GLOBAL COMPENDIUM

of Good Practices on post disaster recovery

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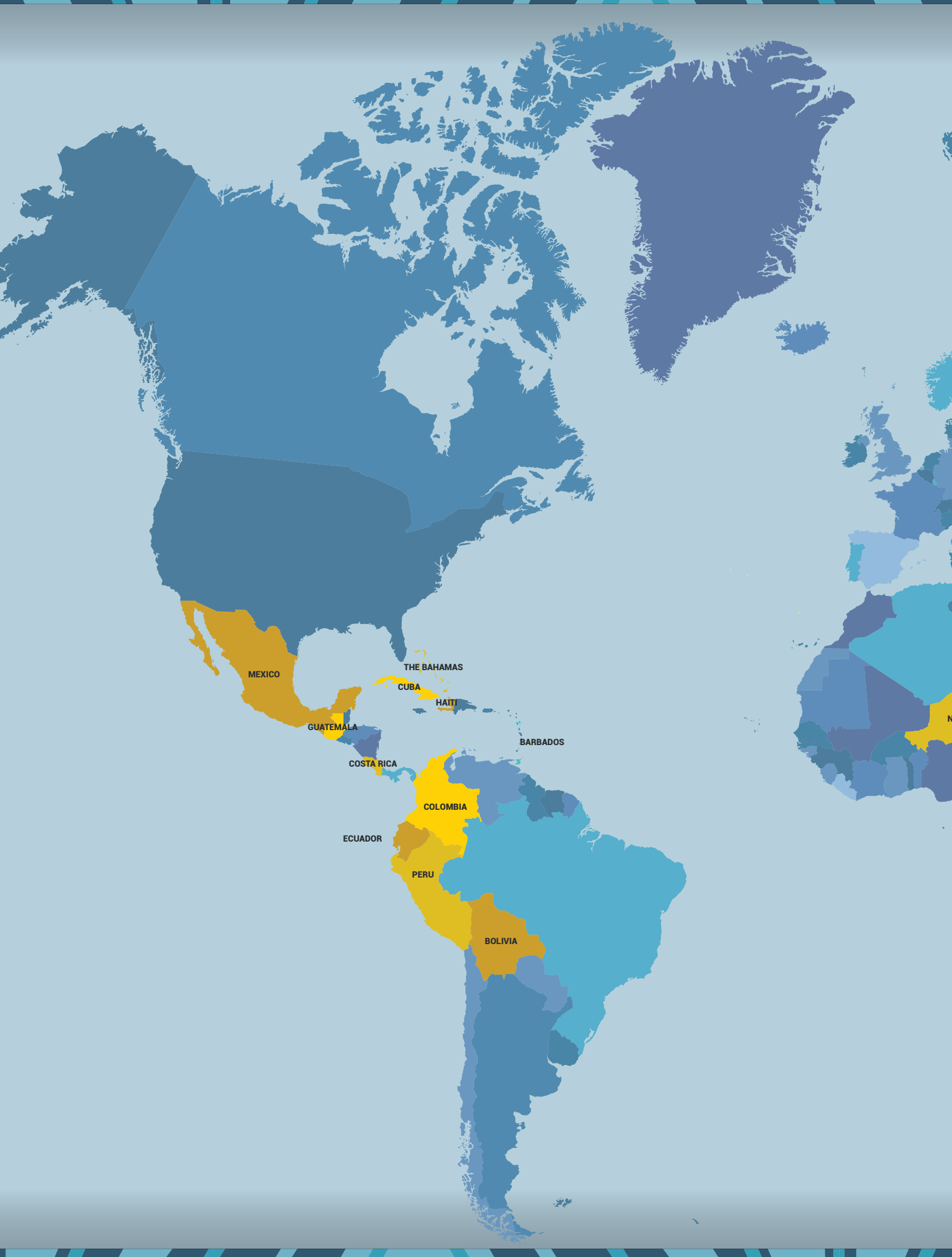
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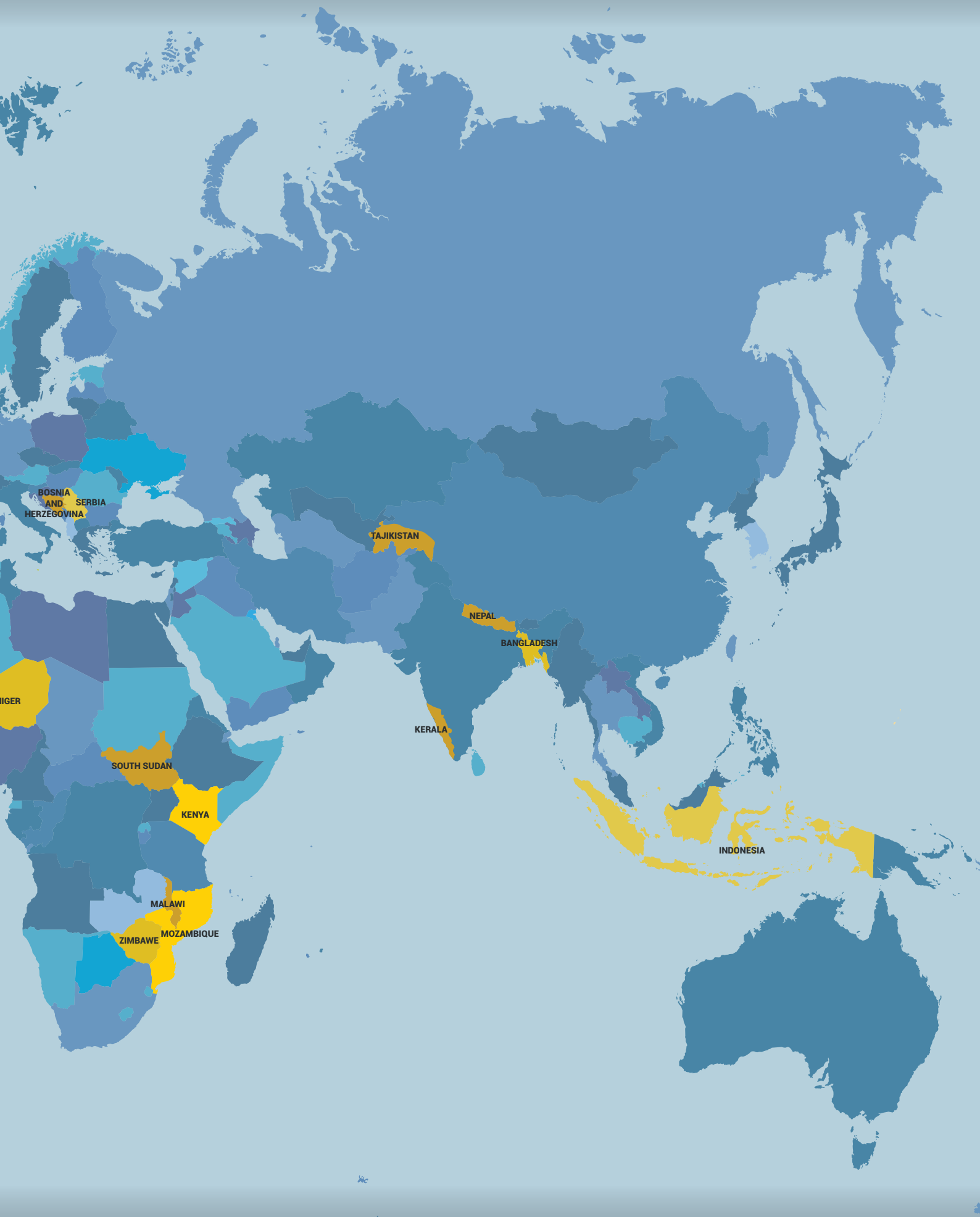
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Table of Contents

INTRODUCTION AND ACKNOWLEDGEMENTS

This systemization prepared by the United Nations Development Programme (UNDP) compiles Good Practices on Post Disaster Recovery, to disseminate and highlight the work and recovery processes that are being carried out in different countries of the following regions: Africa, Asia, East Europe (ECIS) and Latin America and the Caribbean (LAC).

It compiles a selection of good practices on disaster recovery processes led by multiple actors including local, sub-regional and national governments, civil society organizations, communities, foundations, private sector organizations and academia, as well as in some cases with the support of the United Nations System and UNDP.

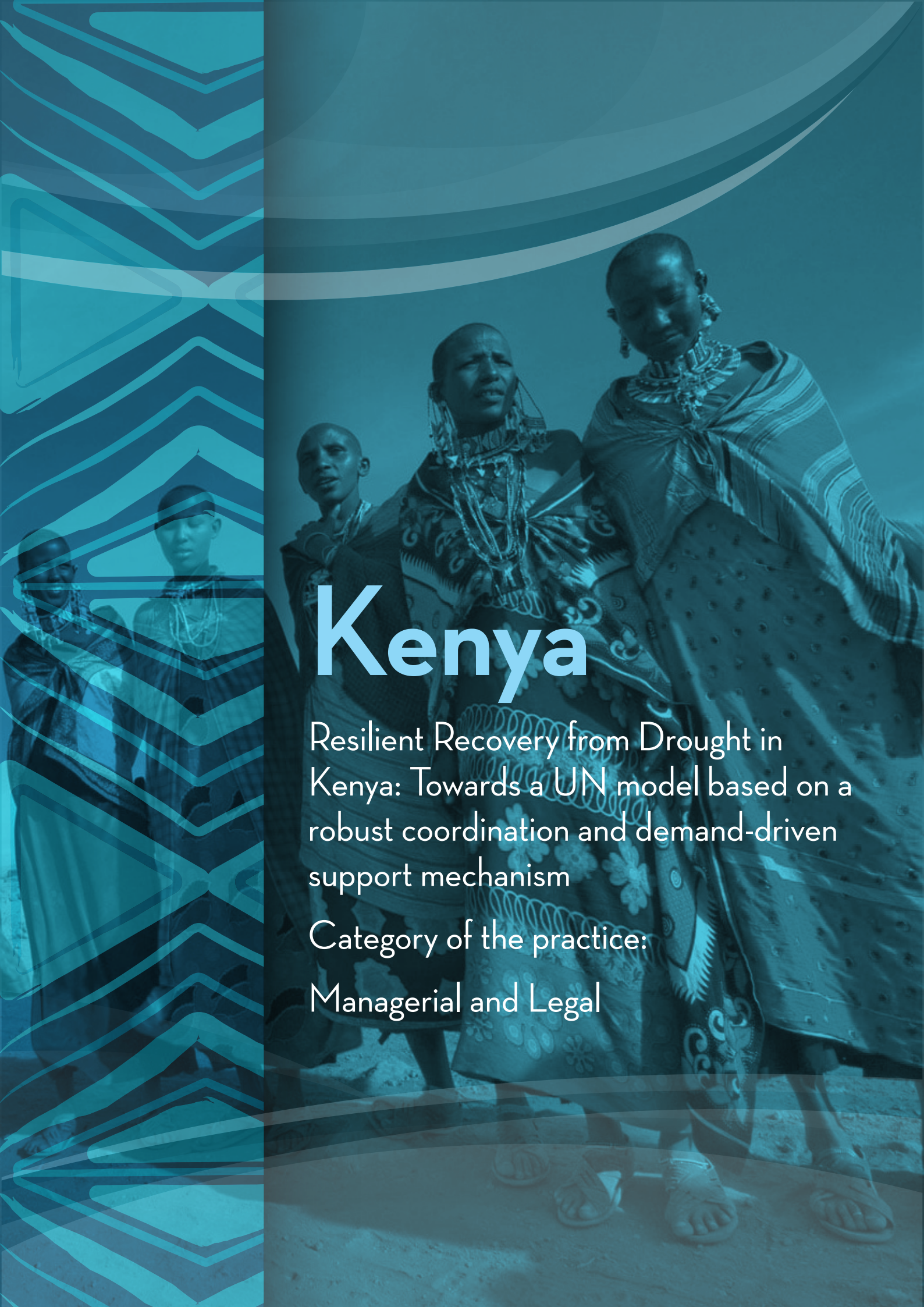
In recent years, several countries have worked towards the implementation of innovative regulations and policies that have had a significant impact on post-disaster recovery. Others have developed and designed practical tools and methodologies that have made it possible to advance and improve disaster response and recovery preparedness, which, in turn, encourages and invites other countries to adapt, use and implement these tools.

