United Nations | Department of Economic and Social Affairs

CEPA strategy guidance note on

Enhancement of local capacity for prevention, adaptation and mitigation of external shocks

September 2023

The United Nations Committee of Experts on Public Administration (CEPA) has developed a set of principles of effective governance for sustainable development. The essential purpose of these voluntary principles is to provide interested countries with practical, expert guidance on a broad range of governance challenges associated with the implementation of the 2030 Agenda. CEPA has identified 62 commonly used strategies to assist with the operationalization of these principles. This guidance note enhancement of local capacity for prevention, adaptation and mitigation of external shocks, which is associated with the principle of subsidiarity and can contribute to strengthening the inclusiveness of institutions. It is part of a series of notes prepared by renowned experts under the overall direction of the CEPA Secretariat in the Division for Public Institutions and Digital Government of the United Nations Department of Economic and Social Affairs. Funding for the sub-series on the principle of subsidiarity was generously provided by the United Nations Project Office on Governance.

In reading this guidance note, individuals in government ministries and agencies who are less familiar with the topic will be able to understand the fundamentals. Those who have perhaps taken initial steps in this area with limited follow-through or impact will be able to identify how to adjust elements of their practice to achieve better results and to better embed and institutionalize the strategy in their organizations. Those who are more advanced in enhancement of local capacity for prevention, adaptation and mitigation of external shocks will be able to recognize the practices which contribute to its success.

Understanding the strategy

Context and justification for local disaster risk reduction

Many large-scale, intensive national or transnational disasters can be seen as a multitude of smaller disasters all associated with the same triggering hazard event and affecting different areas with their own unique distribution of damage and losses of livelihoods, property, and infrastructure and prior exposure and vulnerability conditions.[1] Such large scale events contrast with the occurrence of a multitude of small scale, recurrent extensive events which largely go unregistered and unaccounted for, are extremely localized and affect major cities and rural areas in a concentrated fashion. In the long term the loss and damage associated with such extensive events exceeds that suffered in individual, long return period, large scale events.[2] The ability to reduce risks associated with larger scale hazards is very much related to the experience and ability to reduce risks associated with recurrent small-scale events that are attended to predominantly by local authorities. External shocks to localities the world over can only be brought under control if local capacities exist to reduce the specific underlying drivers of disaster risk.[3]

Between June and September 2022, Pakistan suffered extreme flooding with a serious loss of life, infrastructure, housing, and agricultural production, particularly in its southern Sindh and Baluchistan provinces. Described at the time as the worst disaster to ever affect the country, the level and type of flooding was attributed, among other factors, to the impact of climate change on the annual monsoon rains, their intensity, and periodicity, along with melting glacier ice. From the disaster risk reduction perspective, the high levels of pre-existing exposure to flood hazards and the vulnerability of people, production, and housing, along with the country's severe debt crisis and political instability comprised the major components and contexts of the disaster.

The Pakistan floods are only one of a series of large disasters that have affected different countries and regions during the past 25 years, including the devastating hurricane impacts of events such as Andrew, Katrina, George, Sandy, and Ian in the United States; Irma and Maria in the Caribbean and Mitch in Central America; flooding in Thailand and Colombia between 2010 and 2011; the 2004 Indonesian tsunami and its impacts on many seaboard countries in South and Southeast Asia; the Haiti, Chile, Nepal, and Japan earthquakes between 2010 and 2015, the latter associated with a devastating tsunami that led to the Fukushima nuclear facility

[1] 'Hazard' refers to the potential for the occurrence of a damaging event and is a latent condition. 'Vulnerability' refers to the internal conditions of the exposed element that predispose it to harm. This has numerous expressions, including the existence of non-hazard resistant buildings and infrastructure, lack of resources to cover minimum daily subsistence needs, poverty and economic and social exclusion, fatalistic interpretations of life, lack of information and preparation to anticipate and deal with shocks, and the lack of governance conditions that enhance security.
[2] The extensive nature of risk and disaster is found in the potential for and occurrence of more regular, smaller scale hazard events, leading to low levels of loss and damage individually but of great accumulative significance over time, especially when affecting poorer populations where advances in welfare and social development are eroded by regular small-scale losses.
[3] Disaster risk is defined as the probability of loss and damage in the future and is a latent condition. Risk is the result of a dynamic relationship between hazard, exposure, and vulnerability, under existing conditions of capacity and resilience.

crisis; the 2010–2011, 2016–2017, and 2020–2021 droughts in the Horn of Africa; the 2012 Bangladesh garment factory and 2017 London apartment building fires of strictly anthropogenic and technological origins; the COVID-19 crisis with its ongoing health and economic fallout and the very recent Morocco and Libya earthquake and flood disasters.

The 2030 Agenda for Sustainable Development notes the urgent need to reduce the risk of disasters with many direct references to disaster risk reduction in sections related to poverty, ending hunger, ensuring healthy lives, education, sustainable management of water, building resilient infrastructure, resilient cities, climate change, and marine and terrestrial ecosystems.[4] This is an important step forward from previous development frameworks such as the Millennium Development Goals, which largely overlooked the importance of reducing the impacts of disasters on societies and economies.[5]

In the New Urban Agenda, there is explicit mention of disaster risk reduction goals in 16 of its 175 clauses.[6] The most inclusive and definitive statement of the need to change course in favor of disaster risk reduction as a development issue appears in clause 78:

> "We commit ourselves to supporting moving from reactive to more proactive risk-based, all hazards and all-of-society approaches, such as raising public awareness of risks and promoting ex ante investments to prevent risks and build resilience, while also ensuring timely and effective local responses to address the immediate needs of inhabitants affected by natural and human-made disasters and conflicts. This should include the integration of the "build back better" principles into the post-disaster recovery process to integrate resilience-building, environmental and spatial measures, and lessons from past disasters, as well as awareness of new risks, into future planning."

Disasters, and the risk that antecedes them, are increasingly complex in origin and effect. However, the proactive nature of disaster risk reduction practice has taken a back seat to the historically reactive cycle of disaster preparedness, response, and physical reconstruction. Disaster risk reduction contrasts with reactive disaster preparedness and response actions that are necessary to reduce human and economic loss once a disaster is imminent or real, including so-called anticipatory or early actions prior to disaster onset, once indicators of the disaster's

[4] Resilience, in the context of disaster risk, refers to the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform, and recover from the effects of a hazard in a timely and efficient manner, including the preservation and restoration of its essential basic structures and functions through risk management.
[5] See United Nations Office for Disaster Risk Reduction "Disaster Risk Reduction and Resilience in the 2030 Agenda for Sustainable Development" 2015 available at https://www.undrr.org/publication/disaster-risk-reduction-and-resilience-2030-agenda-sustainable-development. Our thanks to Dewald van Niekirk for the following contextualization: "In achieving some of the SDGs it should be realized that a tradeoff process exists, and we may inadvertently be contributing to creating more disaster risk. For example, SDG 8 on Decent work and economic growth might lead to the decrease in poverty (SDG1) or even hunger, but we know that most employment is created within urban centers which means migration and the urban development problems linked to such processes, where adequate infrastructure and housing are often not provided for. This will directly impact on SDG11 Sustainable cities and communities, as one cannot assume that lifting employment will also mean better urban centers. Thus, for much of the developing world to reach the required levels of economic development an implicit increase in vulnerability will most likely follow."
[6] https://habitat3.org/wp-content/uploads/NUA-English.pdf.

future occurrence are present.[7] Many of these actions are best implemented at the local level with a variety of prevention and mitigation measures.

Loss and damage and the need for expenditure on reconstruction and recovery, along with the high political and social saliency and the demands for humanitarian disaster response, help explain why over 95 per cent of dedicated disaster and disaster risk-related resources are still spent on preparedness, response, and reconstruction. These funds are mostly dedicated to intensive, large-scale disasters. Most major disasters cover a large area, and national and international organizations consume the lion's share of resources to restore normalcy as quickly as possible. However, the scarce human resource allocation, and the financial, investment, legal, and administrative control available for disaster risk reduction and socially inclusive economic recovery practices,[8] are mostly covered by well-capacitated local level organizations.

Risk and disaster losses are increasingly concentrated in urban areas, a tendency that is projected to increase as urban populations rise from just over 50 per cent of all humans today to an estimated 65 per cent in 2050. Currently, urban populations vary from less than 50 per cent in Africa to over 80 per cent in Latin America and advanced Northern economies. Rapid growth and the increasing concentration of population and economic activity is now being experienced in many small and medium-sized urban centers. Resource deficits and other constraints limit adequate land use, environmental management, and risk reduction initiatives in such centers. All this suggests that the rate of growth of disaster risk and its relative importance in small and medium-sized cities will increasingly exceed that in larger urban metropolises. Since in the future small and intermediate rapidly growing cities will account for the greatest part of urban disaster-related losses, it is becoming increasingly urgent to ensure the strengthening of local capacities to reduce the drivers of disaster risk, primarily through prevention and mitigation programs and practices.

