they also often return later, if suitable alternative livelihoods are not found (e.g. D'Souza 1986, Pantelic and Srdanovic 1992).

The *Handbook on housing and property restitution for refugees and displaced persons* (Inter-Agency, 2007) provides guidance on implementing the so-called 'Pinheiro Principles': under these principles, all displaced persons have the right to have land and property restored to them following a disaster, or to be compensated where this is factually impossible. Restitution is the preferred remedy for displacement, and rights to compensation are not necessarily considered to have the same value as a durable solution. However, the right to restitution is not prejudiced *per se* by the return or non-return of the refugees or displaced persons. The Handbook takes the view that efforts to secure return-based solutions should be exhaustively explored, unless the displaced persons voluntarily choose to accept a compensation-based solution. Where compensation-based solutions are chosen, care needs to be taken that the arrangements do not disproportionately affect the poor in a negative way and that there are equal rights for men and women. Return to land should be voluntary, in safety and dignity, protected by legal security of tenure and with equal access to inheritance (Inter-Agency, 2007).

The location of resettlement sites is important, and should respect the human rights of survivors. In 2004, the Sphere Project developed the *Humanitarian Charter and Minimum Standards in Disaster Response*, which recommends minimum standards for shelter and settlement. For most disaster-affected people the opportunity to return to their original dwellings and livelihoods is a major goal. If a return to the site of their

original dwellings is not possible at that time, disaster-affected people often prefer to stay with other family members, in a host community, or with people who share historical or cultural ties (The Sphere Project, 2004).

Sites should be chosen so that risks from natural hazards are minimized and the area is not prone to disease. They should also be provided with all essential infrastructure (The Sphere Project, 2004). It is important to decide on the location of resettlement camps in consultation both with the displaced community and the host community, to reduce the likelihood of conflict and to ensure that displaced households can access necessary markets and services. This will allow for the continuation of their livelihoods. Compulsory acquisition of land for resettlement needs to be considered carefully and based on principles of good governance.

Well-managed resettlement with secure land tenure rights can facilitate recovery and a return to previous livelihoods. Recognition of property rights for people who have been resettled can help to reduce land disputes (Barnes and Riverstone 2009; Cosgrave 2008). Documentation and recognition of the rights to land allocated during the resettlement, along with a consultative process for deciding on claims to land after the disaster, allow for people to protect their previous land and livelihoods against claims by others. It may also be necessary to protect property rights at the land of origin so that displaced people do not feel obliged to return to their land, in order to protect it from others when it may not be safe to do so.

PROCESSING LAND CLAIMS DURING RECOVERY AND RECONSTRUCTION

As order begins to be restored, attention turns from immediate relief to preparing for recovery. Consideration of longer-term issues identified in the rapid assessment can lay the foundations for a sustainable recovery and rehabilitation, and building back better (ISDR, 2005). This is consistent with trends away from a purely emergency response to a more comprehensive DRM approach that leads to an improvement on the pre-disaster conditions.

Land ownership disputes and claims over land must be resolved – that is, legally adjudicated – prior to reconstruction. If this does not occur, the

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potential for land disputes is high and the wealthy or influential will have the opportunity to take land from the more vulnerable. In one example, displaced people were provided with temporary shelter after the tsunami in Sri Lanka and then evicted as soon as the shelters were completed (Lee, 2005). In another example, one group without formal title was dispossessed of its land in Thailand following the tsunami (CNRACNR and CNACCS, 2005).

There are two aspects to adjudication – determining the validity of claims to land, and establishing the location of land boundaries. A compromise needs to be made between a rapid determination of rights to land to allow for fast reconstruction, and the need for transparent decisions on land rights that include appropriate community participation. Adjudication involves verification of ownership via public records, should be consistent with the 'Pinheiro Principles', and should comply with international human rights standards. It is very important to respect traditional cultural norms concerning land, and existing institutions that are used for making decisions about land disputes. The aim of restitution should be to provide tenure security that is at least at the level of the situation before the disaster.

However, in many countries land records have not been kept up to date and provide little assistance in the adjudication process. Typically there are a large numbers of parcels affected by a natural disaster and the process of adjudication may take a long time. Limited capacity in the public sector may delay the recovery and reconstruction efforts (Williams 2006). Most developing countries at greatest risk of natural disasters have limited institutional capacity to process the large number of claims for restitution in a timely manner. Decisions about land tenure rights after a disaster are also complicated by any damage to official land records and land offices, the deaths of land office staff, the loss of evidence of property by landowners, and the destruction of boundary markers and surveying infrastructure (Fitzpatrick 2006; Cosgrave 2008; Deutsch 2008; Barnes and Riverstone 2009). In addition, when family members also die in the disaster, it may be difficult for the surviving members to prove their inheritance (Fitzpatrick 2006; Deutsch 2008). Where the remains of the body are not found this may be even more difficult.