The identification and selection of good practices was carried out through consultations with different UNDP country offices in each one of the regions and with the support of the UNDP Regional Centres, considering those offices that carried out recovery interventions during the 2014 to 2019 period. The selection process was carried out by regional teams of recovery process specialists who analysed 10 key criteria including **universality, transferability, applicability, expandability, orientation, focus, assimilation, integrability, impact** and **effectiveness.** Following the process, 25 successful experiences were selected and systematized by four independent consultants, under the guidance and technical support of the Recovery Teams at HQ and the Regional Centres.

This document brings together 25 initiatives developed in 23 countries at Global level (Kenya, Malawi, Mozambique, Niger, South Sudan, Zimbabwe, Bangladesh, Indonesia, India, Nepal, Bosnia and Herzegovina, Tajikistan, Serbia, Barbados, Bolivia, Haiti, Cuba, Colombia, Costa Rica, Ecuador, Guatemala, Mexico and Peru), and we thank all of the UNDP offices that participated, shared and contributed to the compilation of this document.

Finally, UNDP would like to thank the European Union for supporting the publication of this document through the projects "Strengthening Capacities for Post Disaster Needs Assessment and Recovery Preparedness".

Good Practices in Africa Region



Kenya

Resilient Recovery from Drought in Kenya: Towards a UN model based on a robust coordination and demand-driven support mechanism

Category of the practice:

Managerial and Legal

Summary

Kenya experienced cyclical droughts triggered by climate variability due to shortage of rainfall in 2016 and an extended dry period between the 2016 long and short rainy seasons. The severe drought led to the country rapid deterioration and increase poverty incidence particularly in the arid and semi-arid counties of Turkana, Marsabit, Samburu, Tana River, Isiolo, Mandera, Garissa, Wajir, and Baringo[1] which occupy over 89% of the country's land mass with a population of more than 10 million of which more than 60% of households live below the poverty line. It is estimated that 48% of the country's rural population (particularly in the ASALs) do not have access to potable water, while 68% has no access to improved sanitation services and these are mainly in the ASALs region.[2] The number of people affected and needing assistance is expected to further increase as the drought situation worsens.

The result of this episode of drought crisis epitomized the exposure and vulnerability to disasters and inadequate capacities and processes to reduce their effects, which were addressed through scaling up the coordination and response capacities within the UN and in Government while deepening the Governance of Disaster Risks Management and Resilience in Kenya. This was led by the Government of Kenya and supported by UNDP, Donors, international agencies and civil society organizations with the aim of reducing the sources of vulnerability of the communities and their livelihood through risk management approaches while at the same time developing capacities for enhanced resilience. The recovery from drought process resulted in the establishment of a robust coordination mechanism to address the crisis with a resilience-focused approach which aims to address structural impediments that contribute to the vulnerability of households; while directly enabling households and communities to recover from the effects of the drought.

Description

Following the emergency assistance focusing on the immediate lifesaving interventions which was then provided by the Government, humanitarian agencies including Kenya Red Cross Society (KRCS) and other UN agencies, the Government identified key sectors in which support for response was required due to the extent of the drought and the increasing number of affected populations.

To support and complement the government efforts to mitigate the effects of the drought on these key sectors, UNDP with support from Japan Budget funding, partnered with the National and Local Government officials Ministry of Devolution /National Drought Management Authority (NDMA), the Kenya Leather Development Council (KLDC) and the County government; Ministry of Agriculture and livestock; Ministry of Water and Irrigation; Ministry of Interior

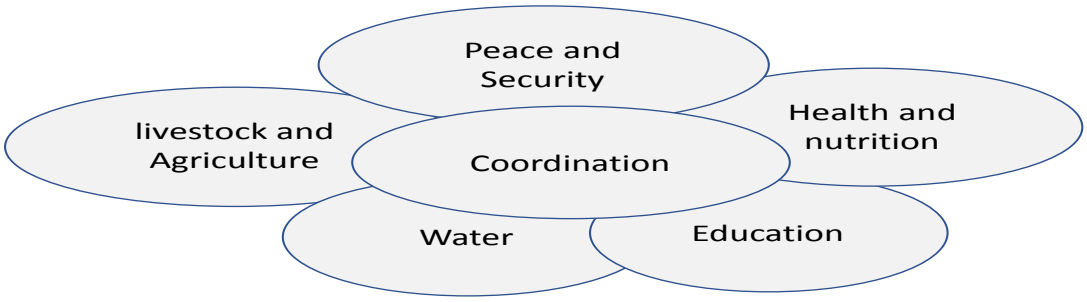


Figure 1: Keys sectors for recovery from drought in Kenya

1 Drought Resilience Newsletter, January 2017; National Drought Management Authority

2 Kenya Demographic and Health Survey (KHDR) 2014

and Coordination of National Government and; UN agencies (WFP, FAO, UNWomen, UNICEF).

The recovery and resilience building processes have been implemented since 2017 through the support of the national and county governments to develop and implement disaster risk management policies and legislation while ensuring local resources were systematically allocated for response and recovery. This support was grounded in the national strategy titled "Ending Drought Emergencies (EDE)" which was implemented by the National Drought Management Authority. The main aim was to build the capacities of communities and government through the concerted effort of the United Nations system and bilateral partners and address droughts effects issues on one hand which once implemented, sets the stage for a possible demand-driven support mechanism for the communities at risk on the other hand. The recovery and resilience building process has been implemented through 4 projects (table 1).

Table 1: Recovery from Drought and Conflict in Kenya - Projects

Projects	outputs	Partners involved
Governance for DRR in Kenya	4,030,400 USD	UNDP, Ministry of Devolution and Planning National Drought Management Authority
Drought Response and Resilience in the Arid and Semi-Arid Regions of Kenya	10,400,000 USD	National Drought Management Authority (NDMA); Ministry of Agriculture and livestock; Ministry of Water and Irrigation; Ministry of Interior and Coordination of National Government
Enhanced Resilience to Disaster Risk, Conflict and Climate Change at National level and Counties of Turkana and Tana River	1,000,000 USD	Ministry of State for the Development of Northern Kenya and other Arid Lands; Ministry of State for Special Programs; Ministry of Gender, Children and Social Development
Restoration and Stabilization of Livelihoods for Drought affected and Host Communities in Turkana and Garissa Districts	4,541,000 USD	Ministry of State for the Development of Northern Kenya and other Arid Lands, Ministry of State for Special Programs (MOSSP), Ministry of Gender, Children and Social Development

The process relies on a six steps operations strategy which set the bases for the process replication. These includes: Context Assessment and Monitoring; Capacity Development; Coordination, Integration and Partnership; Modelling resilient communities; Gender Sensitive Response; Learning and Knowledge Management.

Interventions has been based on resilience as the focus is essentially about the ability of a community to respond to shocks and stresses. As a result, most efforts in the keys sectors provided key enabling factors to foster resilience and to promote sustainable development by working with people at all levels to build communities that could withstand crisis and drive growth and finally, improves the quality of life for everyone. These including leadership, analytical and response knowledge and skills, material resources, a responsive system of governance, and coherent national and international support underpinned by effective government coordination.

Achieving this has led to set up an institutional and legislative capacity to assess, implement and monitor at national and county levels gender- and human rights-sensitive DRM and early warning systems, peace-building, conflict prevention and community security policies, strategies and plans; Coordination mechanisms, preparedness, and timely response and recovery systems operational at national, county and community levels. This improved capacity allowed to mainstream DRR in key government policies, strategies and programs and by the way strengthened

Information and knowledge management for DRR; Partnerships and networks for DRR.

The recovery process up-scaled the UN and national systems for drought and Emergency Response coordination for Drought Emergency Response and Information Management. This led to the identification of early Recovery Needs in the most affected Counties, the enhancement of a sustainable gender sensitive livelihoods. The process also developed and operationalized an effective climate change adaptation strategy and strengthened a responsive county government.

Affected county government, communities and displaced populations were enhanced at all levels through the effectiveness of emergency preparedness, response and early recovery as well as with the Disaster Risk Reduction (DRR) effectiveness. They increased their capacity to cope with conflict and disaster risks through improved food security. Furthermore, impacts of conflict and disaster risks has been minimized through diversification, restoration and protection of livelihoods and productive assets of drought affected communities targeting displaced population, women and men. At the end, UNDP played a pivotal role through its different projects to support the state government in the recovery process and in making various communities more resilient to drought and other external shocks.

For example, UNDP supported county government with leather value chain development by constructing

Turkana Tannery Lodwar: the facility will tan hides and skin from local livestock to convert it to leather which is then used to make final leather goods (shoes, belts, bags, etc)

Aerial view of the newly completed Kakuma Slaughter House And Meat being processed at the Kakuma Slaughter House: the facility has provided hygienic space for handling meat. The facility serves both local (host) population and refugees in Kakuma and Kalobeyei Refugee Camps.

the Turkana Tannery and by providing the initial trainings on leather production and production of final consumer leather product undertaken. Now, with all the machinery operational, the facility can process an average 1000 hides and skin per day into finished leather products. To further strengthen the leather value chain, UNDP in partnership with NDMA and the County Government completed the construction of the Kakuma Slaughter House. The facility, while providing the community with hygienic meat processing, it was also the main source of hides and skin for the Turkana Tannery.

The facility processed 50-80 goats, 8 cows and 6 camel per day. This generated a revenue of KES 270,000 per month to the county government which was used for repair, maintenance and operations of the facility, making it self-sustaining. In addition, to ensure reliable supply of water[3] to the slaughterhouse and the surrounding community, UNDP provided a solar-powered water borehole with elevated storage tanks.

UNDP and Turkana County launched Biashara Centre in Lodwar which serve as a one stop shop for training to youth and women and local traders on business incubation skills and start-up and ICT needs for youth, women and the Turkana business community. UNDP provided ICT equipment, furniture and provided linkages to credit access especially concerning available national government funding opportunities for youth and women. The Biashara center is linked to the leather value chain activities (tannery and slaughter house) in that it is expected to, in the long-term, provide a marketing outlet for products from the Turkana Tannery, Honey producing groups (8), and other entrepreneurship groups supported by UNDP.

3 It is supplying fresh water to a community of about 2,000 people and a Primary School with 400 pupils. The slaughter house is being utilized by the local population (about 60,000 people) and refugees from both Kakuma and Kolobeyei refugee camps (about 147,000 people).

A lady beneficiary of UNDPs alternative livelihoods initiative outside her shop in Lokichoggio, Turkana County.

UNDP/NDMA and the County government have strengthened the resilience of drought-vulnerable pastoralists through expansion of the Naoyawoi Irrigation Scheme. The irrigation scheme, which was initiated and developed, now benefits 490 Households, providing food and nutritional support during years of drought. The impact was witnessed during the 2017 drought, where beneficiary farmers were able to harvest adequate food stocks and maintain nutritional status throughout the drought. A solar-fed water borehole was developed to provide supplementary water for vegetable and fruit irrigation. Pastoralist women also became more resilient to drought and other external shocks through start-up alternative livelihoods activities including small business.

To promote fish production as an alternative livelihood which is resilient to drought, and added to the 4 motorized fishing boats provide previously, UNDP supported the construction of Fish Landing facility, solar fish drying shades and the connection of safe water to the Kalimapus Beach Management Unit (BMU). For communities living around the lake, fishing provides an alternative livelihood and is being promoted to reduce dependence on livestock[4] production which is often seriously affected by drought. With the drying shades, the communities are now able to add value to the fresh fish, increase the shelf life of the fish as well as supply dried fish to local and distant markets where there is high demand for dried fish.

Solar fish drying shades

Fishing provides as an alternative livelihood

UNDP/NDMA provide a critical assistance in education and skills to build resilience among pastoralists girls, by the construction of the Lopiding Girls High School[5]. The school[6] has so far graduated its three batches of form four students (app 150 girls) with some of them qualifying for university entry and other middle level

Aerial view of Lopiding Girls High School in Lokichoggio.

Girls in a science laboratory at Lopiding and Trainees from Turkana County on motor vehicle mechanics.

4 The construction of fish drying sheds at the BMU has improved fish preservation and increased income from fishing for 190 households who are members of the association. The dried fish, which are sold throughout Kenya and even DR Congo, can stay for a very long-time without deteriorating, thus reducing food waste and increasing incomes at family level.

5 The school, with 180 students, is enhancing the resilience of girls to disasters, specifically addressing the high dropout rates occasioned by pastoral migration during drought years. Photo (c) UNDP/Allan Gichigi.