Risk prevention and mitigation, within a development framework, is contained in the Sendai disaster risk agreement. Its third priority on investment to reduce risk factors refers to investment in interconnected, strategic, and sustainable development on the basis that the effects of reducing risk are highly beneficial to all of society. This reflects parallel notions in the United Nations' Sustainable Development Goals (SDGs), the 2015 Paris climate agreement, and in the New Urban Agenda.[9] In a sense, these are all attempts toward a coordinated vertical subsidiarity approach to reducing the risk of external shocks.

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[7] See the work of the Anticipation Hub at https://www.anticipation-hub.org/experience/early-action. *See also the strategy guidance notes under the principle of sound policymaking, particularly on Strategic Planning and Foresight:* https://publicadministration.un.org/Portals/1/Strategy%20note%20strategic%20foresight%20Feb%202021.pdf*; and Risk Management Frameworks:* https://publicadministration.un.org/Portals/1/Strategy%20note%20risk%20management%20frameworks%20Mar%202021.pdf.

[8] UNDRR, 2021, International cooperation in disaster risk reduction. Target F. Sendai Framework for Disaster Risk Reduction 2015-30. Geneva.

[9] United Nations (2015) The Paris Agreement; United Nations (2015) The Sendai Framework for Action; United Nations (2016) The New Urban Agenda.

The Sendai Framework, the 2030 Agenda, and the New Urban Agenda, when dealing with disaster risk, are largely focused on governance needs and reforms for enhancing disaster risk reduction as a goal and disaster risk management as a means.[10] All three are insistent on the need for subsidiarity,[11] collaboration and concertation between national, subnational and local jurisdictional levels, with the inclusion of different social actors. This is seen as a fundamental requirement for developing and managing local level disaster risk reduction.

Although the impacts of extra local processes may be theoretically subject to local controls, localities are many times overwhelmed by the economic, social, and environmental processes involved, many generated externally to the local area concerned. These risks thus require greater collaboration and coordination of local actors with extra local actors across a broad range of sectors and themes that relate to their underlying causes. It is important to note that top-down approaches to disaster risk management planning schemes can lead to the glossing over of many local differences and needs and can lead to even more risk. Thus, there is a growing emphasis on a coordinated vertical subsidiarity approach to disaster risk reduction as the best way to insure a reduction in risk drivers to external shocks.

Drivers of risk

The underlying causes and drivers of disaster risk and disasters constantly change and have tended to increase in both number and complexity in recent decades.

This is partly due to changes in hydrometeorological and oceanographic hazards resulting from climate change and global warming effects. But it is also most significantly due to new processes that increase exposure and vulnerability, such as the forced migration of millions of people worldwide, the location of vulnerable groups in hazard-prone areas, increased social inequality and its impacts on access to livelihoods, and lack of participation in decision making. This is coupled with the cascading nature of hazard and risk effects manifested in systemic risk, and often related to globalization and the internationalization of economies. These complex drivers accompany more long-standing causal factors related to poverty and impoverishment, inadequate land use and territorial planning, environmental degradation, and governance failings and corruption.[12]

Many of the processes that lead to disaster risk are locally generated and therefore often within the scope of local governments to control. These include common disaster risk management aspects related to land use and territorial organization, building practice and materials, levels

[10] Disaster risk management comprises the sum of the policies, activities, measures, and methods for avoiding and reducing risk and preparing for, responding to, reconstructing, and recovering from disaster impacts and effects.
[11] The general aim of the principle of subsidiarity is to guarantee a degree of independence for a lower authority in relation to a higher body or for a local authority in relation to a central government.
[12] To avoid continuous referencing, the reader is referred to the following publications for enhancing their understanding of disaster risk: Wisner, B., P. Blaikie, T. Cannon, and I. David. (2004). *At Risk: Natural Hazards, Peoples Vulnerability and Disasters,* 2nd ed. Routledge: London; Oliver Smith, Anthony, I. Alcantara, I. Burton, and A. Lavell. (2016). *Forensic Investigations of Disasters (FORIN): A Conceptual Framework and Guide to Research.* Beijing: Integrated Research on Disaster Risk.; Maskrey, A., G. Jain, and A. Lavell (2021). "The Social Construction of Systemic Risk: Towards an Actionable Framework for Risk Governance." Discussion Paper. New York: United Nations Development Program.

of environmental degradation, decisions on land use in hazard prone areas, issues of solid and liquid waste disposal, and urban river and pluvial drainage systems.

There are, however, extra-local processes that generate risks that are beyond the control of local authorities. These include international, national, and regional development demands associated with industry, businesses, and populations, which place pressure on local resources and planning and can result in a consequent increase in disaster risk.

Common examples of extra-local drivers of local disaster risk that can lead to external shocks, and which thus require collaboration and negotiation between localities and with regional, national, and even international actors, include:

- The degradation and deforestation of upper river basin areas and changing land use patterns in lower river valley flood plains that result in changed flooding, landslide, and drought patterns at a local level, far from the source of the problem.

- The unsustainable extraction of local resources by extra-local actors. This largely exists due to the granting of land use permits from central governments for such activities as mining, timber extraction, tourism, and road construction, with the limited involvement of local authorities and affected communities.

- Fluctuations in the prices of commodities on the international market, quotas and tariffs imposed by national governments and international organizations, privatization forced by structural adjustment plans, debt repayment, and currency risk, among others. Trade agreements and market regulation/economic policies have a direct impact on local markets, often exacerbating disaster risk by increasing vulnerability among farmers, local traders, and workers.[13]

- The construction of major hydroelectric facilities and dams that can pose new hazard problems for lower valley communities, where such areas are not considered or addressed by planning processes at the developer level. Often prevention, mitigation, and emergency response actions are considered only within the direct scope of the physical project's structure, and not taken within the larger zone of impact, including long-term effects to both displaced upstream communities and affected downstream populations.

- Cases of riverine and coastal contamination and degradation due to effluents that are discharged upstream by agricultural producers, industries, and households.

- Local areas that are subject to rapid growth in population and economic activity due to large scale and rapid influxes of migrant populations. Where local resources and land availability are scarce, and local authorities do not have the planning, human, or financial resource capabilities to manage this influx adequately, especially when faced

[13] Our thanks to Bina Desai for this consideration.

with local hazard and climate change-related contexts, new or increased disaster risk is inevitable. In many cases, legislation attracts and promotes economic growth in new national or regional growth poles, or tax free in-bond development zones, leading to new risk for both existing and new populations.

- Cases of epidemic spread beyond the control of local health authorities, or where a communicable disease outbreak elsewhere suddenly becomes a local emergency.
- The range of external shocks affecting local areas that derive from anthropogenic climate and global environmental change, over which local areas have no control and, in most cases, haven't contributed to. Flooding driven by glacier depletion, loss of potable water reserves, heat waves, and more intense drought are among the more prevalent.

Common approaches to disaster risk reduction

Disaster risk reduction is a goal and a policy objective. It is achieved formally and institutionally through the practice of so-called disaster risk management.

For the purposes of the present guidelines, local capacity for the prevention and mitigation of external shocks is covered by disaster risk management through disaster risk reduction actions. The Addis Ababa Action Agenda recognizes that financing of sustainable development initiatives is increasingly being devolved to the subnational level, and states that a holistic approach to disaster risk management at all levels, in line with the Sendai Framework, will be implemented. The Addis Ababa Action Agenda provides that it will support national and local capacity for the prevention, adaptation, and mitigation of external shocks and risk management.

The concept of adaptation to external shocks should be interpreted here within the frame of disaster risk reduction. Disaster risk management and reduction are always framed within the context of non-routine, non-regular, hazard events of varying periods of return interacting with exposed and vulnerable communities. In these cases, adaptation seen as adjustment can be subsumed in the notions of prevention and mitigation of external shocks. However, adaptation to climate change can also be seen in a different light and context: that of slow, ongoing adjustments in anticipation of or reacting to changing climate averages. This is the most appropriate interpretation of adaptation to climate change.

Joint planning is needed to deal with changing climate norms and averages in the context of changing expressions of non-routine intensive or extensive hazard events. This requires a clear definition, and a reduction in the silos and competitiveness between disaster risk management and climate change adaptation planning and initiatives. Given the fact that impacts are locally expressed and discriminated, as are causes, local jurisdictions have a fundamental role to play in such needed advances.

Disaster risk management and its disaster risk reduction approach are based on the application of sectoral and territorial planning mechanisms and methods, nature-based and behavioral change solutions, and investments in hazard control infrastructure. These are applied in different thematic and risk driver contexts, from land use and territorial organization to environmental management and control, poverty reduction and inclusion processes, building codes, and construction materials, among others.