Where public records are out of date, lost or damaged, other forms of evidence and verification from village elders and neighbours are needed. In other words, prior rights now need to be defended against new claims. Land tenure arrangements frequently involve several claims to land including those of registered owners, squatters, lessees, sharecroppers, or farm labourers. Where customary land rights exist these are often widely accepted within the group and may include rights to a building, or to a fixed parcel of arable land, or to an area of shared arable land, or rights to harvest from trees in certain seasons. Recognition of customary rights is very complex as there are likely to be many layers of rights to land and natural resources, and some of these may overlap geographically or temporally. When decisions are made on rights to land without a full understanding of all the claims to land, rights are concentrated in the name of the primary landholder and secondary rights may be extinguished.

Claims to different tenure types require different forms of evidence to validate the claim. Palmer *et al* (2009) list three different aspects of the legitimacy of a claim of land rights. These include:

1. Rights that are legally legitimate, such as individual, or group tenure, or use rights recognized by law.
2. Claims to land lacking legal or social legitimacy. These may include commercial developers who expect to profit by developing in protected areas, or people with influence who illegally appropriate public land for their own purposes. In the absence of evidence, such claims cannot be supported during adjudication.
3. Rights that are considered legitimate through broad social acceptance but without legal recognition. These may include customary rights on state land, informal settlements, or squatters who have not gained possessory rights. This category of claims is the most difficult to adjudicate, and may be within a continuum that ranges from those with long-established rights and strong evidence of a claim, to rights that were more recently established with limited evidence. Adjudication requires some judgement; where the local community has well-established attitudes and social norms regarding land, the community's institutions should be involved in decisions on land rights. In some cases it may not be possible to arrange restitution for these groups, and compensation

may not be possible. However, the overarching principle is their right to restitution, and alternative arrangements should be found that are at least equivalent and provide access to previous livelihoods.

CONSIDERING LAND ISSUES IN DISASTER MITIGATION AND PREPAREDNESS

Literature on previous disasters makes reference to threats to legal and human rights that include discrimination and inadequate compensation, which are more likely to affect the most vulnerable. In many developing countries at risk of recurrent natural disasters, there is a strong tradition of land ownership being recorded in the name of the husband (Cosgrave, 2008). After a disaster, surviving family members may have difficulty claiming their inheritance. For example in Tonga in 2002, women whose houses were undamaged after a natural disaster were required to give up their houses to a male relative whose house was damaged (World Bank, 2006).

The immediate post-disaster context provides an opportunity for developing risk-reduction measures – such as mitigation and preparedness – as part of a DRM process. However, Cosgrave (2008) argues that a single disaster response cannot undo decades of underdevelopment. Risk-reduction measures need to draw on lessons from the disaster when developing mitigation projects. For example, problems with land tenure or access to land highlighted in post-disaster assessments may lead to conflict over land or land grabbing if they are not resolved. The discussion in this section identifies two areas where these lessons may be implemented as part of a preparedness and mitigation process – improvement of land policies and physical planning. Decisions on where people live (land use planning), and recognition of their property rights in the land policy and legal frameworks, will help mitigate against further loss of land and livelihoods in future natural disasters.

Improving land policies

Following a natural disaster it is difficult to improve tenure security quickly in a manner that is sustainable. There may be some mechanisms that are

easy to implement in the short-term that result in some improvements for groups who have socially legitimate but not legally-recognized tenure. These include issuing decrees recognising the rights of groups, entering into legal leasehold arrangements for people where these do not exist, or official recognition of customary lands and landholders. However, more significant improvements to land tenure security are difficult to achieve in a disaster recovery and reconstruction context.

Each land parcel and land tenure type may require different approaches to improve tenure security. Barnes and Riverstone (2009) recommended that improvements to tenure security should be incremental, allowing for an incremental improvement to tenure security along a 'ladder of rights', as described in the publication *Secure Land Rights for All* (GLTN, 2008). In some circumstances a long-term commitment to formal land titling programmes may be warranted. If the decision is made to issue land titles it needs to be systematic and within the context of a comprehensive land policy and legal framework.

The policy environment is an important factor in the effectiveness of a recovery. In order to develop effective disaster recovery and reconstruction policies it is important for emergency agencies and NGOs to engage fully with the government and local communities, to test their approaches to emergency response. A land policy framework developed in a consultative manner forms the basis for the legal framework that guides decisions on resettlement, restitution and conflict over land. This is likely to be more important in mitigating against future disasters and supporting a long-term and sustainable improvement to tenure security, than ad hoc interventions on land tenure security. An important factor is state recognition of land rights and a sound land policy framework supported by a comprehensive legal framework, developed in consultation with the community. The 'Pinheiro Principles' recommend that states establish procedures and guidelines to assess restitution claims that include capacity building measures such as training, and the development of mechanisms for enforcement, dispute resolution and appeals. Land policy should include provisions for legal and social recognition of land rights and allow for improved tenure security for communal lands. In rural areas, land policies should provide sufficient flexibility to accommodate traditional migration of farmers between seasons.

