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# Introduction

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Since 1970 I have been involved in discussions about the impact of natural hazard events on the built environment, how those impacts come about, and how to avoid unwanted consequences. These discussions have frequently been in the context of development, which is often thought of as economic development and certainly as betterment for the population.

Over the fifty years of this discussion, numerous questions have arisen about how best to effect betterment, including how to protect resources. How should we carry out disaster risk reduction, and who should benefit from our efforts, when, and how? Anthony Oliver-Smith, a researcher who continues to contribute to understanding the relationship of disaster and society, has noted, “Since society is not generally the organization of completely equitable distribution of resources, every society is a dynamic arena of contesting interests organized along some lines of differentiation” (Oliver-Smith 2015: 40). Societies today largely dictate the use of physical space and create their built environment principally through what is called in current parlance “development.”

But what is development, and does it always result in betterment, and for whom? This dynamic arena of contesting interests is all-encompassing, even if the goals and objectives that create the built environment are not always shared by all inhabitants. The point is that the built environment is the manifestation of a particular society in a particular location. That manifestation includes the built environment’s vulnerability to natural hazard events in that place, which can often lead to death and injury and to damage and destruction of its related social and economic infrastructure.

Now as never before, the results of development are revealed through what are often described as disasters; the outcome of development is seen in the damage and destruction of the built environment and ecosystems following a natural hazard event. The global and local state of affairs is exposed by acknowledged mounting losses of property—and in many countries, lives—to natural hazard events.

Put another way, the shape of development since the 1960s and the beginning of modern international development assistance has fundamentally changed. Development is now a driver of risk, and to a great extent development is shaped by risk. The risk “topography” referred to in GAR19 (UNDRR 2019: iv) is related not only to loss of life and damage and destruction of economic and social infrastructure. Risk also encompasses financial and economic loss even if the built environment remains intact. Development constructs and reconstructs risk as it builds economic and social infrastructure in harm’s way. And as never before, development and disasters are noted for their imposed conditions of dependency and interdependency on the affected society.

## **Development as a Driver of Risk but Not Driven to Avoid Risk**

This book identifies the actions of four major groups of stakeholders: sovereign states, multilateral development banks, public sector specialized disaster management and development agencies, and nongovernmental humanitarian assistance and development organizations. As themes from the Berghahn Books series *Catastrophes in Context* resonate throughout the discussion, examination of these four stakeholder groups offers a clearer understanding of approaches to dealing with the root causes of risk that bring about catastrophic loss to society. In focusing on these four stakeholder groups, we recognize that there are also other groups that play major roles in bringing about the built environment. As themes evolve in this book, the word “development” will be used with the understanding that it includes all components of the private, for-profit sector, the informal economy, the nonprofit sector, and community groups of all kinds.

Development will be presented as both a principal driver of risk and a potential principal driver of disaster risk reduction from natural hazard events, including the relationship of development to climate change and climate change adaptation. Moreover, the discussion will include questions of for whom, where, when, why, who pays, and who benefits. These questions are important, considering that today the vast majority of built environment components at risk to damage and destruction will also be at risk tomorrow, not only from catastrophic events, but also from chronic exposure to more frequent but less powerful events that are nonetheless damaging and reflect a lack of resilience.

These questions are also important because they highlight that (1) to eliminate all risk to natural hazard events in development is impossible; (2) society makes choices about the creation of risk; and (3) in the future,

all natural hazard events might cause disasters of one scale or another because fewer segments of society will be able to manage their impact without outside assistance.

Since the early 1960s, development has been cast in economic terms as the creation, distribution, equitable distribution and redistribution of wealth, and access to resources. In 1990 the United Nations Development Programme (UNDP) introduced “human development” as a new way to advance human well-being. The human development approach enlarges population choices while still recognizing economic development. Human development is more than gross domestic product growth, or income and wealth, or producing commodities, markets, and accumulating capital. It focuses on improving people’s opportunities and choices, rather than assuming economic growth will lead automatically to greater well-being for all. Income growth is seen as a means to development, rather than an end in itself (UNDP 1990: 1).