6 The school will enhance the employability of pastoralist girl's by reducing dropout rates in years of drought. Photo (c) UNDP/Allan Gichigi.

colleges where they will gain skills to join the formal job—market. The school has also been linked with the Toyota Kenya Academy, where four Girls will be trained as motor vehicle technicians. To increase employment opportunities in Kenya, UNDP in a public private collaboration model has partnered with Toyota Kenya Foundation Registered Trustees (TKFRT) and UNHCR (in the spirit of delivering-as-one), to train refugee and local host community youth from Turkana County on motor vehicle mechanics.

Relevance to the practice of recovery

Challenges in Kenya's efforts to deal with the current droughts partly emanates from over-reliance on exclusively drought relief programs. Regarding this, the resilience and recovery process has proven this by applying pre-emptive management approaches that reduce vulnerability, making the effective use of existing knowledge and scaling up coping mechanisms of communities through economic systems, livelihoods, and issues of environmental sustainability. Likewise, drought early warning, consisting of monitoring, prediction, and well-developed information delivery systems, become fully incorporated into decision-making processes because of the strengthened capacities that allow to use drought forecasts and related tools effectively in management practices.

The resilience and recovery process established critical long-term transformational development approach that links humanitarian support to long-term development. While humanitarian assistance may constitute the most effective investment towards saving lives in the immediate term; from a longer-term perspective, effort have been made to establish linkages to early recovery and development processes by implementing a nationally owned strategy and addressing the poverty conditions in the affected regions. The early recovery process offered a strong basis which led to a fast, flexible and predictable funding that links humanitarian and longer-term development and this revealed to be critical for the reprioritization of the national and county budgets to be linked with some of the activities that had greater impact on recovery.

The recovery process formed the pathway to an integrated early recovery approach to the current drought situation by allowing people to move from humanitarian relief towards self-sustaining development. That led to integrating humanitarian response, community capacity and skills building strengthening individual's and communities' resilience to future disasters, reducing dependence on relief, and where possible, addressing root causes and fundamental issues that contributed to the disaster. Linking relief to development become central in supporting the drought recovery in the affected 23 counties.

Effective coordination effort among various organizations and stakeholders in this process stand as a key element to avoid the fragmentation of responsibilities for actions. Setting up adequate institutional arrangements has avoided impede stakeholder participation in the planning, implementation of drought management and mitigation actions. The development of drought mitigation's plans encompasses effective drought early warning and delivery systems, vulnerability assessments, mitigation and response actions. The development of these plans, accomplished with the full engagement of stakeholders from the multiple sectors affected by drought, is a solid basis for the practice sustainability.

Drought in Kenya is cyclical. By understanding the historical frequency, duration, and spatial extent of drought the recovery and resilience process set up the tools that guide planners in determining the likelihood and potential severity of future droughts. More again, the characterization of past droughts provides benchmarks for projecting similar conditions in the future. At the same time, the practice suggests successful experiences in adopting a comprehensive and active approach across various sectors dealing with droughts should be widely shared, and the capacity to apply such approaches built and developed where needed.

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Malawi

Beyond Short Lived-Recovery, a Journey Towards Resilience Building: Addressing the issue of relocation of displaced people to safer places in the context of Malawi

Category of the practice:

Technical

Summary

On March 2019, Malawi received heavy and persistent devastating rains that resulted into severe floods as well as massive damages and loss of property, mostly in 15 districts of the Southern Region and in only 2 districts of the Central Region (PDNA 2019). A total of 288,371 houses were damaged by floods, leaving about 87,000 people displaced and forced to seek refuge in temporary shelters, which increased the risk of contagion with communicable and infectious diseases. Added to this, due to the lack of adequate shelter with requisite facilities for hosting displaced people, access to basic hygiene facilities and the risk of sexual and other gender-based violence increased.

Malawi has experienced connected weather-related crises in extremes of floods and drought which affected mostly the same geographical area and, due to connected crises, full recovery was never realized. In its efforts to overcome these effects, the Government of Malawi has done three PDNAs in a space of four years to guide recovery. Following this, humanitarian support has been delivered in a short while with some long-term investments in terms of rehabilitation of infrastructure but people still stayed in fragile flood prone areas and required relocation during each successive rainy season. As a result, people in flood prone areas who were affected in 2019 had cumulative impacts from connected crises and still suffered from relocation, which rendered recovery efforts as temporary. Unfortunately, most families rebuilt their houses using their own traditionally-sourced materials, resulting in the production of sub-standard housing that is highly susceptible to the impact of future disasters. Communities who suffered from multiple crises lacked resources to rebuild stronger towards a resilient trajectory, as such every year they lost assets from floods and required support for shelter, food and other items. This context trapped vulnerable people in a cycle of desperation and full recovery was never realized. People with physical disabilities, child headed households, the elderly and female headed households who often do not own land, were impact differently and lacked opportunities to rebuild.

All these floods effects and the response undertaken, not only exposed underlying gaps in providing a full and sustainable recovery to the affected people but also exposed the relatively low priority ranking of housing sector during recovery and reconstruction. These were addressed by the reconstruction and recovery programs with the aim of relocating people to safer places, while meeting the needs of the most affected and ensuring that they do not remain entrenched in a vicious cycle of poverty and vulnerability.

The recovery process resulted in the relocation of these affected population from flood prone areas to safer places, with security of land title on the new places. It also led to the construction of green resilient houses, training of artisans in resilient construction and provision of essential elements compliant with SPHERE standards for new places with water points. Results also included the rehabilitation of an irrigation scheme (weir and main feeder canal) on which the communities rely on for livelihood. Unlike short-lived interventions, rehabilitation of Chiliko irrigation scheme enabled more than 2,000 people to recover and sustain their livelihoods which would graduate this community from relying on external support for food and livelihoods. Moreover, the recovery process has provided employment, revived income generative activities and revived the potential and resilience of the flood victims.

Description

The housing sector was hardest hit from floods, with damage to 288,371 houses across the affected districts. The total value of the effects of the floods on the housing sub-sector was estimated at US$ 106.6 million, of which damages constituted US$ 82.7 million of the total, and losses constituted US$ 23.9 million. The majority of houses affected by floods were privately-owned houses that do not comply with building standards. The Post-Disaster Needs Assessment (PDNA), commissioned by the Government of Malawi and prepared by UNDP, the World Bank and the EU, found that 89 percent of affected houses are

constructed of low-quality traditional materials; 12 percent of semi-permanent materials; and 4 percent of permanent materials, underscoring the need to improve housing standards in the face of climate shocks. Added to this, the recurring severe floods have increased the vulnerability of the population and had disproportionately significant impact on traditional houses. These houses had a disproportionate number of occupants dwelling in including single women, the elderly, widows and widowers, and people with disabilities (PWD), who were already particularly vulnerable to the impact of disasters. There was need to do recovery differently and to provide a good and sustainable foundation for the displace populations who could not afford houses to the required standard. Some affected people needed to move away from flood prone areas to safe places and they needed assistance to manage the transition and to procure the land.

These findings and observations led to a process that increase recovery readiness and which rely on the National Disaster Recovery Framework (NDRF) specially to help in the coordination at the country level. Although Malawi have gained significant experience in PDNA for having done three PDNAs in a space of four years, the NDRF provide a solid basis to strengthen management and monitoring of recovery challenge, guide recovery efforts under a common framework, provide oversight to implementation and monitoring arrangements in alignment with Malawi's national disaster risk management and recovery policies and strategies.

In alignment on the NDRF, UNDP recovery interventions relied firstly, on reconstruction of houses for the most vulnerable in safe places and community infrastructure affected by the floods to support the immediate economic recovery needs of affected communities and secondly, on livelihood-centric interventions to set basis for a long-term resilience, while strengthening the capacity of district authorities and other actors in the recovery to support reconstruction in the affected communities. This approach turned out to be an excellent way to engage communities in a different recovery trajectory and to protect them in a way that their shelter will not be damaged every season like in the past as well as to protect their property and livelihoods. While shelter does not solve all immediate needs of the affected communities, these communities will not be displaced and will not stay in camps anymore. These communities have therefore graduated from a cycle of annual displacements and can start investing for future development without annual disturbances.

50 climate resilient houses were constructed following safer green construction guidelines. The houses benefited to 50 households which were identified as the most vulnerable with no capacity to recover through a consultative and transparent process. The selection focused on displaced populations whose houses were completely damaged and with no capacity to rebuild (female headed households, child headed households, people with physical disabilities and the chronically ill, the elderly), giving them strong foundation toward resilient recovery. These people were relocated to safer places, land was secured with titles in their names, and the areas provided with other minimum amenities for habitations and complementary resources like community water points.

To further enhance the community's resilience and to prepare the vulnerable groups to manage their newly

House rebuild with SPHERE standards

Community water point

provided assets, UNDP built their capacities through training in resilience, recovery and wills and inheritance. This accompanying process of educating the affected population on the aspects of safer construction, highlights the sensitive nature of the reconstruction program, thus inculcating an appreciation of the improved systems. The communities provided labor during construction as contribution, and they benefited from complementary recovery programs which leveraged provision of services beyond shelter to make relocation successful. All houses were constructed by resident artisans, who were trained and this has transferred skills to the community in implementing safer construction guidelines. The practice addressed the present (immediate) need of reconstruction through local building designed to include local manpower, providing the essential (albeit short term) jobs leading to an immediate spurt in the local economy. At the same time, UNDP implemented this work with a complementary development program which complemented some support to help farmers derive start up inputs which enabled winter farming to improve food security and enhance income generation capacity for the households. Thus, rehabilitation with complementary 'build back better' interventions enabled the community to recover beyond short term relief interventions.

The recovery process relied on the livelihoods restoration among flood affected population, through cash for work programs to rehabilitate critical public infrastructure and which led to inject back cash in communities who may have lost everything and through the revitalization of local economies. It supported a community which was relying on irrigation for livelihoods, but the irrigation scheme got damaged (weir was broken and canal fail to irrigate more than 80 hectares of land).

The rehabilitation of the weir and canal from a perennial river which led to build back the huge potential the communities had before to recover by the flow of water which was no longer accessible in right quantities, and increased efficiency of the canal by reducing losses. Through this support, more than 80 hectares of the scheme which was no longer usable has been reclaimed and more than 200 households to revive their income generation capacity. Rehabilitation with more resilient infrastructure of the weir and main feeder canal to an irrigation scheme is now supporting an existing institution, as such the facility is a self-sustaining system which has provided and increased the area for irrigation. Now, plants can grow where there was more hope of seeing something grow.

The weir and canal rehabilitated

The recovery process has leveraged on different partnerships with authorities from government which had already conducted risk mapping and zoning for safer places for relocation and issuance of land certificates, International NGOs and communities engaging them in the implementation process. Engaging local authority with a continual consultation has led to face the challenge of the availability of land considering the huge demand for shelter especially in some areas which was difficult to find, where land ownership rests under the authority of traditional chiefs. This different partnership helped to leverage on institutions which already had structures and assessment of vulnerable groups who were staying in temporary camps. It also filled the need of institutions with capacity to perform these functions[7] as well as capacity for resilient construction and testing facilities for durability and availability of artisans to sustain the services. On the other hand, it enabled the process to benefit support from different donors and complementary flood mitigation interventions that have been implemented to safeguard the structures from potential future similar events.

In the recovery and resilience process specifically based on the relocation and the provision of solid foundation for a sustainable recovery, the reconstruction of houses and community infrastructure became an important entry point for the rehabilitation process.

7 Necessary recovery preconditions require a credible assessment, topographic survey and risk assessment for land suitability, availability of data to determine the vulnerability situation of households

Plant production rescued by the new irrigation system

It provided complete relocation and rebuilt the essential physical infrastructure and houses which reduce the vulnerability levels in a significant way and enable families to get back to their feet. With the reconstruction, the process therefore paved the way for long term rehabilitation which primarily addressed the new and increased poverty levels that have emerged due to the different flood episodes. Beyond this immediate recovery need, the provision of necessary amenities that improves life quality and assets that enlarged livelihood options provided in the construction sector through training, emergency employment, start-up and other income generation that support the livelihoods enhancement result in an immediate and emergency boost to the local economy. The reconstruction program at the outset provided: a major advantage to the new enterprises by forming the initial captive market; a critical visibility to the new technologies and improved systems of construction including (if systematically approached) building up the acceptance of these new "products" in the market. Followed by long term improvement in land and water management and economic opportunities, the recovery process has led to upgrade local economies and reduce community vulnerability in a sustainable manner.