It is important for emergency agencies and NGOs to engage fully with the government and local communities, to test their approaches to emergency response

Implementation of the policy framework is dependant on sufficient capacity in public agencies. The second and third goals of the *Hyogo Framework for Action* (ISDR, 2005) call for the development and strengthening of institutions, mechanisms and capacities, and the systematic incorporation of risk reduction approaches into emergency, response and recovery programmes. Decisions made in consultation with government, local institutions, individuals and networks will be more effective and result in greater community satisfaction (Leitmann, 2007). Local people know the major land issues in their area and what their priorities are. This is particularly important for decisions about land tenure, as there are often very complex pre-disaster mitigation measures and land use arrangements that need to be considered.

In many cases, local land institutions will lack the capacity to process decisions about land tenure quickly, for the potentially thousands of people displaced by a natural disaster. In most developing countries the land administration system is in poor condition and only covers urban areas. There may be no land records concerning rural lands, and even if land records do exist, many people may live far away from land offices, making recording of land transactions impractical. Improving the capacity of land administration agencies will be important – especially in areas at risk of natural disasters. The 'Pinheiro Principles' recommend that states should designate specific public agencies with the responsibility for enforcing property restitution decisions, and that local and national authorities are legally obliged to accept the decisions of this agency.

Physical planning

Cosgrave (2008) states that it has been common for governments to implement planning restrictions on land use and rebuilding after natural disasters, in order to reduce vulnerability. After the 2004 tsunami, zones prohibiting housing construction along the coast were introduced in Indonesia, Sri Lanka and India. The Sri Lankan government, for example, wanted to establish a restricted area between 100 and 300 metres from the coastline that would have required the relocation of over 118 000 houses and risked increasing tensions between resettled and existing communities (Brown and Crawford, 2006). These restrictions were soon

relaxed in Indonesia; however, in Sri Lanka the authorities were slower to relax restrictions. In another example, planning restrictions introduced in India almost two years after the Gujarat earthquake provoked large demonstrations by property owners (Nakagawa and Shaw, 2004).

Quite often the affected population are expected to bear the economic cost of such regulations without compensation, and families may not wish to move given that they have made considerable investments in housing or agriculture (Williams 2006, Cosgrave 2008). The World Bank (2005) argues that while these restrictions may seem sensible initially, the costs need to be balanced against the risk that others may occupy the unsafe land once it is evacuated. Wisner and Luce (1993) argue that quite often it is not the existence of households in vulnerable locations that is the root cause of vulnerability, but rather that individual persons and households within those regions lack the resources or influence to mobilize defences or recover their livelihoods and rebuild. They argue for a focus on the vulnerability of the people and not the systems. Settlement patterns are not arbitrary; the location of dwellings and agricultural plots are dictated by many social and economic factors (Cosgrave, 2008). Also, displaced people commonly return to forbidden zones (Pantellic and Srdanovic, 1992); evidence of this has occurred in 7 out of 30 World Bank funded projects in the last 30 years (World Bank, 2006).

The Hyogo Framework for Action lists land use planning as one of the key priorities. It also suggests that disaster risk assessments should be incorporated into urban planning and management in disaster-prone human settlements. However, the above examples are based on decisions made during the recovery or reconstruction phases of a disaster, where quick decisions are made in difficult circumstances. The desire to reduce the vulnerability of people living in hazard-prone locations is understandable, but the decision-making process needs to acknowledge the complexity of the issues and the attachment people have to their land. Decisions on resettlement are more appropriately undertaken later during a mitigation or preparedness phase, in which a consultative and transparent process is undertaken.

CONCLUSION

Poor tenure security and a lack of recognition of access rights reduce the resilience of people to natural disasters; the poor are the most vulnerable in this situation. The most significant consequences are loss of land, shelter, and delays in resuming livelihoods. Another consequence is the need for long-term resettlement, possibly far-removed from the pre-disaster land. Resettlement of people is a difficult process and must include acceptable livelihood alternatives if it is to function. This is especially true for people with insecure tenure such as squatters, sharecroppers and farm labourers.

There is little scope for addressing land issues during the emergency phase. However, land tenure is a major factor in livelihoods, food security and shelter, and should be included in any rapid assessments undertaken during the response period. This will provide DRM and land agencies with important overview information for disaster planning and management, and allow for greater protection of access to land for the more vulnerable. During the recovery period more detailed 'needs assessments' of livelihoods can assess in greater detail the impact of the disaster on tenure security and access to land. This information also provides a basis upon which land agencies and the community can develop improved land polices and land laws as part of a mitigation and preparedness process. In all cases, consulting the local community and developing their capacity builds resilience and leads to outcomes that are more likely to be accepted.

Land tenure is a major factor in livelihoods, food security and shelter, and should be included in any rapid assessments undertaken during the response period

Improvements to tenure security require a long-term commitment and should be based on the development of comprehensive land policies and legal frameworks. Understanding the land tenure issues that may arise following a natural disaster provides an opportunity to minimize the impact during the emergency response, recovery and reconstruction stages. Where recognition of potential and existing land issues are incorporated into national land policies as part of the DRM process, the most vulnerable members of the community are more likely to be protected from loss of land and livelihoods.

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