Overcoming underdevelopment has traditionally meant overcoming dependency of the individual, community, province, or nation on external assistance. But now development is increasingly embracing interdependency as a strategy while dependency continues in varying forms. Dependency, then, means that in addition to a subservient position, as in underdevelopment, it is also a sought-after relationship characterized as voluntary interdependence, such as between nations linked by economic and social networks that share goods and services either locally or globally.

Development has also been defined as betterment, which includes striving for the well-being of all people. Sustainable development promotes prosperity and economic opportunity, greater social cohesion, and protection and use of shared natural ecosystems both now and in the future. This is the stuff of a society’s collective environments and actions.

In each country a version of the development definition has its own constituents. Development is discussed widely, but often left at the discussion stage are issues of betterment for whom and who pays. Not often addressed are issues of intended and excluded beneficiaries and to what resources and subsidies the target population will be given access. Most often not addressed are the underlying causes for risk to natural hazard events and resolution of the need for vulnerability reduction of what development builds: the economic and social infrastructure.

Some definitions, particularly those dealing with sustainable development, attempt to be all-inclusive, thus creating contradictions and mutually exclusive choices whenever real examples are examined. Almost without exception, definitions of development do not explicitly mention risk of populations or their built environment to natural hazard events.

## Disasters, Development, and Dependency

Disasters, like development, denote dependency. Natural hazard risk reduction aims to reduce if not control dependency. It is recognized that climate hazard risk management and disaster risk management of all other natural hazard events are also part of development, even though such actions may not ordinarily be undertaken or when taken are not visible as such.

The term “disaster” is often misused, but the term “disaster reduction” when applied to nations (sovereign states, countries) and by extension to their societies, including the private sector, has an important connotation: dependency. Following a natural hazard event, if the emergency situation, including humanitarian assistance needs, can be managed by the country itself so that a disaster declaration and appeal for international assistance is avoided given the impacted country’s capacity to respond, then a form of dependency has been avoided.

Societies are becoming cognizant of the risk from natural hazard events to the lives of their citizens and to their economic and social infrastructure. Regardless of who may own or operate the infrastructure, society recognizes the role and extent to which infrastructure damage and destruction can cause harm. Their awareness comes from the interconnectedness of these infrastructure networks. The components are interdependent within a system. Systems themselves may be interdependent. Interdependency embodies dependency—designed dependency. But often population risk from natural hazard events has not been identified and is left unaccounted for, particularly in the case of those populations least able to deal with the consequences of infrastructure loss.

The distinction between vulnerability and risk is important when considering how and by whom their assessments are generated and how they are used. In addition, the distinction between the vulnerability and risk of a component of the built environment and the vulnerability and risk of an associated population is important in understanding the underlying causes of expected impact.

In many instances in this book, the term “vulnerability” or “risk” will be used to include both vulnerability and risk as well as hazard and exposure rather than stating “hazard, exposure, vulnerability, and risk.” In other instances, these four components, along with loss, will be referred to as HEVRL. Doing so brings attention to both the qualitative and quantitative aspects of their respective assessment of impact on the built environment from natural hazard events. The discussion of loss will be emphasized in physical, economic, and financial terms, as this will figure predominantly in

the discussion of risk management. When appropriate, loss will be identified using economic, social, political, cultural, or other descriptors.

This book focuses on disaster risk reduction of the built environment, that is, the avoidance of suffering economic and social infrastructure losses that necessitate external assistance to the impacted societal unit. It highlights the fact that not every natural hazard event impact results in a declared disaster and that disaster avoidance is a tangible development goal.

The discussion will deal with the existing vulnerable built environment as well as the economic and social infrastructure to be built and the reconstruction of economic and social infrastructure in the context of post-disaster recovery. It will come as no surprise that these three categories of economic and social infrastructure creation are all part of development.