Relevance to the practice of recovery

The recovery and resilience building process has proven to be relevant in several ways. It has shown that for the recovery process to fully take off, the reconstruction and rehabilitation needs to be in a seamless continuum with livelihoods restoration efforts. Thus, it addresses the issue of correct preparedness and implementation which is significant to keep people engage on the improvement pathway and to avoid them revert back to their earlier unsustainable practices by providing timely inputs and putting in place systems that ensure long term continuity of material and skill availability. Reconstruction becomes a process as it is about far more than a physical product, but a process that completely changes the recovery perception and trajectories it usually based on.

As the end objective was not limited to only getting people back up to the base line levels prior to the disaster, the intervention also improved quality of life and reduced levels of vulnerability. While families are tuned to picking up the pieces of their life, improved building practices, sanitation, rainwater harvesting, improved land and water management, etc. are gradually being introduced. Building materials and skill based local start-up/enterprise set the foundation for a continuous supply of quality building materials and skills. This has resulted in a sustainable improvement in shelter conditions while also enlarging livelihood options in the region and enhancing the purchasing power within communities. In one community in Chikwawa, some non-beneficiaries have also built houses on the safe place, and have used some of the standards like raised foundation which was never the case before. These are indirect positive impacts which are helping dissemination of building standards and use of resident local artisans who have been trained in resilient reconstruction.

The recovery and resilience building processes are a response strategy for creation of livelihood. By creating emergency employment in affected communities through their engagement in cash for work activities to help clear debris, repair damaged infrastructure, restore basic services, and help households to ***build back better***, by rehabilitation of an irrigation scheme on which the communities livelihood rely on, and by the provision of start-up inputs the process has revived the potential of these communities and enabled them to recover and not rely on external support to sustain their livelihoods. In so doing, the process succeeded to set a precedent toward the communities' economic relief. Unlike the support which provided temporary relief to flood affected communities, these communities have been

provided with a long-lasting solution which has enabled them graduate towards effective resilience (they will no longer be waiting for external support to survive). This is a sustainable way of recovery where the community is secured to remain resilient. Previous recovery interventions simple rehabilitated broken infrastructure which ended up being damaged again in successive seasons, but this current construction and rehabilitation of a strategic irrigation scheme, involved complementary flood structural and non-structural measures have been put in place to safeguard damages from similar future rains.

The willingness of the affected community to relocate and recover has been shown to be the most important driver for success. Affected communities had faced recurrent flood events and they had already made the decision to relocate, so the recovery intervention was consistent with the needs and context of the affected population. This made implementation acceptable, facilities usable and some relocated people who were not supported by the project have started adopting resilient construction standards. Furthermore, by using local building materials, local manpower and locals' institutions, the recovery solutions proved to be adaptable and sensitive to cultural considerations, thus its forms the key point for a long-lasting and sustainable recovery process that enable to avoid potentially difficult choices to be made around materials, approach and implementation, legality and the extent of community participation and management.

The recovery process has achieved a balance between reform and improvement of the recovery process and the conservation or preservation of the status quo. This addresses the need to guard against overly optimistic reform agendas. Too much change, in settlement layout, technology or location, for instance, could have unforeseen consequences. The process is potentially a highly political process because of the extent and scale of the resources involved and the impact this work has on people's lives and social structures. Given this, great care has been taken over issues such as beneficiary selection and the location of the reconstruction projects. During implementation, particular attention have been paid in the social and economic make-up of a settlement as community participation had been an integral and foundational component of the recovery design, not simply a politically correct, cosmetic add-on.

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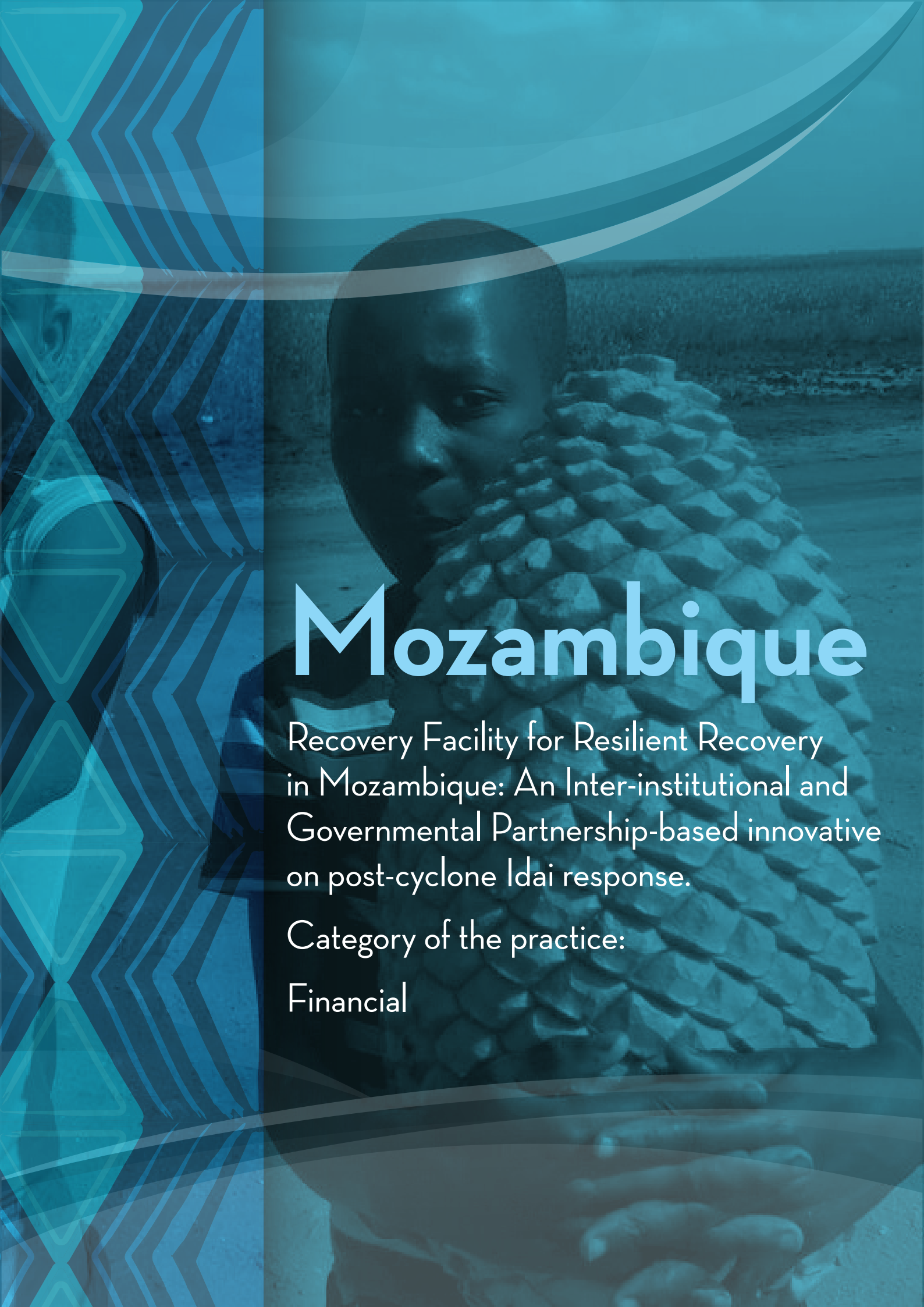

Mozambique

Recovery Facility for Resilient Recovery in Mozambique: An Inter-institutional and Governmental Partnership-based innovative on post-cyclone Idai response.

Category of the practice:

Financial

Summary

Mozambique is viewed as one of the most at-risk to disasters countries in Africa. It ranks third among African countries most exposed to multiple weather-related hazards and suffers from periodic cyclones, droughts, floods and related epidemics. It has faced widespread devastations caused by Cyclones Idai and Kenneth, which impacted the central region of Mozambique on March 15th 2019 and the northern region on April 29th 2019. Extensive destruction of housing, infrastructure, livelihood and basic services by Cyclone Idai and Kenneth has strained communities' capacity to cope with this disaster and left them highly vulnerable to future shocks. This situation faced the weak national and sub-national technical and operational capacities to lead, coordinate, implement, monitor and evaluate the reconstruction and recovery efforts.

This cyclonic season exposed the underlying emergencies challenges and the vulnerability in the country across key sectors which were addressed through the establishment of a timely, enduring and unique partnership for a resilient recovery in Mozambique, the first of its kind. This partnership arises from the UNDP's vision of the cyclone recovery. A vision[8] which was undertaken through the Recovery Facility funded by a UNDP-led multi-donor Basket Fund as an agile tool to implement short-to-long term recovery activities with the aim to contribute to addressing the root causes of vulnerability and build resilience to future disaster. The recovery facility was drawn from a comprehensive Post Disaster Needs Assessment (PDNA) and the development of a Disaster Recovery Framework (DRF).

Thereby, the recovery facility adopts a comprehensive approach to fill the recovery gap and effectively meet the needs of the disaster affected population in the Provinces of Sofala and Cabo Delgado in coordination with key development actors to ensure Mozambique's rapid restoration of development pathways in a manner that builds resilience. As a result, it achieves to provides a transformational impact on livelihoods and women economic empowerment (Income generating activities, emergency temporary employment provision, promotion of local savings and micro-finance mechanisms); housing and community infrastructure (emergency debris removal and emergency waste management, safe housing and community infrastructure) and institutional strengthening of the reconstruction secretariat (strategic guidance and coordination to the national reconstruction and recovery efforts).

Description

Following the widespread devastations caused by Cyclones Idai and Kenneth, the Government and its international partners began the long and challenging emergency response and recovery efforts. UNDP has been supporting the Government of Mozambique from the inception including providing policy and technical support for the PDNA, the International Pledging Conference that took place on 31st May and 1st June 2019 in the city of Beira which yielded $1.3 billion in pledges from development partners. UNDP coordinated a tripartite agreement (UNDP/WB/EU) on which was built the support to the Government that led to the Post Disaster Needs Assessment (PDNA) and the development of the National Disaster Recovery Framework (DRF). Drawing from both instruments, UNDP established a Recovery Facility. The recovery facility rests on tree (03) pillars (figure 1) that reflect priority interventions areas, infrastructure and physical assets to repair or rebuild with improved measures in line with the principles of 'building back better' and disaster risk reduction to ensure future resilience.

8 Related to development, governance and resilience

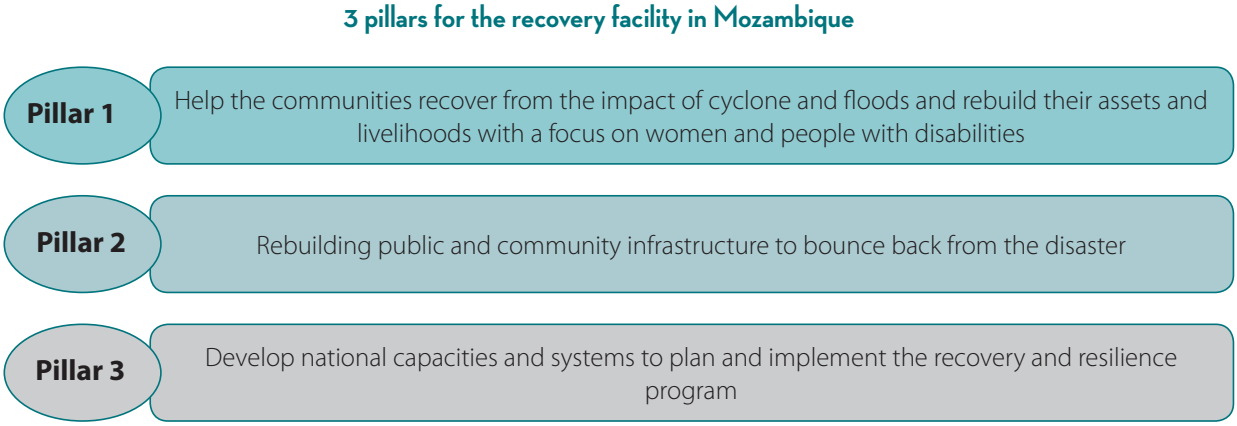

Figure 1: Mozambique recovery facility pillars

The recovery facility is supported by an ***innovative partnership for resilient recovery*** which allows the mobilization of contributions from multiple donors to fund key programmatic interventions, with more speed and at scale. This partnership leverage with donors allowed the alignment of all activities and interventions funded by the Recovery Facility to and in support of the implementation of the findings from the Post-Disaster Needs Assessment (PDNA) and the Government's post-Cyclone Idai Recovery Program, thus ensuring full national ownership. These complement government-funded recovery activities and bring strategic value in developing capacity and promoting sustainability.