Such contexts or themes manifest at different territorial scales and at different levels of complexity and extension. National level land use planning, environmental management, and building codes involve national and regional governments and generic norms for the whole of a country or region, whereas smaller scale processes of environmental degradation, selection of locally adequate building materials, urban territorial organization, and the existence of informal settlements manifest specifically at a local scale and must be dealt with at that local scale.

Due to these circumstances and the scales at which different risk construction processes occur, disaster risk management is normally associated with complementary institutions at the national, regional, and local levels that enact similar functions at the appropriate scale, according to the nature and size of the problem. This does not mean however that innovative approaches cannot be introduced at a local or regional level that are not prioritized at the national level.

Disaster risk management structures are normally duplicated through the governance scales existing in a country. This note should be read in the light of a coordinated vertical subsidiarity principle where local government takes on local challenges in the wider context of regional and national processes that are dealt with at those levels. Within this multi-level context, disaster risk management has three principal risk reduction focuses.

Reducing existing risks through pre-disaster corrective action

The first focus is the reduction of existing risk. Examples of this include the retrofitting of seismically unsafe schools or hospitals, the relocation of communities located in flood prone areas, the reduction of city flooding by improving fluvial drainage systems, the avoidance of landslides using reforestation or slope stabilizing techniques, and the enhancement of sustainable livelihoods and income-generating opportunities among hazard prone communities. Such disaster risk reduction is increasingly referred to as corrective disaster risk management. It consists of actions that aim to permanently eliminate or mitigate existing disaster risk by reducing existing hazards, exposure, or vulnerability; or through disaster preparedness in the contexts of residual risk.[14] The latter includes the use of early warning systems to advise and evacuate at-risk populations and their assets once the disaster is

[14] Residual risk is that which persists despite risk reduction or control actions.

imminent, and local and regional disaster management plans to make the response more efficient and effective.

Anticipating risks in new development initiatives

A second focus is disaster risk avoidance or prevention, whereby actions are taken to limit new risks in current or future development initiatives and actions.[15] This is increasingly known as prospective disaster risk management. Over the long run, the prospective approach is considered the most cost-efficient strategy, given that material costs are low and the return on investment in terms of vulnerability reduction and livelihood preservation is far higher than in corrective disaster risk management, and even more so when compared with expensive reactive responses once the disaster occurs.

Such prospective actions are now increasingly posited within the frame of formal disaster risk management governance structures. That said, many actors have throughout history taken essential actions to address the drivers of risk, without this being formally promoted through explicit disaster risk management governance arrangements. This can be called "implicit prospective risk management." It comprises good professional practice and risk adverse behavior directly on the part of individuals and groups. Thus, engineers that regularly implement adequate building techniques and materials, urban planners that consider the optimum and safest use of territory, or agricultural planners that consider climate and hydrology and the risks they pose, would fall in this category.

Post-impact disaster risk reduction initiatives in recovery and reconstruction

A third focus of intervention is disaster risk reduction goals incorporated in post-impact recovery and reconstruction strategies and actions. This has been categorized as compensatory disaster risk management for which both corrective and prospective modes are significant if a "build back better," risk conscious, transformative model of recovery is to be enacted. The differential human and economic impacts of COVID-19 and the identified causes of this, related to social inequality, urban agglomeration, rapid and easy interspatial movement of people, and deficient governance arrangements, among other factors, have led to increasing demands for such a mode of recovery. The actions are considered compensatory because they search to improve and revert previous conditions based on the studied impacts and causes of real disasters.

[15] Strictly speaking such risk avoidance or prevention is not "disaster risk reduction," as it does not relate to an existing risk that can be reduced. However, in UNDRR terminology, disaster risk reduction includes corrective and prospective elements, and that interpretation is what we adhere to in this document.

Public sector situation and trends

Historical perspective

Disasters, literally "bad stars,"[16] were historically attributed to divine punishment or the adversity of nature. Even today, such interpretations still abound. From such a conception the term "natural disasters" arose and with it the notion that little could be done to prevent "natural bad stars" and their associated loss and damage, as these are natural phenomena. Response and reconstruction were thus the only feasible ways to deal with disaster.

Advances in organizational structures and widened social participation occurred over the pre-1990 period, but largely without the central orientation of disaster response being altered.[17] Beginning with the United Nations International Decade for Natural Disaster Reduction (1990–1999),[18] followed by the Hyogo Framework for Action (2005),[19] and the Sendai Disaster Risk Framework (2015)[20] the salience of, and investment in disaster risk reduction, and the incorporation of adaptation and resilience approaches have been increasingly adopted, if still very far below needs. Stimulated by decades of previous academic research, conceptual development, and systematization of practice, an expanded emphasis on the social construction or creation of disaster risk[21] has increasingly placed humans—and not nature—at the center of the explanation of risk and disaster. This interpretation considers disaster risk to be a result of skewed or unchecked development processes that achieve simplified economic growth, privileging short-term profits over medium- and long-term livelihood sustainability, further exacerbating issues of equity.[22] In response to the move toward holistic disaster risk management, the 2019 and 2022 Global Assessment Reports have placed increasing emphasis on multi hazard and systemic risk scenarios and their governance requirements.

Status of disaster risk reduction in the public sector

Following the Hyogo and Sendai frameworks, many countries produced and updated national and local disaster risk plans and legislation, including corrective, prospective, compensatory, and resilience-building disaster risk reduction approaches. Nevertheless, despite the existence

[16] From the Latin "des astrum".
[17] Institutional names reflected this orientation with Civil Defense widened to include such nomenclatures as Civil Protection, Emergency and Disaster Management, or Contingency Commissions.
[18] UNISDR International Strategy for Disaster Reduction, 1990-99.
[19] Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, available at https://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf.
[20] Sendai Framework for Disaster Risk Reduction: https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030.
[21] Social construction of risk refers to the social, economic, and political processes, made real through human actions and activities, by which a physical, biotic, technological, or anthropogenic hazard event materializes as conditions that propagate and potentiate loss and damage. Such processes include environmental mismanagement and encroachment, absence of urban and land use planning, poverty and exclusion, and lack of consideration of risk in public investment decisions, among others. These practices as such relate to underlying causes expressed in different development ideologies and conceptions.
[22] The UNISDR 2015 Global Assessment Report noted that 'the governance arrangements adopted by many countries, relying heavily on specialized emergency management organizations, are not always appropriate to address disaster risk. UNISDR (2015). *Making Development Sustainable: The Future of Disaster Risk Management. Global Assessment Report on Disaster Risk Reduction*. Geneva, Switzerland: UNISDR, p. 128.

of enabling conditions to promote disaster risk reduction, the continuous increase in disaster risk, and its attendant losses and damages, coupled with the results of the Hyogo and Sendai monitoring exercises, all demonstrate that disaster risk reduction actions and commitment lag far behind what is needed to ensure sustainable development in the future.

A further factor in the conceptualization of disaster risk reduction has been the introduction and wide-scale government acceptance and use of notions on resilience, where aspects of bouncing back and even forward from adversity, coupled with innovation and adaptation for future risk reduction and prevention have garnered traction. COVID-19 has added to this concept, given the uneven reaction to the disaster, a response characterized by inequities that revealed complex interdependencies in transboundary risk processes and structural inequalities. Due to this, the take up on disaster risk reduction concerns through resilience approaches has brought concept and practice closer to the SDGs and their achievement.

Despite the conceptual shift toward social construction interpretations of disaster risk, existing disaster risk management organizations are still dominated by response personnel and investment, from the national through to the local levels; while development-oriented organizations and personnel focused on engaging non-governmental actors that can effectively reduce social risk construction are still comparatively absent. In many cases, disaster risk management at the local level is limited to emergency services infrastructure, which is entirely response-driven. It is only rarely, in bigger and more progressive municipalities, where there is a concerted effort on capacity building for enhancing local prevention, mitigation, and adaptation to external shocks.

Although disaster risk management is an "all of society" concern and participation at all levels are required, the government is always seen as the central hub that establishes the road map for necessary changes; creates public policy; incentivizes, coordinates, and establishes legal controls; and provides financial resources and mechanisms. In theory, these attributes should be assumed by the distinct levels of government that exist in any one country. Nevertheless, this has led to a situation which places a great part of the responsibility on government and public institutions, while at the same time effectively limiting the involvement, responsibility, and ownership of outcomes of residents, civil society, and the private sector.

The Global Network of Civil Society Organizations for Disaster Reduction, created post Hyogo and uniting thousands of local and non-governmental organizations (NGOs), initiated a country-based, international research project called **'**Views from the Frontline' (VFL) to measure progress at local levels, especially in poorer countries. The VFL 2011 project focused on local risk governance, which is critical for the effective implementation of policy and the provision of resources at grassroots levels. Its general conclusion of "clouds but little rain" consolidated the argument that although the concept had advanced, on the ground little progress had been achieved. Subsequent reports confirmed this conclusion. This fact and the assumption that developed countries can teach their less developed counterparts has often led to a transfer of knowledge, resources, and skills that are not contextually relevant or

appropriate, especially considering the tragically common ignorance of sustainable Indigenous local knowledge that is readily available.[23]

Notable trends in disaster risk reduction practice

There are a series of relevant practices searching to achieve coherent approaches to disaster risk reduction and prevention at both the national and local levels.

