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Opportunities, incentives and challenges to risk sensitive land use planning: Lessons from Nepal, Spain and Vietnam



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ABSTRACT

This paper addresses one of the most pressing drivers of risk: land use planning and pressures placed on land use by private and public investors. Three case studies are developed, analyzing both private and public investment decisions and the interplay between regulations, acting as various incentives or disincentives. In Vietnam, dynamic urbanization is linked to political liberalization in terms of migration, private industries, land markets and urban planning. This has resulted in rapid urban growth, thereby increasing risk through urban sprawl into hazard prone areas that had previously been kept clear of urban development. In northwestern Spain, the “A Frouxeira” seashore lagoon and wetland are severely threatened by agriculture expansion, dune mining, tree plantations, tourism and the Prestige oil spill in 2002, which placed significant pressures on this fragile ecosystem, leading to social and environmental conflicts. Finally in Nepal, poor food security, landslides and changing climate conditions are pushing people out of mountainous areas to the plains and abroad, leading to illegal settlements springing up in flood-prone riverbanks. Governance is inadequate to prevent these illegal settlements but the city has now become liable for the safety of persons residing in these dangerous areas.

These cases highlight how private and public investments at various levels are increasing risks and what public solutions are envisaged, if at all, to address these risks, while highlighting the difficult trade-offs between development, risk and governance. Perhaps one of the strongest arguments in favor of risk sensitive land use planning is its cost-effectiveness, considering the high costs of structural measures to reducing risk. This can include ecosystem-based approaches as part of integrated planning, an often overlooked element of DRR for mitigating hazards, reducing vulnerabilities by providing livelihood resources and even exposure when dangerous areas are converted to green belts. Finally, we conclude that more effective risk reduction is possible through improved spatial planning.

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1. Introduction

As risk continues to increase globally, largely driven by increasing numbers of people and infrastructure built in highly exposed places, ‘the global community’ is exploring ways to reduce the occurrence of disasters [1,2].

Both the 2011 Global Assessment Report and the 2012 IPCC Special Report on Extreme Events highlight that high exposure to hazard events results mainly from economic and demographic pressures on land use, especially in densely populated coasts, rivers and mountains. While these places often are the most productive or attractive locations to live, they are also potentially the most dangerous. It is also clear that there are complex interactions between the interests of the private sector and those of the public sector where governments are ultimately responsible for the safety of their citizens, for paying for disaster losses as well as for making decisions about land use and how to allocate public funds for disaster risk reduction (DRR).

One of GAR 2013's [3] key questions is “*how do investment decisions in the private sector (in a context of incentives and regulation by the public sector) increase levels of disaster risk and, in some cases, transfer risk from private investors to governments and to other sectors of society*”. This paper responds to this question by analyzing both private and public investment decisions and the interplay between regulations, acting as various incentives or disincentives, with lessons learned from three case studies from Nepal, Spain and Vietnam. Based on the UNISDR (2009) [4] definition of risk as resulting from hazards, vulnerability and exposure, this paper focuses primarily on drivers of exposure, as investment and regulatory decisions ultimately affect where people live and under what conditions. Yet it is difficult to discuss reducing exposure without also including vulnerability reduction. Nevertheless, true measures to reduce vulnerability¹ and influence access to resources, are often the domain of structural measures to reduce social inequalities, market access, literacy and poverty [5,6]. However, it can be argued that land use planning can also be instrumental in adjusting social inequalities by providing safer places to live, regulating land tenure issues and including marginalized populations in participatory planning processes.

The paper highlights three interlinked drivers of exposure: *economic liberalization* which has given incentives to private investors to intensify real estate development in exposed and risk-prone areas; *urban expansion*, which has led to over-development, environmental degradation and risky development investments; and *weak public policies* which have led to social inequality, lack of risk information, weak planning tools and weak environmental regulations. The case studies in this paper bring various examples of poor land use practices, which have led to increasing risk through exposure: economic liberalization in Vietnam and Spain leading to opportunistic development in risky areas and in Nepal, informal settlements established in a high risk area to gain access to economic opportunities. In all cases, weak policies and institutions allowed the private sector to seek gains through risk prone development, whether driven by real estate companies or private individuals.

We then focus on the role of policy instruments in reducing exposure: financial incentives, land use regulation and public participation, are an important, yet often overlooked component of risk reduction. This paper postulates that risk sensitive land use planning is one useful approach to mitigating exposure and to some extent vulnerability, yet is only effective if accompanied by a strong institutional setting.

As the case studies demonstrate, creative solutions are required to balance short term economic interests with long term risk reduction measures, especially in the absence of strong institutions. Examples include innovative development projects where both environmental and disaster impacts are taken into consideration, incentives to local governments for risk sensitive planning, tax incentives to reduce development in dangerous areas, insurance schemes that allow for greater private sector participation in reducing risk and financial incentives to invest in more sustainable risk reduction. Finally, public participation in risk reduction – possibly involving NGOs in partnerships with local government for improved planning, risk awareness and public accountability – is a solution that has a much higher potential for reducing risk, especially in countries where few regulatory and financial incentives are available.

According to Burby et al. [7] risk sensitive land use planning is planning that integrates risk reduction, to allow communities to find the right mix of both development and risk reduction, in other words, accepting some risk for economic gain and vice versa. Although substantive literature was published on risk sensitive land use planning over two decades ago, e.g., Burby and Godshalk et al. [8,9] eliciting debate on the subject, collaboration between planning administrations and disaster reduction authorities is still not common. Encouraging such an approach is urgent, considering the fragmented approach to DRR, which is still dominated by a post-disaster, civil protection approach rather than emphasizing preventive approaches through spatial planning and long term investments in DRR [10,11]. There are thus opportunities and limits to spatial planning as a policy instrument for efficient and balanced territorial development, including the long term planning required for effective disaster risk reduction and especially the little studied role that ecosystem management can play in reducing risk, also referred to as ‘natural- or ecological infrastructure’ or ‘green solutions’ for DRR [12–16].

Risk sensitive land use planning is thus at the center for reducing exposure, the factor causing most increase in disaster risk and for which the least progress has been made in achieving HFA objectives [2]. To address this complex topic this paper asks a number of sub-questions to the above GAR 2013 question: “*How effective is risk sensitive land use planning for reducing disaster risks?*”; secondly, “*How are risks transferred between public and private actors?*”; and finally “*What are the solutions in*

¹ Without also including vulnerability reduction. Nevertheless, true measures to reduce vulnerability.

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