In addition, at the local level, the partnership has created a dynamic that has greatly facilitated effective recovery. Local partners engagement to implement recovery activities in their field of expertise greatly enhance the sustainability of the recovery process. The process benefits from the active participation of the Government and the community and this led to achieve ownership and success of the recovery activities. The community driven programming enables tailoring and adjusting programs to better meet the needs and enhances at the same time community empowerment. Finally, the recovery process support by this partnership, led to a ***transparent, effective, appropriate, and impactful*** pathway towards intended outputs, ensuring resources entrusted to UNDP and partners are utilized appropriately; guarantee that there is continued national ownership and ongoing stakeholder engagement.

In the implementation, UNDP underscored the need to have a comprehensive and coherence approach to post-cyclone recovery in Mozambique. This enable the restoration of livelihoods and community infrastructure while at the same time, built resilience to safeguard current and future development investment against disasters. By doing so, the Recovery Facility complements partners efforts to support different thematic areas in relation to post-disaster recovery. It is currently implemented in Beira city – Dondo and Chibabava Districts. It is funded with the support of resources from the European Union, Canada, Finland, Netherlands and Norway along with UNDP. The estimated program total budget is $72.2 million. Currently, among the US $3,2 billion of the estimated damages and losses, the resources mobilized is approximately US $ 54,000 for 5 years.

In the Sofala Province, the recovery process achieves to **improve livelihoods and women economic empowerment.** More than 782 households (67% women) have been trained and supported to initiate different income-generating activities (IGA) in the resettlement areas of Mutua and Savane. In addition, 2,500 households benefit from different livelihood recovery interventions in Chibabava district in 2020; Promotion of local savings and micro-finance mechanisms has been established. All the beneficiaries in Mutua and Savane are members of Community Savings and Loan Associations (VSLA). A total of 33 VSLA were created and a cumulative amount of 390,951 Mts was raised with in 4 months of the implementation in 2019. Of this amount, 146,063

Mts were given per loan to the VSLA members. A cumulative sum of 244,888 Mts is still available for loans by art of members so that they can invest in viable income generation activities.

Housing and community infrastructure help to address the extensive destruction of housing, infrastructure and basic services that has strained communities' capacity to cope with this disaster and left them highly vulnerable to future shocks. A total of 101,845 people (50,808 men and 51,037 women) benefits from temporary employment through different "cash-for-work" activities design to create community assets in the resettlement areas in Chibabva, Dondo and Nhamatanda districts and in the emergency waste management. City officials were trained in the safe management of asbestos containing low risk emergency debris collection and benefited from protective equipment. That resulted in the removal of Asbestos containing damaged roof sheets at the Beira town. UNDP is working with DPTADER to organize similar training in Dondo, Buzi, Nhamatanda and Marromeu Districts. A partnership between UNDP and the municipality of Beira led to rehabilitate and improve the conditions of the city's main dump site. The access road to the dump site was repaired to facilitate the movement of waste transporters thereby, the waste resulting from the cyclone and in other parts of the city of Beira were collected and transported to the central waste dump. A specific dumping site was opened in the landfill to bury harmful waste such as asbestos containing roof sheets after its collection.

Safe housing and community infrastructure benefited from the partnership between UNDP and Engineers Without Borders (EWB-I). They developed guidelines and a training kit on building safe and resilient community infrastructure. A total of 75 community masons were identified and received training on building resilient houses and other safe community infrastructure. 32 masons completed the training at the Mutua resettlement center. Training was provided to 22 masons in the resettlement area in Savane and 21 bricklayers in Chibabava district. Seven schools and 3 markets were identified as needing infrastructural interventions in Chibabava district. **Institutional strengthening of the reconstruction secretariat**[9] strengthened the national and sub-national capacities for recovery and achieved to provide strategic guidance and coordination to the national reconstruction and recovery efforts.

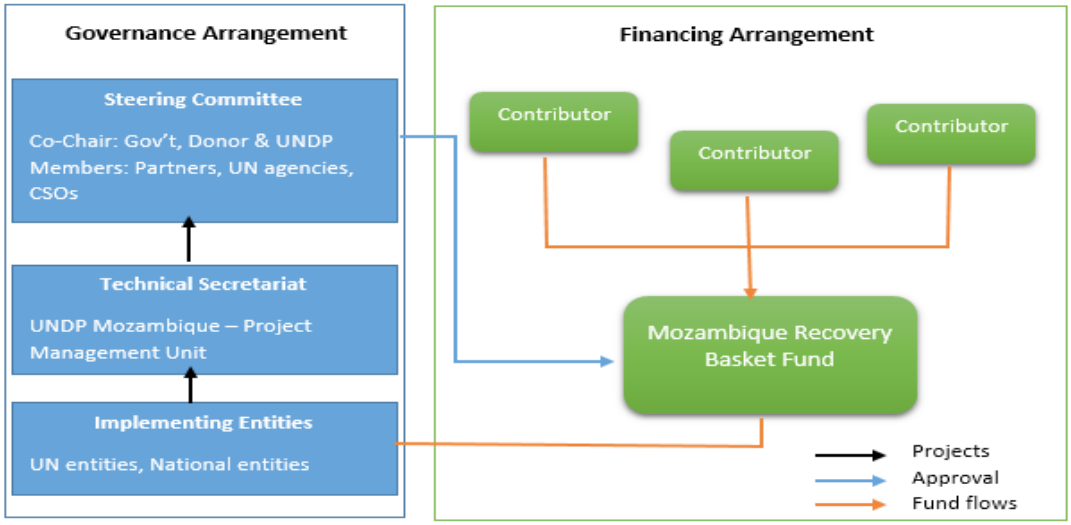

Figure 2: Governance and financial arrangement of the recovery facility in Mozambique

9 Following the PDNA and donor-pledging conference, the Government established the Gabinete de Reconstrução. Framed within the outcomes of the World Humanitarian Summit and the Sendai Framework for Disaster Risk Reduction 2015-2030, the result's framework is aligned with the UNDP Strategic Plan and the United Nations Development Assistance Framework (UNDAF) for Mozambique.

The Recovery Facility is governed by a Steering Committee[10] and supported by a Project Management Unit (PMU) within the UNDP Country Office (figure 2), to established collaborative governance arrangement and provide strategic direction for the Facility allowing for prioritized funding needs, transparent fund allocation decisions for the overall fund implementation and impact. It also allows for the proper management of the Recovery Basket fund by the UNDP Mozambique Country Office in accordance with UNDP regulations, rules, policies and procedures, ensuring the consistency between recovery activities and the Facility terms of reference.

To surmise, these initiatives showed the recovery process potential to expanded to other districts in Sofala (Affected by Cyclone Idai) and its ability to be replicated in Cabo Delgado (affected by Cyclone) Kenneth. However, in the long run, they will form part of recovery interventions to be implemented through the Recovery Facility UNDP basket Fund, a good practice to promote community resilience to disasters. A successful replication and adaptation will consider leadership, good coordination and teamwork for a more effective response. Continuous investment in strengthening UNDP's coordination role in concerned areas of work and quick allocations of funding from CO resources and from HQs is essential as well as the rapid deployment of early recovery team, technical experts and quick deployment of "strategic team" to undertake and lead the PDNA and DRF.

Relevance to the practice of recovery

The recovery facility for resilient recovery in Mozambique and its supporting partnership has proved to be relevant to the recovery process. It is the first in its kind in which inter institutional and governance arrangement took place with the government of Mozambique taking the lead and which is rooted in all governmental level. It is supported by a strong partnership with donors, UN agencies, locals' partners to address the roots causes of the high vulnerability of Mozambique to climate change in order to build resilience to future disaster.

Considering the innovative partnership on which it is based, the recovery facility allows to have a holistic understanding based on perspectives form multiple stakeholders which is need to understand the interacting socio-economic, cultural, environmental and physical factors that contribute to vulnerability and ensure that pre-disaster iniquities are not amplified in post-disaster futures. In this sense, the practice ensures mechanisms by which local communities plays a major role determining both short-term and long-term policies. The practice brings communities come together collectively to recover. It ensures collaboration among a diverse array of governmental and non-governmental actors. This is more relevant given the needs to recognize that implementation of certain measures and activities are either totally or partly transferred to local partner organizations. Therefore, the first step towards preparedness and increasing resilience is the adequate knowledge base leading to an increase in awareness among decision makers at the national as well as at the local level, followed by a stronger governmental commitment.

The recovery facility provided a partway to a transformational impact through increased emphasis on adaptive management, learning, innovation, and leadership. By including resilient recovery and sustainable development pathways through integrated and supportive approaches, the practice helps enhance national and local capacities to cope with, adapt to, and shape unfolding processes of change, while taking into consideration multiple stressors related to development, governance and resilience, prioritizing livelihoods and well-being in poor and marginalized communities with the aim of build local capacity and integrate local development visions into long-term disaster risk reduction and climate change adaptation strategies.

The recovery facility is drawn from the PDNA and DRF which set a precedent for future replication, thereby, strengthening recovery preparedness and planning by making it possible for policies and governance to establish in a way that allow for a transitional phase and accomplishes long – term

10 With membership from the Government of Mozambique Ministry of Public Works, Housing and Water Resources (co-chair), UNDP Resident Representative (co-chair), the main donor representative (co-chairs) and other representatives from partners, UN agencies, local Partners (NGOs & INGOs) and civil society.

strategic goals without unintentionally increasing the community vulnerability. In doing that, it has proved it uniqueness by going a step forward from what already established Mozambique government to constitute a strategic tool to addresses roots causes of disaster encompassing aspects and factors, that are distant from the disaster in terms of time and space, such as the level of development, governance, awareness and perception, etc and provide critical investment for a resilient and sustainable recovery.

The recovery facility enhanced reactiveness which is understandable and essential when urgent social needs must be meet immediately following a disaster by strengthening local institutional capacity enabling them to influence recovery processing its early stages. The recovery facility become a means to engage the Government and the international community into not only help communities get back on their feet, but more importantly help them to have the means to deal with future climate change-induced challenges and emergencies at all level.

The recovery facility addresses key constraint that limits the pathways to post-disaster resilience which is the time-bound nature of reconstruction funding. Indeed, inflexible international donor mechanisms is often a major reason for insufficient and ineffective disaster risk management activities, particularly if the link between relief, rehabilitation and development is not secured. Due to several restrictions and temporal deadlines dictated by donors, long-term approaches are difficult to be implemented. Thus, the recovery facility is an opportunity for long-term engagement and presence, very helpful for immediate response activities, as well as for the development of sustainable disaster risk management capacities. In responding in the short term and long term efficiently and cautiously, is a tool that directly reduces socio-ecological sensitivities and facilitates informed and effective recovery efforts. It is a support function-based system and adaptive post-disaster financing.