The first is the practice of mainstreaming disaster risk reduction in sectoral and territorial development organizations or agencies. However, evidence exists to suggest that the creation of dedicated offices for mainstreaming disaster risk reduction in these organizations has led to isolating the problem and the greater part of the organizational structure and functions are excluded. Instead, disaster risk reduction needs to be established as an obligatory and inherent element, not an add-on function, if sustainability is to be achieved, a part of the DNA of organizations. Dialogue led by governments and supported at the international level with the engagement of civil society and private sector organizations, needs to be strengthened.[24]

A second is the practice of risk-informed planning and budgeting processes at both the national and local levels implemented through national planning and finance agencies and their public investment systems. Methodologies and training exist to incorporate disaster risk and climate change adaptation aspects in project planning processes from early conception to evaluation, such as Colombia, Peru, and parts of Central America. Difficulties exist due to the time needed to undertake analyses as compared to the more immediate needs of final users or local authorities. There is also a dearth of competent, trained professionals to undertake analyses, along with data deficiencies on hazards and vulnerabilities applicable to the local level.

If public sector involvement and success with disaster risk reduction at national and local levels is to occur,[25] several structural conditions must be overcome. The more important obstacles, particularly in developing and economically poor countries, are as follows:

- The dominance of response and preparedness personnel in disaster risk management institutions and the still dominant military-influenced and controlled approach to disaster concerns in many countries. This is associated with a lack of uptake and interest by development-based organizations and personnel where the disaster topic is still seen through the lens of impact and response, not prevention and mitigation.

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[23] Our thanks to J.C. Gaillard for this information. See https://rendes.org/reports for examples from New Zealand.
[24] See the note on strategic planning and foresight, one of several available notes under sound policymaking: https://publicadministration.un.org/Portals/1/Strategy%20note%20strategic%20foresight%20Feb%202021.pdf.
[25] See Chamindi Malalgoda, Dilanthi Amaratunga, and Richard Haigh, (2016), "Overcoming challenges faced by local governments in creating a resilient built environment in cities," *Disaster Prevention and Management: An International Journal*, Vol. 25. 628 – 648 for an extensive consideration of local level failings and difficulties in Sri Lanka which are relevant to many other local jurisdictions. Over 60 different challenges were categorized under eight main themes: legal framework; lack of adequate tools, techniques, and guidelines; human resource constraints; funding constraints; weaknesses in internal systems and processes; weaknesses in external systems; community engagement; and other challenges.

- Linear thinking with regard to disaster risk, which permeates much of the public sector, and the inability to think in terms of interrelated feedback systems that necessarily require complex modeling and approaches. This leads to overly simplistic conceptualizations of cause and effect.

- The perception on the part of development, planning, and financing agencies that disaster risk reduction requires large amounts of resources that would slow the development process. A trade-off principle exists and decisions to invest without considering adequate risk controls are frequent. Short-term economic and political benefits almost always override the longer-term benefits of prevention.

- Deficiencies in development planning, which can often be short-sighted, reactive, and ignorant of informal sectors. There is a great need to identify and study risk-driving forces such as forced migration, urban expansion, and informal economic activities that develop outside formal instruments and regulations.

- The low political and social saliency of investing in disaster risk reduction given the needs, demands, and clear social benefits of improved disaster response. Disaster risk reduction finds itself with a problem: it is almost impossible to sell an intangible product such as the non-occurrence of a disaster. This idea, mentioned repeatedly over the last 20 years, is a consistently relevant and still unmet challenge which needs to be explicitly addressed.

- Corruption and inadequate compliance are rife on many levels, from government officials to private sector developers, in strategic areas for disaster risk reduction. This includes land use, strategic infrastructure, environment, and service provision, where norms and legal controls are often subverted, ignored, or bypassed by underfunded local officials.

- The legal expansion of population and businesses in hazard-prone areas has been promoted by local governments due to the lack of adequate safe land for such activities within growing urban centers. Land on urban fringes is re-zoned and released for higher density uses, and this can then lead to increased flooding, landslide exposure, and fire risks.

- High levels of poverty and exclusion, with associated disaster vulnerability, signify that affected populations illegally occupy hazard-prone areas with the implicit or explicit permission of local authorities. Once established, such settlements often receive service provision for humanitarian, political, or electoral reasons, thus consolidating disaster risk. This also increases investment recovery costs, often needed in post-impact contexts.

Methods of implementation

Context

Enacting a successful disaster risk reduction strategy at a local level requires the consideration of the obstacles discussed at the end of the previous section. The first five of the obstacles must be overcome through dialogue and sharing between co-learners, improved understanding of disaster risk, financing for the substantial up-front costs involved, political-priority building, training and other consciousness-raising techniques and methods. However, the last three of these obstacles are far more complex to deal with and require structural and behavioral change.

From a disaster risk reduction perspective, the local enhancement of prevention, mitigation, and adaptation to external shocks must consider and articulate:

- The promotion of disaster risk analysis and evaluation that is cognizant of local and extra-local processes leading to risk construction, considering the different perceptions and demands of contrasting social groups.
- The clear delimitation of the relations these have with varied sectoral and territorial development processes and their social actors, and how these configure different local disaster risk drivers and the ensuing decision-making processes intended to ease these pressures.
- The need for the incorporation of social actors (institutional and individual) that relate to local development and economic growth processes within the disaster risk reduction process. It must be noted that these are quite different from the actors that typically participate in disaster response actions.
- The need for integral approaches that are highly participatory and adequately engage residents, civil society, the private sector, and government.
- The recognition that disaster risk reduction, particularly in its prospective modality, needs to be fully integrated into sustainable development and resilience goals and processes. Doing so will have knock-on benefits for social equality and poverty reduction.

Once the above-mentioned challenges are accepted and confronted, the key tenet for any possible successful local (and national) disaster risk reduction strategy is that it must become a key component of sectoral and territorial, economic, social, environmental, and resource-use planning and outcomes for any given level of governance. However, this also requires reflection on how and why unsustainable development leads to risk construction, together with actions to improve sustainable sectoral and territorial development governance itself. Without this, disaster risk reduction objectives and methods promoted by weak development governance instruments will necessarily have a limited impact.

Any attempt to limit disaster risk or impede its construction cannot simply be an autonomous sector-conceived disaster risk management concern, using disaster risk management methods and instruments in isolation from broader development processes. Rather, it must be a development planning concern, and therefore requires accessing established, or producing new planning instruments and methods, then scaling them closely and thoroughly with local and extra-local disaster risk considerations.[26] This process requires an informed integration of different levels of governance, centered around holistic disaster risk management practices, and focused on local level capacity building for external shocks, creating an integrated vertical subsidiarity model.

This requires disaster risk prevention practices that are elaborated and implemented by specific sectors and territorial development agencies. National and local comptrollers' offices or other guardians of ethics and political accountability should be made responsible for documenting implementation and results.[27] From a governmental perspective, these development-oriented agencies must involve social welfare institutions concerned with poverty and social exclusion.

National level agencies must work closely with local agencies and NGOs and with the private sector. There is a need to include the private sector's needs, resources, expectations, responsibilities, and benefits as part of the conceptual framework. Much can be learned, for example, from financial institutions that have a risk department that ensures that legal, financial, and other kinds of risk management and compliance associated with their specific lines of business are sustainably handled.

Tradeoffs between disaster risk reduction, security, economic growth, and the potential benefits for society will always exist. For example, the decision on whether to release land on urban fringes for development, even if it increases disaster risk, requires co-produced policy decisions. So does the decision to provide settlements with water and electricity in hazard-prone areas, or even to permit legal occupation of such lands in the first place. Tradeoffs are part of basic economic theory: there is always a tradeoff between efficiency and inequality. This is constantly managed and balanced—successfully or not—in national planning and economic development policy, so it should not be seen as something specific to disaster risk reduction. What is important is to recognize the specific tradeoffs inherent in managing disaster risk and how they relate to development planning.[28]

Methods to reduce risks through corrective action

For existing risk (corrective disaster risk management), local jurisdictions require a high level of vertical integration to ensure that their attempts at subsidiarity are sustainable. The following actions, including nature-based, knowledge generating and behavioural change, and

[26] An underlying and pending debate refers to defining development and its actors and outlining specific disaster risk reduction issues, procedures, and expected results related to sustainable development goals at both territorial and sectoral levels, which go beyond conventional contemporary government planning and decision making.
[27] The private sector needs to be explicitly included and both be held responsible and become an ally.
[28] Our thanks to Bina Desai for this consideration. See also the note on policy coherence: https://publicadministration.un.org/Portals/1/Strategy%20note%20coherent%20policymaking%20Mar%202021.pdf

engineering-based methods together with their implementation and institutional support mechanisms, are among the options available.