## **A Word on the Social Context of Disasters and Development**

Declaration of a disaster and the response to it can lead to social change that benefits marginalized, poor, and vulnerable people. But why was development not addressing vulnerability before the hazardous event? More generally, disasters can have a positive, enabling effect that brings about change, but what did development actually enable before the event? Shocks brought on by disasters can open political space for contesting or concentrating political power, but what was the development power structure before the event? (Bender 2011). And so, without understanding the development context of disasters, what is really understood about risk and disaster?

Whatever the place or time, the development context prior to the disaster influences the politics and practice of what follows the event. Before every disaster, people are engaged in development efforts that involve resources and decisions on resource use and distribution. How do societies engage in debate, negotiation, positioning, and power? Who decides? Most development practitioners, policy makers, and researchers will now acknowledge that development creates vulnerability for some while lessening the risk of others—all kinds of risk. Risk reduction permitting sustainable, less vulnerable conditions for populations after a declared disaster depends to the greatest extent on changes to development theory and practice existing before the disastrous event.

On the one hand, economic development poses a deliberate creation of interdependency; on the other hand, disaster risk reduction focuses on reducing dependency. Creation of interdependency is desirable for various reasons, including profit in free market systems. Disaster reduction is

desirable for various reasons, such as avoiding economic loss. But interdependency can also bring about risk and the probability of loss along with wealth and economic gain.

Under discussion is what is lost when risk management is primarily for the sake of economic gain and is not a principal goal for the health, safety, and welfare of the population. Development recognizes that disaster risk management consumes resources, particularly financial resources, and prompts change. It necessitates modifications to the built environment that only resources and change can bring about. The driving force of capitalism's competition along with often striving for monopolies or market domination is in contrast to resiliency's striving for redundancy and role of the community. Effective disaster risk reduction is not only an individual, but also a community approach to reduce the risk of damage and destruction.

Much will be said about varying positions held by different stakeholders and how those positions shape the risk of the built environment. Important to the discussion is how and why positions that lead to vulnerability were and continue to be chosen and what different positions might be chosen in the future. Consequently, knowing how to carry out vulnerability reduction is not as important as understanding the positions that bring on the vulnerability in the first place. Put into question are the choices that societies, whether global, national, or individual, make regarding risk. Engineering, architecture, land use planning, and the physical and social sciences must continue to research, test, and promulgate necessary assessments of hazards, exposure, vulnerability, risk, and loss. This will nourish monitoring, evaluation, reporting, regulation, and enforcement in order to lessen risk. Development must be willing to use these assessments and processes. Society must be willing to change values, priorities, goals, and objectives before its behaviors will reflect actions and outcomes of risk reduction.

## Sections of the Book

The first third of this discussion reflects on what has happened and continues to take place regarding development, disasters, and the built environment related to risk of natural hazard events. The middle of the discussion defines what needs to be done differently. What follows identifies specifics of the expected juxtaposition of the status quo with suggested changes. These sections include citations to help set context. The discussions are built on a reflection, not of any one country, institution, or type of building or natural hazard, but of the development, disaster, and built

environment over the past five decades. The discussion does not include as broad a review of subnational, local, or individual roles in development and disaster management as it does for the roles of selected stakeholders.

Part I, “We Got Here for a Reason,” is an overview of the linkage between disasters and development that explores facets of that linkage over time. The facets intersect, overlap, and obstruct each other. It begins with a description of the linkage (chapter 1); and goes on to deconstructing the linkage and identifying gaps in policy, practice, and knowledge (chapter 2); then to what has happened, given the linkage and gaps (chapter 3); to where the present linkage and gaps lead (chapter 4) with a particular look through the lens of recovery following a disaster (chapter 5); to arrive at comments on the statements of stakeholders about their actions in relation to disasters and development (chapter 6).