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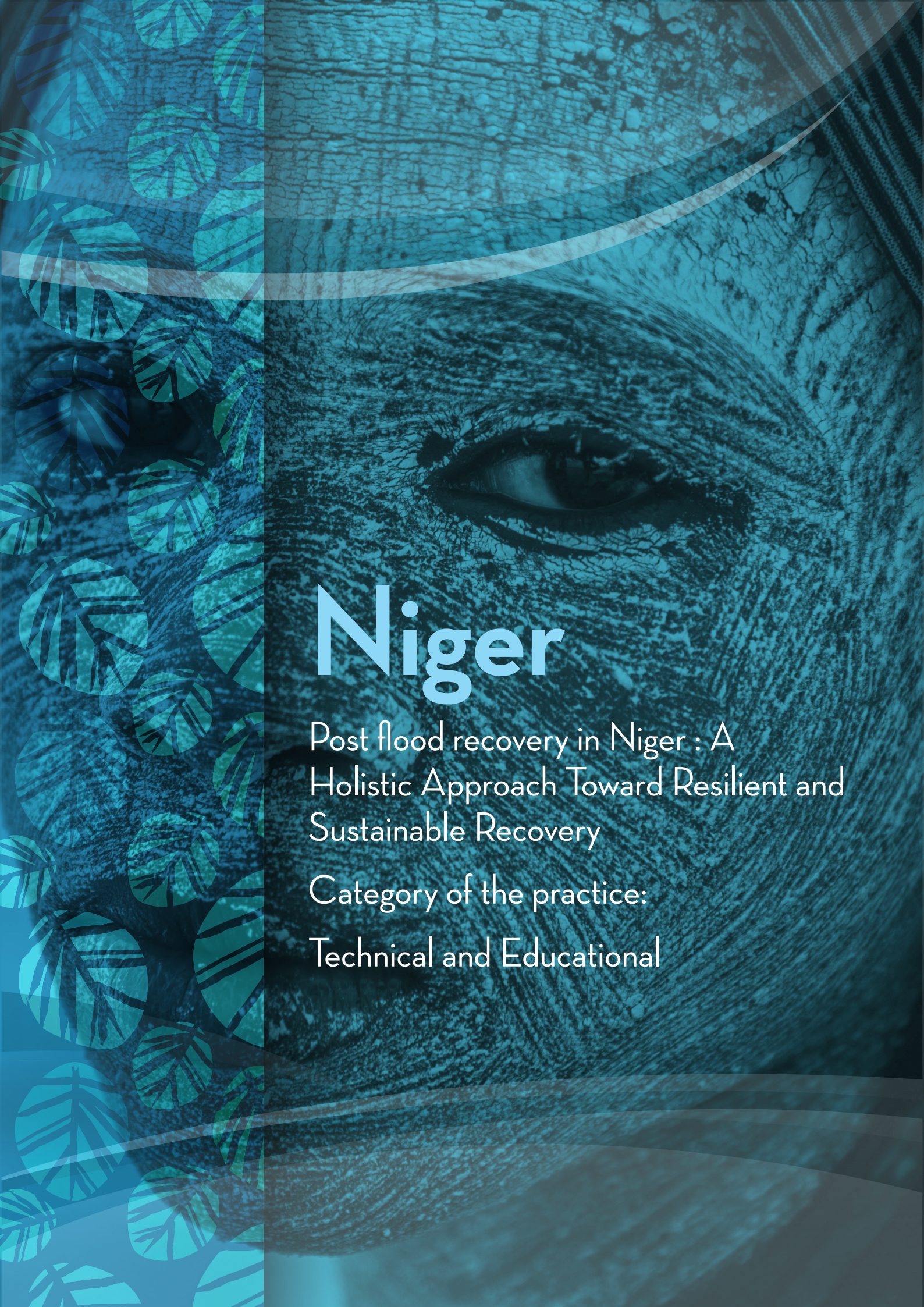


Niger

Post flood recovery in Niger : A Holistic Approach Toward Resilient and Sustainable Recovery

Category of the practice:

Technical and Educational

Summary

Collapsed houses in the village of Toumouga

On July 2017, the heavy rainfall recorded in Niger had caused severe flooding, mainly in the neighbor areas of Niger River (Sirba, Niamey, Dallol sub-basins). It caused damages and losses estimated at about $US12,499,000 in the three regions (Dosso, Maradi and Niamey) according to the PDNA. The department of Gaya (Dosso region) suffered from the most significant effects (about 81%).

These floods effects and their severe damages caused on the road infrastructure and housing sectors as well as in the agricultural sector, the main source of income and employment, were addressed through the post-flood recovery plan in the Gaya department (municipality of Tanda, Tounouga and Niamey).This was led by government structures led by the Ministry of Humanitarian Action and Disaster Management in collaboration with UN agencies (OCHA, UNICEF, FAO, WFP) and coordinated by the UNDP country office with support from of European Union and the World Bank (EU/WB).

The post flood recovery process in the three regions mostly affected by the flood (Dosso, Maradi and Niamey) resulted in a post disaster needs assessment (PDNA), a first in-deep assessment of its kind in Niger, and the establishment of the institutional framework for post crisis needs assessment and recovery implemented on a gender – based inclusive and comprehensive recovery process to re-build resilient communities. A national strategy document of partnership and financing for recovery in Niger was established to define goal, principles and overall approach to be adopted by the country and the strategic pillars with priority strategic actions to be implemented to achieve them in line with a national framework for the post disaster recovery.

Description

The losses and damages effects related to flood and the vulnerability to future disasters it highlights led the government to formalized the recovery process in all the institutional system to enable effective assessment of post floods damages and needs and to more accurately quantify and characterized recovery needs and formulate broad recovery strategies. With this vision, the PDNA was carried out by the government in line within the national framework for the prevention and management of crises and disasters with the support of the UNDP. The aim of the PDNA was to assess the damages, losses, recovery needs across the most affected sectors and assess a network of actors to properly planed and addressed managerial, technical and financial needs of the recovery. It allowed to identify the most affected areas and sectors based on an evaluation by geographic area and sector and to generate a common understanding of the global effect of floods and the specific vulnerabilities of men and women to the floods. As a result of the assessment, the institutional framework for post crisis needs assessment and recovery implementation, and the national strategy document of partnership and financing for recovery was established.

A baseline study on housing, livelihoods and employment has been conducted in two (2) targeted municipalities (Tanda and Tounouga) and contributed to enhance the knowledge of risk and vulnerabilities faced by communities and improve understanding of spontaneous recovery pathways. This turned out to be powerful means to specified information needed to guide the design of sustainable and resilient livelihoods recovery interventions which were oriented towards community socioeconomic recovery, waste management, reconstruction using resilient building technologies with a focus on job

creation and capacity building. The baseline also provides capacities building for further program planning as it is necessary to collect "pre -flood" data and baseline indicators to measure disaster effect analysis at the community level in case it occurs and in order to fully contextualize recovery planning efforts and "build back better".

Considering the baseline, and following the Niger annual support plan, post – flood recovery plans for 2-3 years specifying needs and priority areas were developed for the most affected regions. However, in order to enable the institutionalization of resilient recovery in Niger and build back better, the recovery plans focus on the aim to reinforce the technical capacity of 180 relevant national stakeholders (Ministries, UN agencies, NGOs and academic institutions, the World Bank's project for DRR) on Post Disaster Needs Assessment and recovery planning through training[11]. This was an innovation with added value on the sustainability of the process knowing that the availability of qualified human resources for the PDNA methodologies is a prerequisite.

The (PDNA) mission was conducted in a multi-stakeholder partnership under the leadership of the Ministry of Humanitarian Action and Disaster Management with the involvement of national, regional and departmental technical structures in charge of disaster management ("***Dispositif National de Prevention et Gestion des Crises Alimentaires*** (DNPGCA)[12]", United Nations agencies (UNDP, WFP, WHO, UNICEF), Civil Society organizations, municipalities and the International Federation of Red Cross (IFRC). About 20 participants contributed to the assessment.

The post floods recovery implementation leverage partnership at different level. Firstly, the recovery process inclusive approach allows to ensure ***the participation of all stakeholders*** which ensure a successful implementation of the recovery plan. Stakeholders in collaboration with civil society representatives (communities, women's organizations, private sector organizations, etc.), were consulted through one-on-one interviews, small discussion groups, seminars, or regional workshops, giving them the opportunity to have a better understanding of the importance of disaster effects. Actually, this stakeholder involvement stands as a prerequisite that foster their willingness and engagement to recovered and participate fully is in the recovery process.

Secondly, based on the inclusiveness of the recovery process during ***the beneficiary's identification and selection***, the most vulnerable people and communities were successfully target through a transparent approach involving all the populations of the villages (victims and not victims) gathered in a general assembly under the supervision of the communal authorities. They were identified following an in-depth Household Economy Analysis (HEA) on all components of the population[13], which aim to analyze the impact of floods on the quality of life of individuals and households, including an estimate of the decline in employment and incomes caused by losses in the productive sectors, as well as the increase in personal or family expenses above the standard. The results of the HEA, combined with the PDNA led to specify the poorest households among the victims of the floods and to identify post-flood recovery interventions that focused primarily on them. Out of 17,217 direct beneficiaries, 83% were vulnerable women (elderly and heads of households).

Thirdly, during the design of the recovery process, ***all activities were discussed, approved and support by national authorities' representative*** including the Ministry of Humanitarian Action and Disaster Management as well as the DNPGCA. Given this collaboration, interventions were harmoniously integrated into the annual work plan of UNDP Niger. In addition, the implementation was undertaken at the departmental level in Gaya and mainly in two (02) most affected municipalities where micro projects were proposed and discussed with all stakeholders in order to produce municipalities recovery plans. The regional and municipal technical services led the implementation on the field with the support of ministries on different aspect of recovery, UNDP, and the whole community. The government technical services provide advisory support and technical monitoring in the practice implementation (i.e. land-use, safer construction, rangeland management,

11 Training were facilitated by UNDP, FAO and ILO experts, placing a particular focus on sectors generally most affected by disasters, namely housing, agriculture health, and infrastructure.

12 (Agriculture, Livestock, Civil protection, Civil Engineer, Health, Population)

13 Including men, women/ or women heads of households, youth, and the elderly and/or people with disabilities

water conservation and management, awareness and education, agriculture, employment). A deep partnership[14] has been established between the concerned municipalities and the private sector, micro-finance institutions, research institutes and NGOs to foster the implementation of recovery activities with the provision of their technical assistance (farming school, rebuild better home, access to financial services) after they receive grant from UNDP.

Added to the capacities building and the institutionalization of the recovery process which support the government efforts at the national level, the post flood recovery achieves to lay the foundation for sustainable community recovery which has proven its potential for replication in two municipalities of the cities of Niger. The post flood recovery supported **the solid waste management in the two municipalities** as the floods had caused the accumulation of large quantities of domestic waste in the storm water drainage channels and increased the risk of flooding in the city. As a result, both municipalities have improved their storm water drainage system and substantially reduced the risk of flooding through collection and disposal of 20,000 tons of solid waste accumulated at wild and/or regular dumpsites in the 30 localities; and through cleaning of 3,500 ml of main and secondary gutters.

The solid waste management (SWM) mechanisms have been improved with an increased public awareness on the benefits of waste collection and recycling/re-use at domestic and community levels (25,000 men and women were sensitized by various means) and with the training of local partners on the sound waste management and the development and adoption by local partners of two (2) municipal solid waste management (MSWM) plans based on cartography assessments.

The waste management also served as opportunities for temporary jobs creation and sustainable livelihoods in both municipalities. The cash for work modalities used for the waste collection and disposal as well as the cleaning of the gutters allowed 10,647 people including 6,388 women to work 40 days and to have incomes. This allowed to reinvest into the local economies about US$40,865 which has indirectly benefited 30,000 men and women by improving their purchasing power. At the end, 350 other women from the two municipalities were organized into economic interest groups (EIGs) and equipped with rolling stock (2 tricycles), 300 garbage drums and small arrest equipment in view to ensure the collection and transfer of household waste in the municipalities through agreements with families.

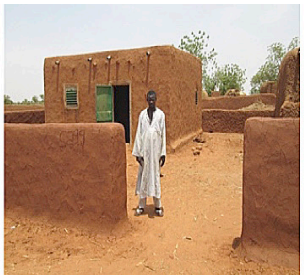
In view to ensure decent re-housing for all victims, and based on the principles of 'Building Back Better', the post flood recovery **support the reconstruction/ rehabilitation of houses and community infrastructures by using resilient rebuilding technologies** for the benefits of 100 beneficiaries[15] coming from the former flood plains of Bantali, Lahiakaré, ToungaRini, Magangama**.** The authorities from municipality and department have identified

Support the solid waste management in the city of Niamey under Cash for work modality

14 Among the key partnerships established are mainly those with "Luxdeveloppement" (for implementation of activities related to market gardening by women), "Association Nigérienne de Construction Sans Bois" (ANCSB) for housing, and the Millennium Challenge Account (MCA) for sharing data and information on flood risk areas. Partnerships have also been established with the Community Support Programme for Climate Resilience (PAC/RC) and the Disaster Risk Management and Urban Development Project (PGRC/DU).

15 The 100 beneficiaries were selected in a general assembly where all the inhabitants of the four (4) villages (victims and non-victims of the floods) were gathered at Albarkayze (the most affected village) and under the supervision of the municipal authorities of Tanda.


Houses before

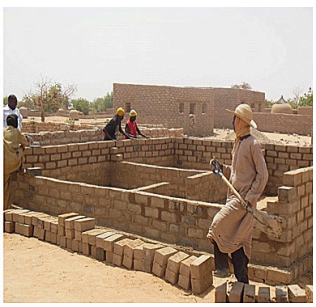



House "built back better" with the local material in Bantali

and make available new sites for the reconstruction. Forty (40) identical houses[16], have been rebuilt in Bantali village as part of a partnership established with the Dosso Polytechnic Training Centre (Mazayaki). These houses, made with improved local materials, were completely rebuilt by twenty (20) local masons previously trained by the Mazayaki Centre on a pilot phase of five (5) houses with improved masonry techniques. Sixty (60) others houses[17] made with stabilized earth technology have been rebuilt as part of a partnership with the NGO "***Association Nigérienne de Construction Sans Bois***"(ANCSB) in the villages of Albarkayze.