Nature-based, knowledge generating and behavioral change methods

- Basic risk analysis and evaluation of hazard prone elements for local areas and the publication and dissemination of such information among relevant social actors from government, civil society, and the private sector.

- Revisions and updates to curricula that integrate state of the art and local cultural knowledge, such as for engineers in seismically active regions; to use Indigenous/traditional knowledge to reduce hurricane/cyclone/landslide risks; and to work closely with Indigenous communities to integrate cultural burning approaches in fire-prone regions.

- Reduction of existing flooding and landslide hazards using nature friendly, ecosystem-based methods, and environmental recovery processes. This includes local management of mangrove recovery, reforestation of slopes, flood plain management, elimination of processes of building material extraction from rivers and streams, and the prohibition of slope mining and other highly damaging extractive industries.

- Upgrading of informal settlements by improving drainage and potable water access thereby reducing water accumulation and retention in the subsoil and possible repercussions such as water pollution, landslides, and subsidence.

- The improvement of livelihoods, incomes, and employment opportunities among vulnerable populations and the reduction of their overall everyday risk circumstances, such that their resilience and options for disaster risk reduction are increased through straightforward sustainable development processes and results.

- Local-level drought mitigation measures like rainwater harvesting/storage and the management of reservoir and groundwater levels.

- Introducing redundancy by providing for alternative service provision in case of disaster loss to existing facilities and infrastructure within each given local territory.

- Early warning systems for saving lives and assets, and highly effective local level information dissemination mechanisms.

- Promoting local insurance schemes for poorer populations to protect against disaster losses in the future and broadening this out to social protection and basic welfare schemes (see the Manizales example in the case study section).

Engineering-based methods

- Retrofitting strategic infrastructure and buildings such as hospitals and schools where these were built using inadequate hazard-resistant techniques and materials.
- Construction of dikes, dams and other protection infrastructure against floods and droughts; sustaining of slopes to avoid landslides and collapse. Diversion of lahars.
- Relocation of communities, critical infrastructure, and other elements to non-hazard prone areas or areas where the hazards can be controlled using engineering, nature-based or other techniques. This normally takes place after a disaster but should also be undertaken in anticipatory fashion. When relocating communities, access to livelihood resources and practices must be seriously considered as part of the scheme. This is a hotly contested issue and usually considered an option of last resort, and it is challenging to do in a participatory and rights-based manner.

Two major generic challenges exist with corrective methods. First, the low political saliency and high financial cost, when contrasted with the large number of already existing risk contexts and scenarios. Second, the low level of financing available for disaster risk reduction in general and the even lower level of financing available for local level investments, in contrast to the large number of demands for investment in common development concerns, such as waste disposal and water or energy provision.

Finance for local level disaster risk reduction can be provided as allocations and transfers from national government funds, through international funding by agencies and NGOs, by the emission of local bonds, and from autonomous local sources including local taxes through to private sector donations. Considering the generally low financial support for corrective disaster risk reduction from national and international sources, innovative techniques must be used to generate alternative funding and expand existing sources. Transforming urban development and other profits into investment in risk reduction, along with the use of tax income generated from local mining and other natural resource exploitation are among these techniques.

When making decisions about priority investments and actions at the local level, the most vulnerable groups must take precedence in the search for social equity and human security. This includes intersectional aspects linked to gender, age, race, ethnicity, and disability.

Methods of anticipating risks in new development initiatives

Prospective disaster risk management applies to actions that, if taken, would largely avoid the need for corrective solutions in the future. This minimizes future disaster losses and response costs. These prospective actions are in many ways the mirror image of corrective risk actions: if prospective disaster risk management had been followed no corrective disaster risk management would be needed.

Behavioural changes and nature-based methods

- Conduct disaster risk analyses and evaluations at the micro level and make them available to the public and land use developers such that knowledge of potential hazards exists prior to land zoning proposals or development. The use of such evaluations in project development, whether collective or individual, should be obligatory and monitored.

- Instill territorial, land use and urban planning norms, controls, and enforcement at local governance levels to prevent construction of housing, businesses, and basic infrastructure in hazard prone areas or demand adequate levels of protection through resilient building techniques.

- Promote actions to improve access to safe land, housing, and livelihoods, directed to impoverished populations. This includes setting aside land and making municipal and other locally controlled land reserves available.

- Ensure that public and private investment plans and projects are informed by disaster risk analyses and require that risk mitigation and prevention measures be part of project cycle activities.

- Grant local control and authority to prevent environmental degradation, deforestation of slopes, cutting of mangroves, mining of slopes and rivers for building materials, over exploitation of water resources, among other activities.

- Ensure that locally managed building norms and controls guarantee the use of materials and techniques sufficient to protect against possible hazard occurrences.

- Build redundancy into local service provision and infrastructure by offering alternative sources in case of loss and damage during disaster occurrences.

- Provide for insurance that uses rating calculations that consider different levels of disaster risk according to location and social use of the land. This is common in more advanced economies but not necessarily so in smaller local jurisdictions that tend to be less developed or consist of informal communities.

- Increase the opportunities for safety, livelihood protection, and resilience by using local knowledge prior to hazard impact actions. This is particularly important and applicable in growing drought contexts but is also highly relevant for flooding and other hazards where pre-impact warning is possible.

Engineering-based methods

- Plan, design, and build local infrastructure in ways that minimize disaster and systemic risk in the future. This is closely correlated with the SDGs. Key issues to overcome include underinvestment; lack of local governance capacities to plan, manage, and

maintain local infrastructure; and the absence of the consideration of risk (both risk to the infrastructure and additional risk generated by the infrastructure).[29]

- Provide adequate urban drainage infrastructure. In many cases, permeable green land sites are transformed into impermeable urban areas and fluvial drainage systems provided for areas of high building density, using asphalt and cement for roads and streets, that often lead to severe flooding downhill.

- Protect against flooding, landslides, and volcanic lahars through specialized engineering works.

The introduction of the above-mentioned actions in post-impact reconstruction and recovery planning is needed (compensatory management), thus providing for a lower future-risk context and increased resilience.

The cost effectiveness of prospective pre-impact disaster risk management methods at the local level is far higher than corrective pre-impact and post-impact compensatory measures. Moreover, the initial financing and investment requirements are far lower given the normative and legal controls of many of the methods. Engineered solutions are also far lower in cost should existing infrastructure require retrofitting. Prospective methods are more likely to require administrative, control, and evaluation expertise inputs as opposed to hard investments in structures. This must be accompanied by institutional reform to improve functioning, including the breakdown of existing sectoral and territorial silos.

For local governments to implement these goals, their relevant methods and instruments require basic theoretical understanding, recognizing existing capacities and building new ones, along with available and recurrent technical assistance provided by relevant government organizations, agencies, NGOs, and universities. This is in addition to financing with contributions from higher government levels, and/or external sources, while also recognizing the existence of historical and global structural constraints.

A consideration of the types of problem and the methods and instruments for disaster risk prevention and reduction with local impacts clearly demonstrates that the governance framework must be able to garner the support and collaboration of extra-local actors, the private sector, and NGOs to achieve goals and objectives at the local level.

The decentralization of disaster risk management functions without adequate resource provision is untenable. When faced with disaster response needs, few local governments will have the time or energy to consider and enact prospective or corrective disaster risk management goals. Enhancement of local governance and action must start with constructing an adequate governance basis. This first requires consciousness raising, mobilization of

[29] Our thanks to Andrew Maskrey for detailing this issue.

relevant social actors, education, and training. No method or instrument will function without commitment to change, innovation, and entrepreneurship by local level actors.

If change is not implemented, local areas will carry on being depositories of risk generated by both local and extra-local processes associated with rapid growth, external pressures, short-term visions, and individual versus collective goals and visions.

Case studies

Three case studies of integral approaches to disaster risk reduction with direct relevance to enhancing local capacities for the prevention and mitigation of external shocks are presented below. The first is a regional initiative with national policy impacts, guidance, and repercussions at the local level (the Framework for Resilient Development in the Pacific 2017–2030). A second deals with an urban, medium-sized city that has permanently institutionalized a development-based, risk reduction approach (Manizales, Colombia). The third deals with a subnational state-level scheme promoting disaster risk reduction in local and urban jurisdictions (Queensland, Australia).

Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management

The Pacific Islands region is recognized as one of the most exposed to natural hazards and climate change, including global warming and rising sea levels. It is also one of the regions at the forefront of advocating for, designing, and implementing a strategy for resilient development where risk and disaster are considered problems of "unchecked" development, and where efforts are made to integrate disaster risk management and climate change adaptation into development planning and financial budgeting, with the active participation of key sectoral and territorial development actors.[30]

The Framework for Resilient Development in the Pacific 2017–2030 (FRDP) advocates a breakdown of siloed approaches together with the integration of disaster risk management and climate change adaptation concerns into institutional frameworks. Although regional in nature, the framework is constituted as a domain to be downscaled to individual islands, communities, small towns, and cities, while also recognizing the ways that development and risks that affect local areas are generated in non-local territories and spaces.