Part II, “Once and Future Disaster Risk Reduction” is a discussion of economic themes in disasters and development that lays out a framework for redefining the understanding of risk of the built environment to natural hazard events. It begins with discussion of a framework for alternative choices for taking on disaster risk reduction to the built environment (chapter 7); and goes on to natural hazard, exposure, vulnerability, and risk assessments in development processes (chapter 8); and to globalization and other prime movers of development in the face of disaster risk (chapter 9).

Part III, “Disaster Risk Reduction Will Be What It Is Conceived to Be,” is a discussion of environmental themes that lays out a framework for refining understanding of environmental management issues in the disaster-development continuum specific to the built environment and risk from natural hazard events. First is examination of the sustaining nature through environmental management terms of the linkage between disasters and development (chapter 10); and next, the integration of disaster risk reduction and climate change adaptation issues, arguments, and proposals in development planning and practice (chapter 11).

Part IV, “They Who Call the Tune,” is a discussion of assessments and processes for disaster risk reduction in development planning that leads to discussion of positions and actions built around the supply and demand for information in policy, planning, and practice. It begins with the offering, the call, and the use of hazard, exposure, vulnerability, risk, and loss assessments (chapter 12); next, analysis of how that information is used, whether in monitoring, evaluation, reporting, regulation, or enforcement processes (chapter 13); the role of international guidance in generating and using these assessments and processes in development and disaster risk reduction (chapter 14); followed by scenarios created in part using the back-casting technique, which demonstrates progress by describing

changes that have come about on a number of fronts at some point in the future, and the steps taken (in reverse chronological order) to achieve that progress (chapter 15).

The conclusion ends on topics to facilitate change leading to disaster risk reduction. This includes some emerging views allowing for opposition along with mutually supportive and necessarily sequential actions. It entails mention of development, disaster, risk, and risk reduction with the focus on the built environment, and concludes with comments on willingness and the consideration of beginning again.

## In Sum

This discussion of disaster and development focuses on the built environment. It is not in any sense a memoir. Rather, it is yet another call for using development as the principal tool for disaster risk reduction. The focus on the built environment, and on dependency and interdependency, brings critical attention to the cultural context—the environment or situation relevant to beliefs, values, and practices in economic, social, political, and religious terms—of disasters and development.

Discussion of particular policies, programs, and practices shaping disaster and development do not contain extensive references of the subject matter in question. These particular references have been chosen to present and put into context varying dimensions of the disaster-development linkage and possible new approaches to defining and addressing disaster risk reduction. The ongoing recognition of vulnerability of the built environment and the mounting losses due to natural hazard events substantiate the qualitative contents of the chosen references. The theme of “disaster” risk reduction is taken deliberately and quite seriously.

Focus on the built environment brings the discussion to the differing human population groups that are directly and indirectly associated with each component of the economic and social infrastructure. It will also consider cultural aspects, precisely because disasters are socially constructed and interpreted according to cultural values and priorities, which also frame a process that creates physical risk through exposure and vulnerability.

This composite discussion will note the theme of disasters by design (Mileti 1999), but also development by design, dependency and interdependency, risk aversion and acceptance, risk transfer and profiting from risk, all by design. Throughout, the discussion is about including risk reduction in planning, designing, and constructing the built environment. The emphasis is on avoiding risk creation at levels that prompt disaster

and reducing the existing vulnerability of the built environment. By understanding the choices made as to acceptable levels of risk of economic and social infrastructure that exists or is planned, stakeholders can also understand who decides and who benefits. This understanding also leads to recognition of the relationship between built environment risk and population vulnerability.

The discussion is not an announcement that vulnerability of the built environment can and should be somehow reduced to nothing. Instead, it focuses on societal decisions that lead to vulnerability so low that few impacts from natural hazard events will demand outside assistance by the impacted societal unit to cope with damage and destruction to economic and social infrastructure. In like manner, references to action or inaction leading to high levels of disaster risk of the built environment by stakeholders and other development participants, communities, populations, and societies should not be taken as condemnations. Such references reflect not only how risk comes about, but also identify the why, where, how, by whom, and for whom risk of the built environment to natural hazard events can be lessened.