In order to further contribute to strengthen the resilience of the people of Tanda, the reconstruction project adopted a strategy by using local labor to rebuild the houses through cash for work modality making it possible to reinvest approximately USD $50,000 into the local economy. 100 people worked during 4 to 5 months and these include 40 masons, 20 learned masons and 40 labourers. In parallel with the identification of the forty (40) beneficiaries of Bantali, fifteen (50) local masons were recruited and twenty (20) trained in resilient and better construction techniques and thirty (30) trained on reconstruction with stabilized earth technology.

Brick Press



School construction in Albarkayzé

Additional awareness-raising activities on the regulations on land use planning and development, as well as on construction, were carried out with learners. To make them operational and autonomous, the 50 trained masons were organized into groups and equipped with masonry kits including 10 brick presses, 20 wheelbarrows, 20 overalls, 20 safety shoes, 20 pairs of glasses, 20 gloves, 20 shovels, 20 trowels, 20 plumb lines and 20 construction helmets.

The post-flood recovery was used as an opportunity to **support livelihoods recovery for affected young women and women headed households in affected areas** to ensure local sustainable development through agricultural production and the agricultural products processing. Thus, in Tounouga and Tanda municipalities, the project allowed to strengthen the technical and material capacities of 465 people, including 420 women and 45 young people, to restore their activities in better manner. In the field of market gardening production, they benefited support for 6 hectares of market gardening sites, with 9 boreholes, a Californian irrigation system, and a solar pumping system. The market gardeners were organized into 35 groups which benefits training on market garden production techniques, associative life and the advantages of the mutual economy. This led to the opening of credit lines for women producers from micro-finance institutions.

In terms of agricultural products processing, 420 women were organized into 20 groups of women processors of agricultural products (extraction of groundnut oil and parboiling of paddy rice) which were equipped with machinery and necessary equipment kits and were trained on agricultural processing techniques, associative life and the mutual economy to facilitate their access to credit through micro finance institution.

16 with two (2) 12 m^2 rooms, and 7.2 m long and 4.8 m wide as external dimensions

17 for the benefit of 60 victims including 40 women heads of household and 20 elderly people

Agricultural processed product

Training session on agricultural product processing

Gardening with the irrigation system

These supports increase in the department of Gaya the agricultural production, improve the quality of processed products (groundnut oil, parboiled rice), lighten women's workload, create new jobs opportunities and income and improve the level of food consumption of about 4325 of their dependants.

Relevance to the practice of recovery

The post flood recovery interventions aimed to strengthen humanitarian and development nexus in targeted areas by developing not only emergency interventions but also with appropriate resilience building activities focuses on the local population's needs to reduce lost and damages effects related to flood and to reduce vulnerability to future disasters. It provides a holistic approach which tends to increase the efficiency of recovery by acting on the different levels (strategic and operational) ensuring the resilience sustainability.

The benefits on recovery preparedness is far-reaching. As this is essentially the reflection of national capacities, the recovery process therefore helps the country to prepare for potential recovery before a disaster occurs, so as to enable quick and efficient action when it is needed most. In this sense the practice is implemented with governments and it emphasizes recovery of essentials areas for building capacities and strengthening institutions to assess recovery needs, developing institutional arrangements, preparing sector plans, implementing recovery interventions, and ensuring people's participation. In that, the process was adaptable to similar post-flood situation elsewhere. The recovery process also established an information sharing and participatory systems, strengthens the community ties to the recovery process allows communities to identify innovative solutions for expected challenges, such as the provision of financial services; and enhanced institutional coordination and information management expedites early action that enables well-planned, well-executed reconstruction and recovery. UNDP assists governments towards recovery preparedness through developing these services and capacities.

The recovery process set the precedent to put in place a better recovery planning process and implementation, by the appropriate and adequate resources dedication to data collection, analysis and distribution as the human and financial resources that support the planning and implementation are define by the national recovery framework. In fact, actually, post recovery opportunities are often contingent upon data and information that may directly extrapolated from or collected in conjunction to drive response. In addition, such assessment is critical to enable the government to formulate its requests for assistance and plans of action relative to post-disaster offers of supports from the international community.

The post flood recovery in Niger has proven to be relevant in the stakeholder's engagement. With the emergence of the collaborative coordination mechanism with governmental, regional and local authorities, the recovery process provided a strong platform for partnership as an essential pathway toward a flood recovery framework efficient, transparent, collaborative and successful implementation. The platform also offers a good tribune for the expression of the national ownership that support the effectiveness of the implementation and legitimize the resources mobilization for recovery activities within the United Nations Country Teams (UNCTs).

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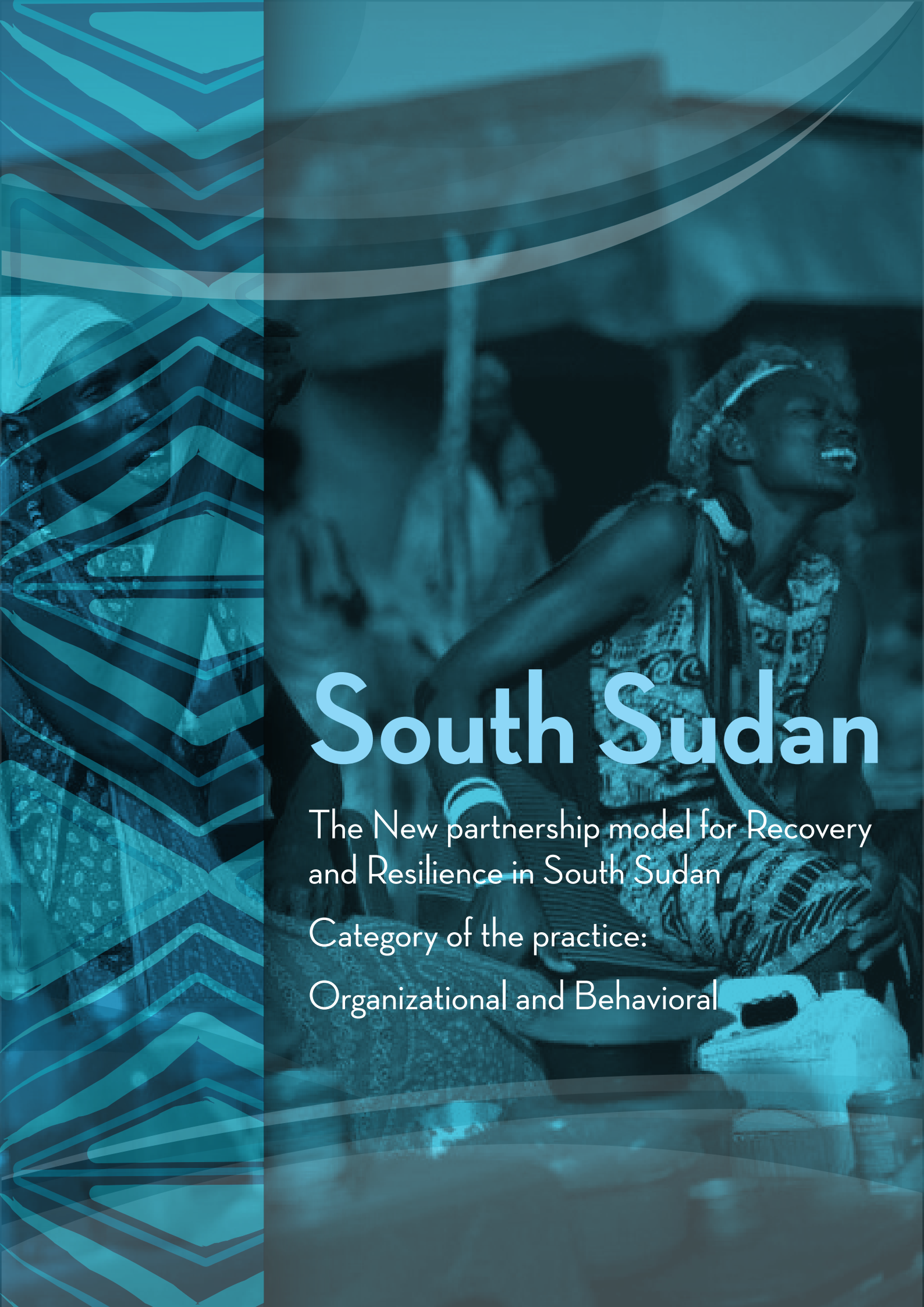

South Sudan

The New partnership model for Recovery and Resilience in South Sudan

Category of the practice:

Organizational and Behavioral

Summary

The Republic of South Sudan being considered as one of the most disaster-prone countries, has suffered from a protracted crisis which resulted in increasing its already high level of vulnerability and high rate of displacement. Over the years, the impact of these disasters has greatly been shown in life and livelihoods of a large number of the population. The number of people in need has seen an overall increase in the humanitarian assistance from 5.4 million people to 9.3 million between 2015 and 2020. Nearly 2 million people remain internally displaced, following decades of conflict. Every state is affected with 6.5 million people in need of multi-sectoral life-saving assistance; 6.2 million in need of food and livelihood support; 8.6 million in need of basic services access improvement; and 2.9 million in need of protection (HRP, 2020).

With regards to the above-mentioned numbers this humanitarian crisis, along with consequent impact on the long-term development, exposed the underlying pressing need to move away from aid dependency and to invest in making vulnerable communities and people in South Sudan more resilient. This was addressed through the most critical partnership for recovery and resilience (PfRR) in South Sudan, as a new way of doing business to better help communities cope with the multiple shocks they face.

The Partnership for Recovery and Resilience (the Partnership or PfRR) emerged as an all-encompassing, unified approach to reduce vulnerability and build resilience through a multi-actor and cross-sector collaboration which changed the way actors work individually and together. By bringing the UN's "New Way of Working" (NWOW) together, the PfRR marked the shifts in the recovery process from "***meeting needs***" to "***reducing needs, risks, and vulnerability.***" The recovery process rest on the establishment of a PfRR Coordination Platform, co-chaired by senior UN and donor leadership. The Partnership Framework put the communities first and increase recovery impacts while laying the foundations for future governance. Within the PfRR, building resilience is a continuous process which is continually re-orientated according to the situation on the ground. This is allowed by a coherent, step-by-step approach defined through the joint work planning exercise. The PfRR, through its flexible, area-based and organic approach to resilience has led to a structure and organization that allowed resilience and recovery programming to be responsive to the needs of communities and to a high level of local ownership with the people driving the process, setting the priorities and producing joint plans for shared outcomes.

Description

Figure 1 : The Six Commitments of the NWOW

State governments, local communities, donors, humanitarian and development organizations realized that a shift in approach from responding to emergencies and meeting needs to reducing vulnerabilities and building resilience is necessary if peace, stability and development is to gain ground. Resilience[18]-building emerged as a concept that could bring together humanitarian, peace and development actors together. This is with the aim to reduce dependency on humanitarian assistance, address the root causes of vulnerability, increase community self-reliance and putting in place interventions across a range of sectors to enhance communities' coping strategies. In line with this objective, the thinking behind the Partnership was initiated by UNDP, who in the midst of the highly unstable security situation and massive humanitarian effort, advocated that fragility and emergency presents an opportunity for a New

18 Resilience in the South Sudan context is defined as the ability to withstand a wide range of shocks including political upheavals, national and local level conflict, displacement, food insecurity, disease outbreaks, drought, other natural disasters and adverse events, all of which can increase vulnerability.

Way of Working through the strengthening of the humanitarian-development-peace nexus in "hubs of stability".

From the initial Joint Donor and UN Agency visit to Yambio in 28 February-1 March 2018 organized by UNDP [19], the Partnership took root and evolved with the commitment to scale up integrated support to resilience in order to break the trend of growing vulnerability and increasing emergency assistance in South Sudan. It was described as a 'paradigm shift' by the UN Joint Program for Recovery and Resilience and a 'new way of doing business' by the PfRR. It was presents in terms of a rights-based approach, through which people can engage and participate in decisions affecting them and hold the duty-bearers to account. Moreover, the UN Joint Program articulates the vision to simultaneously resolve the political impasse, deal with increasing humanitarian needs, and build the resilience of citizens, communities and institutions. As a result, and in order to advance the vision and the joint interests of partners, the Partnership for Recovery and Resilience was initiated as the tool to support strategic integration through coordination, colocation, collaboration, and commitment of various stakeholders.