The FRDP is a voluntary, non-political arrangement, agreed on between countries in 2016 and closely aligned to global agreements on development, climate change, and disaster risk. It presents holistic guidance for the development of communities of practice, projects, and

[30] Pacific Island Forum (2016) Framework for Resilient Development in the Pacific an Integrated Approach to Address Climate Change and Disaster Risk Management (FRDP) 2017–2030, September 2016. This version was developed in consultation with Pacific Island countries and territories and was endorsed by Pacific Island Forum Leaders at their 47th Meeting in Pohnpei, the Federated States of Micronesia, in September 2016. See also for conceptual aspects: Australian Aid (2016). Risk Governance: Building Blocks for Resilient Development in the Pacific—A Policy Brief.

programs of relevance to a broad range of stakeholders, including national and subnational governments and administrations, civil society, communities, the private sector, regional organizations, and development partners. It aims to guide and promote coordinated and integrated priorities and approaches for regional, national, and community levels that embed risk considerations into sustainable development and which lead to development outcomes that are resilient to climate change and disaster risks. Seen by some as overly normative in a world of extreme diversity, care must be taken in its operationalization to take due account of differences in cultural, economic, social, and historical aspects between different territories.

The following considerations led to the FRDP's strategy, proposed governance model, and updated approach to disaster risk reduction and climate change adaptation planning:[31]

- Continuous and increasing climate change and disaster-related impacts in the region. This is particularly relevant for Small Island Developing States as this impact represents the loss of a high percentage of their GDP.
- Changes in precipitation patterns and the frequency of cyclones are clearly felt by local populations. Vulnerabilities are on the rise due to poverty, lack of employment opportunities, migration, isolation, loss of traditional productive practices, and land degradation, among other processes.
- Disaster risk reduction and climate change adaptation process and governance were historically handled separately from development processes (planning, programming, budget). In that sense, even though there was an increase in climate change adaptation budgets, these ended up financing stand-alone projects with a proliferation of project management units disconnected from the ongoing operations of the ministries.[32] It is estimated that of the US$1.1 billion invested in climate change adaptation, 86 per cent was directed through stand-alone projects for narrowly defined adaptive practices rather than to transforming planning and budgeting operations.[33] Therefore, it can be said that development planning, programming, and budgeting were not risk informed.[34] Disaster risk reduction and climate change adaptation initiatives mistakenly assumed that development governance was robust, while in fact it required improvement in planning, decision making, prioritization, budgeting, and monitoring.

Following the 2016 agreement, the framework has received extensive support from many international agencies in the development of concepts, methodologies, instruments, planning, and finance.[35] The framework also laid the ground for more cutting-edge policy processes on

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[31] Our thanks to Luis Gamarra Tong for the details as to the reasoning behind change.
[32] United Nations Development Programme (UNDP) (2021), Climate Finance Effectiveness in the Pacific – Are we on the right track?
[33] Atteridge, A. and Canales, N. (2017). "Climate Finance in the Pacific: an overview of flows to the region´s SIDS," Stockholm Environment Institute, Working Paper 2017-04.
[34] Pacific Islands Forum Secretariat (PIFS) and Pacific Community (2019). Regional Synthesis Report of the Pacific Climate Change and Disaster Risk Finance Assessments.
[35] UNDP (2016). Exploring governance models to better prepare for and shape the future in the Pacific; UNDP (2016). Risk governance building blocks for resilient development in the Pacific: a policy brief; Pacific Community, Secretariat of the Pacific Regional Environment Program, PIFS), UNDP, UNISDR and University of the South Pacific (2020). Framework for resilient development in the Pacific:

climate change adaptation, regional migration in the context of disasters, and relocation, among others.

As an example of local level initiatives in line with the FRDP, the United Nations Development Programme (UNDP) supports the implementation of 32 risk-informed community development projects in Fiji, Kiribati, Marshall Islands, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Through the Governance for Resilient Development in the Pacific (Gov4Res) project, this small grant initiative works hand in hand with national and local governments, NGOs and civil society organizations to include gender and socially inclusive disaster risk reduction measures in key areas such as agriculture, water resource management, health and sanitation, sustainable energy, and small-scale infrastructure.[36]

The case of Manizales City, Antioquia, Colombia[37]

Manizales is a city of some 450,000 people, located in a mountainous region of Colombia and originating as a defensive and commercial trading site in the mid-19th century. Built on a rugged, scarped, seismically prone, small river valley terrain, it is one of the most hazard prone cities in Colombia.

Historical patterns of development and the need to adjust to changing patterns of hazard and risk have driven the city, through its municipal government, to promote integral approaches to disaster risk management using an array of corrective, prospective, and compensatory schemes. Experience with large-scale losses and impacts, and a social consciousness of local risks have helped promote this process of risk reduction, and to sustain it over time. The local government has developed extensive schemes to protect slopes from land sliding, such as through the creation of the "Guardians of the Slopes," which are made up of low-income local women that are contracted to maintain vegetation and other controls over the slopes. With the help of evolving disaster risk management concepts, strategies, and laws in Colombia, projects such as these have led to state-of-the-art, local-level, and integral disaster risk management approaches.

Among other things, this can be attributed to the local academics and professionals from Manizales who have been integral to the elaboration of national law and risk analysis and have collaboratively developed policies with the local Manizales government. Combined with the local population's acceptance of disaster risk, this created the enabling conditions for disaster risk management development in the city. The most salient strengths of these integrated projects include: a strong relationship between science and policy, a clear picture of the cost

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monitoring, evaluation and learning needs assessment / Pacific Resilience Partnership; and UNDP Small grants initiative phase 1, 2021 to 2023.

[36] Source: https://www.undp.org/pacific/press-releases/undp-awards-small-grants-promote-risk-informed-community-development.

[37] An excellent summary of the development of the Manizales DRM system can be found in Cardona, Omar Dario, (2019), Gestión del riesgo y adaptación en Manizales: Una estrategia de desarrollo para lograr que una ciudad en transición sea resiliente, sostenible y competitiva. *Medio Ambiente y Urbanizacion*.

of disaster and the existence of risk among a range of different social actors, and the widescale support and participation of local populations.

Corrective measures can be seen in the range of engineering techniques used to sustain slopes and protect flood-prone communities; the retrofitting of critical social infrastructure such as schools and hospitals; the relocation of communities from hazard-prone areas, together with the recovery of those areas on a sustainable environmental basis; and the use of reforestation and other nature-based controls to prevent/minimize future flooding and slope movements.

Prospective management is evidenced at the local level in the adherence to land use planning to guarantee construction is located in areas with acceptable levels of risk; in the incorporation of risk analysis in local development plans; the screening of public investment risk in new projects; the application of strict norms for building and construction in public and private sectors and concern for informal building as far as possible; and in the environmental management of regional river basins and local small river valleys.

Compensatory management is seen in the innovative scheme that provides insurance to poor populations against loss and damage whereby those that can pay help subsidize less fortunate populations through a contribution to their local tax payments; the use of sustainable fiscal planning on the part of local government; and the creation of reserve funds for times of shock and crisis.

Queensland State Emergency Risk Management and Resilience building Institutional Frameworks

The Australian Federation of States has a central authority responsible for crisis and disaster contexts and management. Under the subsidiarity principle, key responsibility is delegated to individual states and through this mechanism support is given to localities and cities within their jurisdiction, following the dictates and methods provided by the government.

Under the Queensland State Disaster Management Plan,[38] the Queensland Fire and Emergency Services is responsible for creating and implementing the state level disaster risk assessment: the Queensland Emergency Risk Management Framework.[39] This framework was developed to inform risk-based planning across the emergency management sector in Queensland and was endorsed by the Queensland Disaster Management Committee. The application of the framework promotes opportunities for collaboration and communication between government, industry stakeholders, and the community across the three disaster management levels (local, disaster district and state). It also requires the identification and communication of residual risk across these levels.

Despite the mentions of the different Sendai risk reduction and avoidance objectives, the framework is basically centered on more traditional preparedness and response concerns.

[38] See https://www.disaster.qld.gov.au/cdmp/Documents/Queensland-State-Disaster-Management-Plan.pdf.
[39] Queensland Government, 2017, The Queensland Emergency Risk Management Framework.

When used, the notion of prevention seems to refer more to disaster as opposed to risk prevention and reduction promoting early warning and good disaster or emergency response.

The role of prospective, corrective, and compensatory management is more developed as an essential component of the Queensland Strategy for Disaster Resilience,[40] a separate but related initiative, essentially created to foster post-impact reconstruction in a state that suffers significant losses from disasters.

In this strategy, derived from work done at the federal level, the topic of reducing and preventing disaster risk is properly considered, with a post-impact, building back better philosophy that is central to its concerns, but with implications for pre-impact planning. A national fund has been set up to finance such concerns on an individual basis. The resilience strategy is a response to both recurrent disasters in Queensland and the incentives outlined in the Sendai agreement. It was backed up by a taskforce publication on vulnerability and systemic risk that develops some of the most advanced concepts to date on the topic of risk.[41]

The coexistence of emergency and resilience frameworks would seem to reflect a process of gradual change from more response-oriented approaches to increased disaster risk reduction concerns. A logical end to this would be the complete merging of both approaches under the aegis of an interdisciplinary, intersectoral, development-based organizational structure guided by the overall principles of disaster risk reduction and climate change adaptation for resilience.

Peer-to-peer learning and research

It is beyond the scope of this document to provide a complete summary of peer-to-peer learning and research given the different definitions of "local" and the many schemes for knowledge acquisition that have been promoted globally, regionally, nationally and subnationally. The following examples are representative and essentially limited to urban settings.[42]

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[40]Queensland Government (2017). Queensland Strategy for Disaster Resilience. See https://www.qra.qld.gov.au/qsdr for more information.

[41] National Resilience Taskforce (2018). Profiling Australia's Vulnerability: The Interconnected Causes and Cascading Effects of Systemic Disaster Risk. Australian Government, Department of Home Affairs. www.aidr.org.au/media/6682/national-resiliencetaskforce-profiling-australias-vulnerability.pdf. An overview of changing conceptions and strategies in Australia can be found in Buchtmann (nee Osuchowski), M., J. Edwards, D. O'Connell, R. Wise, and P. Box (2022). "National Leadership: How a Change in Thinking About Vulnerability and Systemic Disaster Risk is Shaping Nation-Wide Reforms and National Programs of Work in Disaster Risk Reduction in Australia." GAR 2022 Contributing Paper. Geneva: United Nations Office for Disaster Risk Reduction. www.undrr.org/ GAR2022.

[42] Beyond the initiatives referred to in this document the following links to relevant initiatives exist:
IRDR https://www.irdrinternational.org; GADRI https://gadri.net; SAADRI https://saadri.net;
HUC: https://www.icimod.org/initiative/huc/; Radix https://www.radixonline.org/; DEMCON https://crtdemcon.ca/DEMCON/ ; APELL https://www.unep.org/explore-topics/disasters-conflicts/what-we-do/preparedness-and-response/awareness-and-preparedness; GDN https://www.gdnonline.org/; GRRIPP https://www.grripp.net/; START Network https://startnetwork.org/; Transition Towns https://transitionnetwork.org/; Global Ecovillage Network https://ecovillage.org/; Disability-inclusive Disaster Risk ReductionNetwork https://www.didrrn.net/;UCLG https://www.uclg.org/sites/default/files/local_and_regional_disaster_risk_reduction.pdf; EFDRR https://efdrr.undrr.org/; ANZDMC https://anzdmc.com.au/; https://www.adrrn.net); GNDR https://www.gndr.org ; U-inspire alliance: https://uinspirealliance.org ; DRRNetPhils in the Philippines (https://drrnetphils.org/); Nepal (https://www.preventionweb.net/organization/disaster-preparedness-network-nepal); South-South CDB Academies https://drrnetphils.org/sscbda/;

In Incheon, South Korea in 2005, the United Nations International Strategy for Disaster Reduction (UNISDR) Inter-Agency Task Force recommended a focus on urban risk issues. The event was a major inspiration for perhaps the most widescale and well-known networking and peer-to-peer initiative to date, the UNISDR's (now United Nations Disaster Risk Reduction or UNDRR) "Make your City Resilient" campaign, which has more than 4,000 cities inscribed worldwide, with 5 regional offices managing the program. Sponsors include major urban and local government actors including UN-Habitat, the International Council for Local Environmental Initiatives (ICLEI), the International Federation of Red Cross and Red Crescent Societies, the Resilient Cities Network, United Cities and Local Government, UNDP, the World Bank, World Council on City Data and the Japanese International Cooperation Agency.

The campaign is guided by ten principles or essentials for resilient cities. All of these can be considered primary means for enhancing local capacities for mitigation, prevention, and adaptation to external shocks. The principles, grouped into three main categories, are:

I. Corporate/city governance

1. Organize for disaster resilience.
2. Identify, understand, and use current and future risk scenarios.
3. Strengthen financial capacity for resilience.

II. Integrated planning

4. Pursue resilient urban development and design.
5. Safeguard natural buffers to enhance the protective functions offered by natural ecosystems.
6. Strengthen institutional capacity for resilience.
7. Understand and strengthen societal capacity for resilience.

III. Response planning

8. Increase infrastructure resilience.
9. Ensure effective disaster response.
10. Expedite recovery and build back better.[43]

These ten essentials mirror the Sendai priorities of action and indicators. As such, they point to strategic areas of intervention and key actions for local governments in consonance with other social actors, to influence urban development planning and design. At the latest 2022 Disaster Risk Reduction Platform global meeting in Bali, Indonesia, a network for peer

[43] See The TEN Essentials for Making Cities Resilient - Toolkit - Beta Version: Campaign (unisdr.org).

exchanges was set up by the campaign. As part of the process, cities are invited to evaluate themselves using a scorecard developed for that purpose.

The priority given to urban level disaster risk reduction and climate change adaptation is further promoted by numerous global initiatives. Among these:

- The **C40 global mayors' group**[44] made up of the mayors of some 100 major cities is a permanent attempt to bring climate change issues and their management to the forefront.

- The **City2City Network**[45] is a peer-to-peer learning platform that provides curated information and brings together cities and experts to design collective solutions for urban challenges. It facilitates engagement among cities for knowledge exchange and approaches for building inclusive cities. Administered by UNDP, it focuses on enriching urban governance, urban resilience, urban climate action, informal development, municipal financing for development, the urban informal economy, urban poverty, and spatial inequalities as key disaster risk reduction themes and action points.

- **Cities on the Frontline**[46] is a virtual thought leadership speaker series, featuring solutions by cities, for cities. It began in 2020 through a partnership between the Resilient Cities Network and the World Bank's City Resilience Program. The series provides city administrators and the industries and residents that they support with a platform for knowledge exchange.

At the regional, urban, and rural levels, the following initiatives stand out among many salient examples:

- The **Commonwealth Local Government Forum (CLGF) Pacific**[47] works with national and local governments and other stakeholders to strengthen local democracy, institutions, and service delivery capacity. The forum works with central and provincial governments as well as city and town councils in ten Pacific Island countries (Cook Islands, Fiji, Kiribati, Marshall Islands, Papua New Guinea (including Bougainville), Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu). It promotes and encourages regional exchange and capacity building by strengthening institutions and improving service delivery at the subnational level. The CLGF Pacific Forum was set up to support local government management in the uniquely complex and changing Pacific environment that is characterized by rapid urbanization and its

[44] C40 https://www.c40.org/.
[45] City2City https://city2city.network/tags/drr.
[46] https://citynet-ap.org.
[47] https://www.clgf.org.uk.

attendant challenges and opportunities. It works with subnational governments in the region to help them tackle these challenges and maximize development opportunities.

- The **Asian Disaster Reduction and Response Network (ADRRN)**[48] is a network of national civil society organizations across the Asia-Pacific region. Created in 2002 in Kobe, Japan, ADRRN includes 21 countries, and is currently evolving from an awareness-raising network to a regional voice in advocacy and capacity building. Today it is known as the '*Civil Society Voice of Asia.*'

- In Africa, the field of disaster risk reduction has grown substantially over the last 20 years and is evident in several relevant initiatives:

    - The **Southern Africa Society for Disaster Reduction**[49] is a community of practice for disaster risk reduction within the regional context of the Southern Africa Development Community (SADC). It contributes to lessening the impacts of hazards on vulnerable communities within SADC. Several civil society organizations, academic and research institutions, and national governments have taken initiatives to make disaster risk reduction a policy priority in the SADC. Since the declaration of the Hyogo Framework Agreement (HFA) and the Sendai Framework for Disaster Risk Reduction (SFDRR), several national disaster risk reduction platforms have been established and some inter-state coordination has taken place, facilitated by the SADC Disaster Risk Reduction Unit. This society is open to any individual, organization, or government department that identifies with disaster risk reduction, focusing on aspects such as the implementation of the HFA, the African Regional Disaster Risk Programme and the SFDRR.

    - As part of the new Disaster Risk Reduction Strategy for SADC, a country peer review mechanism has been implemented in which four countries have already participated. These peer reviews aim to align with the biennial reporting on the SFDRR and Plan of Action in Africa, which the African Union must implement. This is interesting because it is driven by SADC between member states, and it is not an NGO initiative.

    - Covering the entire African region, the **Disaster Risk Management, Sustainability and Urban Resilience**[50] scheme is particularly important. This is a multi-country technical center which has implemented an urban resilience tool called City Rap (City Resilience Action Planning Tool) in several Southern Africa cities.[51]

[48] see https://www.adrrn.net.
[49] See https://sasdir.org/.
[50] See www.dimsur.org for case studies.
[51] https://unhabitat.org.

The introduction of university-level courses whose content resonates with the local/national risk profile can be catalytic in changing local disaster risk management capacities. The following initiatives are important examples at a national level, but with regional implications.

A permanent program for training in disaster risk reduction aspects is run out of the National University of Colombia in Manizales, Colombia, based on the experience of that city in integral disaster risk management (see the case studies). The program ran annually from 2009 until 2019, when it was postponed due to the COVID-19 pandemic. CIMNE Barcelona and the United States Agency for International Development through Florida International University supported the online course. This was complemented by work in-house and field visits in Manizales. Some 136 people have graduated from the course over the years, and it has had an ongoing multiplier effect on many professionals in the Latin American and Caribbean area. Between 2001 and 2008, the course was run by UNISDR, the Organization for American States, the Interamerican Development Bank, the Colombian Foreign Ministry, and PREDECAN (an Andean initiative for enhancing disaster risk management, financed by the European Union). A three-year higher education course on probabilistic risk assessment with 20 postgraduate students from universities in Chile, Costa Rica, and Colombia was conducted from 2020 to 2022, and it is expected to continue through 2023. A knock-on benefit is that students have formed a network of exchange, support, and collaboration throughout the region.

In Africa, the Periperi University initiative supported disaster risk-related programs reaching more than 2,000 students annually in 12 institutions. In at-risk countries like Ethiopia and Madagascar, it was transformative at both the national and local levels.[52] Also, in Tanzania the work of Ardhi students on risk mapping with the World Bank has been critical in driving change.[53]

International development cooperation

The general lack of commitment and financial resources dedicated to disaster risk reduction concerns nationally and locally, particularly in southern countries, has meant that many of the advances have been achieved with international development agency, NGO, or civil society support.[54] Along with human resource failings and deficiencies, this is one of the major stumbling blocks to local disaster risk reduction.

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[52] See http://www.riskreductionafrica.org/summary-of-periperi-u-annual-report.html. Periperi is a university-based network established in the 1990s in South Africa to promote disaster risk reduction at a local and community level. Previously, in Latin America, in 1992, the Network for the Social Study of Disaster Prevention (LA RED), was established with this function. Later in Southeast Asia Duryag Nivaran was established with the same goals. These three networks were precursors of much of the thought and action at local levels developed in these regions during the 2000s

[53] See https://www.worldbank.org/en/news/feature/2018/02/14/next-generation-of-youth-in-tanzania-to-be-equipped-with-critical-skills-in-urban-resilience.

[54] Examples exist of many countries that have established financing mechanisms for financing complex disaster risk reduction projects at the local and subnational level, such as the prevention funds set up in Mexico, Australia, and in the Philippines. However even in these

Without a very substantial increase in nationally dedicated funds for corrective, prospective, and compensatory disaster risk reduction actions in local areas, disaster risk will continue to grow. At the same time, we should be wary of leveraging this lack of financing as an alibi for inaction at the local level. Much can be achieved by institutional reorganization and framing approaches, and the breaking down of institutional and organizational silos. Many times, prospective measures are not capital intensive in nature. They are often low on material and construction costs but require more innovative sustainable development and risk reduction governance arrangements.

International development cooperation is widespread in terms of the range of agencies involved. This has become increasingly diversified with the elaboration of climate change adaptation needs at a local level and the advent of the resilience topic and its attendant strategies. However, given the number of countries and localities that require advances in the topic, the funds available only begin to scratch the surface.

A UNDRR study from 2021[55] concluded that:

- Financing for disaster risk reduction makes up a small fraction of overall investments in development aid.
- US$133 billion of disaster-related Overseas Development Assistance (ODA) was made available in the 2010–2019 period, which is approximately 11 per cent of overall aid (US$1.17 trillion).
- Of this, US$5.5 billion was aimed at risk reduction measures before disasters strike, compared to US$119.8 billion spent on emergency/disaster response and US$7.7 billion for reconstruction, relief, and rehabilitation.

Overall, the UNDRR study showed inconsistencies in funding allocation with a higher positive correlation between countries suffering high economic loss and international support received, than between those with greater population losses in disasters.

Such results should, however, be taken with caution as they average complex differences between regions and nations. Moreover, investment through ongoing development projects

cases the available finance only touches the surface of corrective disaster risk reduction needs, while prospective concerns are rarely the subject of direct mention and financing.

[55] UNDRR, 2021, International cooperation in disaster risk reduction. Target F. Sendai Framework for Disaster Risk Reduction 2015-30. Geneva. Target F aims to: Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030. United Nations member States agreed the following indicators when it comes to measuring Target (F): F-1 Total official international support, (ODA plus other official flows), for national actions in disaster risk reduction. F-2 Total official international support for national actions in disaster risk reduction provided by multilateral agencies. F-3 Total official international support for national actions in disaster risk reduction provided bilaterally. F-4 Total official international support for the transfer and exchange of technology related to disaster risk reduction. F-5 Number of international, regional and bilateral programs and initiatives for the transfer and exchange of science, technology, and innovation in disaster risk reduction for developing countries. F-6 Total official international support for building capacity in disaster risk reduction. F-7 Number of international, regional, and bilateral programs and initiatives for building capacity in disaster risk reduction in developing countries. F-8 Number of developing countries supported by international, regional, and bilateral initiatives to strengthen their statistical capacity related to disaster risk reduction.

searching for sustainability and in-built risk avoidance is not separately accounted for. In general, information on financing for local level management is severely lacking.

Much of the financing is dedicated to projects or programs that directly support a specific disaster risk reduction initiative, but not to more holistic approaches attempting to put the disaster risk reduction and associated disaster risk management concerns firmly and permanently on the agenda of local governments. It is important, however, to first strengthen governance arrangements that are essential to enabling such changes.

The European Union is starting to fund more integrated approaches through their international partnership and development policy framework but many countries, including Germany, still struggle with finding or creating funding mechanisms that allow for the integral inclusion of disaster risk reduction in development organizations. Moreover, in Africa and elsewhere it has been reported that funds procured in the name of disaster risk reduction often end up being applied to a very specific disaster response focus.

This can be exemplified by the League of Arab States/Africa Union Solidarity Fund and the SADC Disaster Preparedness and Response Fund. The new SADC resilience strategy aims to establish a Resilience Fund, but that has not gained much political support yet. The "Building Disaster Resilience in Sub-Saharan Africa" project provided substantial funding for disaster risk reduction in the last 5 years in Africa through the European Union-funded ACP group.[56]

Much disaster risk reduction finance now comes under the resilience framework, while national development agencies are still more likely to give disaster risk management support to preparedness and response considerations, that is, reactive management. Support for local development-oriented disaster risk reduction work, whether for projects or for the development of governance frameworks, is more likely to come from development banks and United Nations agencies dedicated to sectoral or territorial development concerns. This includes the World Bank through its Global Facility for Disaster Risk Reduction; the regional development banks for Latin America and the Caribbean, Asia, Africa, and the Middle East; and UNDP, FAO, and UNICEF. Much of this work is channeled through national disaster risk management and regional organizations, such as CEPREDENAC and CDEMA in Latin America and the Caribbean, and large international local support networks such as ICLEI and the UNDRR Resilient City Campaign and its collaborators.

Certain themes or approaches now seem to be dominating support initiatives. For some time, the larger development banks have supported compensatory management initiatives for risk transfer and pooling through different insurance and reinsurance initiatives regionally, such as the Caribbean Catastrophe Risk Insurance Facility in the Caribbean, or nationally, as in many countries supported by the World Bank. Nature-based solutions and corrective disaster risk reduction methods are now widespread and aim to recover ecosystems and natural areas, with prospective management lessons. The resilient infrastructure theme is increasingly developed.

[56] https://europa.eu/capacity4dev/drr-acp/wiki/acp-eu-building-disaster.

Large initiatives like the Indian government's Coalition for Disaster Resilient Infrastructure have widescale adherence with support from over 30 countries and many development agencies. Systemic risk concerns are reflected in increased efforts by UNDRR and national governments to identify and improve national and local databases and planning.

Overall, there is growing support for the enhancement of local level capacities for the prevention and mitigation of external shocks, but no clear strategy or coordination exists that would help raise the importance of local and national disaster risk reduction instruments and goals to a level commensurate with growing disaster risks worldwide. Furthermore, identifying and measuring the amount of funding dedicated to local level initiatives, directly or indirectly, is highly complex and lacking in standardized, universal estimation.

Acknowledgements

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