The PfRR is an inclusive group of donors, UN Agencies and NGOs who are committed to promoting local ownership and working together to reduce vulnerability and increase the resilience of people, communities and institutions in South Sudan on their way to achieving the Sustainable Development Goals, the new way of working (NWOW) which is based on six commitments (figure 1).

The PfRR was created by harnessing the synergies and convergence of development organizations, state/local government and local communities on recovery and resilience building. A PfRR Coordination Platform was established, co-chaired by UN and donor leadership and guided by a Steering Committee (SC) composed of government representatives, senior level representatives from NGOs, the UN, and Donors, providing the overall leadership of the growing partnership and reinforcing the shared commitment. The coordination platform was established with the aim to develop, coordinate and monitor the PfRR Partnership Framework which rest on four (4) pillars (figure 2) that shape and facilitate alignment around a shared agenda. These are : (i) Rebuild trust in people and institutions; (ii) Re-establish access to basic services; (iii) Restore productive capacities; (iv) Nurture and broaden effective partnerships.

Within the PfRR, the NWOW in South Sudan centers on a three-pronged approach[20] involving: (i) Joint analysis towards a mutual understanding of challenges; (ii) Promoting and advancing a resilience agenda; and (iii) Pursuing collective outcomes.[21] Based on a state-

Figure 2: Approach around the four (04) pillars of the PfRR framework

19 For over 90 participants from 14 UN Agencies, 5 donor agencies, INGOs and business leaders

20 'A New - Smart - Way of Working: A practical approach in South Sudan' (January 2019).

21 Collective outcomes are defined as 'concrete and measurable results that humanitarian, development and other relevant actors want to achieve jointly over a period of 3-5 years to reduce people's needs, risks and vulnerabilities and increase their resilience. As such, collective outcomes

wide work plan which regrouped all development partners mapping activities and interventions, the implementation of the PfRR initially geared their efforts on seven geographic areas in South Sudan which represent the diversity of ethnicities, livelihoods, political groups, and institutions found in and characterize South Sudan. These include Yambio[22], Torit, Aweil, Wau, Rumbek, Bor and Yei which were chosen following a list of criteria[23], based on the will of the local authorities to actively engage in and contribute to a partnership that seeks to build resilience.

Known as Partnership Areas (PAs), these locations are encouraged to develop local leadership at various levels as a key in fostering an inclusive, community-driven process. They are supported to develop local partnership committees and priority action plans[24], that are community driven; they are provided with detailed data (resilience profiles) and technical assistance to develop their plans and act as pilots for the new way of working proposed by the Partnership. Working together for building resilience was possible thanks to a clear frameworks, structures and principles as well as a building a coherent, step-by-step (sequential) approach that supports continuity over time. NGOs, UN Agencies and donors working in these areas collaborate and coordinate programming behind the costed local action plans; with new partners and resourcing soughed to fill any gaps in the existing resilience plans and strategies and programming process.

The PfRR is anchored on existing programs and activities to build upon local initiatives on peacebuilding. To enable the achievement of reduced vulnerability, help build resilience and support the new ways of working, the Partnership members works on a number of workstreams[25] which are interlinked and mutually dependent but cover distinct activities. As such, the approach allows for flexibility, reflecting the different contexts that partners are working in. It also ensures the development process by enabling environment for smooth transitioning of various interventions from emergency and humanitarian to a combination of humanitarian, recovery and development in areas and sector-specific modalities while considering the readiness of local communities. However, the partnership is not responsible for monitoring the implementation of individual projects and programs as these continues to report to their funding sources and to the local partnership committees against agreed outputs and targets. This is particularly important to eliminate burdens in the coordination of multiple actors.

The area-based approach allows context-specific interventions that are implemented in a flexible manner in response to changing priorities within the overall unpredictability of the natural, socio-economic and political environment at the local level. This has led to a very organic, iterative way of working together that is built on continuous learning and re-orientation of both the interventions and the structures and processes that guide the partnership in each of the geographic areas. This area-based approach in which local stability and local ownership are a basis for building resilience is highly appropriate in chronic conflict contexts. Area-based coordination across a range of sectors is also essential for the realization of greater collective impacts for resilience, but a minimum level of stability is considered as a pre-requisite to the inclusive, community-driven approach to building resilience that has been developed in South Sudan.

The PfRR model calls for increased partnership and accountability between donors, UN agencies, and

neither refer purely to life-saving humanitarian action nor longer-term development outcomes. Instead, the focus is on collective outcomes at the point where humanitarian and development action meet.' OCHA, 2018. Collective Outcomes: Operationalizing the New Way of Working. Available at: https://www.agendaforhumanity.org/initiatives/5358

22 The level of vulnerability in Yambio increased due to conflict and the inability to sustain agriculture. The humanitarian community remained engaged, however, access to services remained a challenge. Due to peace-building efforts led by the local peace initiative in the region, Yambio emerged as one of the seven Candidate Partnership Areas (CPAs) to launch the Partnership. In addition, local leaders continued their commitment to create an enabling environment for greater investments in recovery.

23 Commitment among local partners to organize themselves for engagement; Existing footprint and inclusive engagement by partners among local authorities and civil society; Potential to leverage resources for impact; Local ownership and commitment to peace and recovery.

24 The area-based plans developed through the PfRR process are reported to be aligned with the State Development Plans, which are, in turn, aligned to the National Development Plan.

25 The four main workstreams are: Area Based Programming; Advocacy; Monitoring and Evaluation, Data Gathering; Knowledge Management, Learning and Sharing

non-governmental organizations at both national and local levels to ensure that support reaches the communities and households that require it. The aim is to primarily works together with communities[26] to deliver on their ambitions and commitments[27] to change and build resilience to shocks and stresses. This is realized through putting in place the core building blocks of a partnership, which include the development of resilience profiles, the formulation of shared frameworks and commitments, the establishment of "champions" and of local coordination structures, the development and implementation of joint work plans, and the creation of an accountability mechanism that reinforces the key principles guiding the Partnership. The conscious co-location and convergence of partners in the PfRR to implement or delivery the resilience framework has emerged as an efficient way to use resources as well as an important driving force in achieving lasting peace and stability in the state.

It considers each stakeholder in the process of recovery and resilience building as a ***partner*** by maintaining continuous dialogues as well as constant communication. The structures[28] and mechanisms for coordination and collaboration among actors are either put in place, built upon or strengthened the existing ones to ensure convergence and co-location to foster their adaptation. The PfRR recognizes institutions with high consideration and trust from the population as ideal partners in rebuilding relationships among community members as well as in the delivery of other services. The participatory and multi-sectoral approach of the PfRR area-based programming makes the partnership model unique in that it links and coordinates multiple partner activities working with the same people in shared geographies. As a result, this coordination and integration of complementary humanitarian and development assistance activities allow donors, UN entities, and NGOs to adjust as communities increase resilience over time.

The PfRR process requires considerable investments of time, effort and dedicated capacities for coordination. The implementation of PfRR requires the engagement of community leaders (including traditional leaders, women leaders, and youth), state leaders, religious leaders (interfaith), UN agencies, INGOs, and CSOs. Given this, the PfRR relies directly on communities and civil society to both demand and drive gains in governance and socioeconomic sectors[29], thus, facilitating the promotion of inclusive, secure, and cohesive communities that are healthy, capable and productive. The PfRR in its resilience building efforts shows that working together as one requires a coalition of the willing, which implies strong commitment from all stakeholders at all levels. It also requires an inclusive, participative and transparent consultation of all stakeholders, and a decision-making process based on consensus. A minimum level of stability is a pre-requisite to building resilience. As, such, consolidating stability and re-building trust in people and institutions is therefore a key priority of the resilience-building effort, as reflected in the first pillar of the PfRR.

To sum up, with the PfRR there are no blueprints in the resilience building process as it is an organic, iterative process that must be embraced as a positive, learning-by-doing experience which supports trial, error and innovation. Given that, It is important that the process itself is documented so that it can potentially be replicated in other areas, though the resulting plans and actions will necessarily differ in different local contexts.

Relevance to the practice of recovery

The PfRR's approach to resilience-building is based on multi-agency interventions that are community-driven, context-specific and inter-connected. It promotes convergence to nurture and broaden effective partnerships. The integrated nature of the PfRR 'New Way of working' towards meetings the various challenges and the recovery framework implementation led to interventions across a broad range of sectors to enhance communities' coping strategies. It allows for a large range of flexible funding options from all donors whether bilateral or multilateral, and from different type of funds, whether humanitarian, development, thematic vertical funds, etc. With the PfRR, there is a potential for a collective action to raise awareness, reduce vulnerabilities, and advocate for additional investment in resilience, prioritize evidence-based programming through M&E and promote learning among partners.

26 Including faith-based agencies, local leaders, women's groups, traditional authorities

27 A set of commitments that communities agree on to ensure the success of the PfRR.

28 Clear structures exist at the different levels, including a Steering Committee, Technical Engagement Group, Area Reference Groups, Pillar Leads, and Inclusive Champions Group.

29 Republic of South Sudan and UN South Sudan (2017)

Based on clear frameworks, structures and principles, the PfRR partnership can be seen as a movement of like-minded people from very different backgrounds, cultures, and organizations, driven by passion, energy and hope, committed to working towards something which is both ambitious and complex, in an extremely challenging context. The PfRR led to the support to the community-led peace initiatives which greatly contributes to build lasting stability. As a result, stabilization, recovery and resilience building is seen in both as a continuum of efforts and a multi-dimensional approach noting the larger context at stake for the sources of the conflict. While recognizing that cessation of violence, security, and access to justice are necessary, the partnership emphasizes on looking at the needs of the "individual" as a part of the conflict but also as a victim of the conflict as well as the community at large. Therefore, as the public infrastructure is rehabilitated, inter and intra community relationships are also "refurbished" and strengthened.

The attuning of programming by scaling up sustained service-oriented programming steps up recovery and development. Whereas, tailoring and adapting programs to better meet the needs of the community through community driven programming enhances community empowerment. This empowerment did not only include dialogues, negotiations and peace education but also psycho-social support, rehabilitation and socioeconomic empowerment, reintegration, and stabilization. Among other results, these efforts have led to improved access to justice and deepening democracy by strengthening rule of law and access to a judicial system that is perceived to be impartial.

The Partnership for Recovery and Resilience (PFRR) Joint Work Plan (JWP) enables the local and international entities to cooperate and enhance their resilience programming. A state-wide Joint Work Plan for the PfRR drives the ongoing recovery intervention but furthermore, it sets a joint prioritization of the steps that need to be taken to achieve progress in each of the four pillars. At a broader level, Ii helps identify gaps coupled with anticipated future needs and expected gains steps by steps in generating results and stability. Similarly, though with a much longer-term vision, the prioritization of the Sustainable Development Goals (SDGs) in South Sudan identified the urgent need for progress on SDG 16, which could then unlock progress in nearly all other SDG areas.[30] The step-by-step (or sequenced) operationalization of the resilience agenda that focuses first on consolidating stability, on conflict risks and on reducing aid dependency, lays the basis for subsequent longer-term activities that include environment management, disaster risk reduction, economic growth/development, etc. This sequenced approach allows for actions to be adjusted according to the changing context, with the final objective that strengthening resilience is a pre-requisite for sustainability and the achievement of the SDGs.

By focusing on 'areas of stability' it has become possible to implement conflict-sensitive resilience-building interventions to help people to 'bounce back' from the effects of insecurity and displacement, to help maintain stability and build trust, and to build resilience against other types of shock. As such, local communities themselves takes responsibility for promoting safety and security within their ***bomas***[31]. More broadly, strengthened social services and a revitalized local economy can also help to maintain stability and to promote the eventual return of internally displaced people (IDPs), as part expected deliverable in the 11 agenda points in the PfRR.

The PfRR establishes a conducive environment from local leadership to the partners to deliver their contribution to recovery and resilience building. The cultivation of local ownership through communities identifying themselves to the framework enhances the PfRR sustainability. Through the principle of 'community first', the PfRR supports them to 'own' their joint local priorities. Ownership extends from the leadership at state level to the ***boma*** level, e.g. through the emerging Community Development Committees that are now being formed. With this perceptive, the partnership strongly focuses on conflict sensitivity, peacebuilding and strengthening governance and accountability at community-level. As a result, it led them to reflect a growing understanding of reconciliation and peace building. At state level, the role of the governor and traditional leaders has been pivotal in ensuring inclusivity. It also acts as an essential driver for the increase willingness of traditional leadership and state structure to work hand-in-hand and recognize each other's roles in peacebuilding and strengthening community cohesion and this becomes vital to sustained partnerships.

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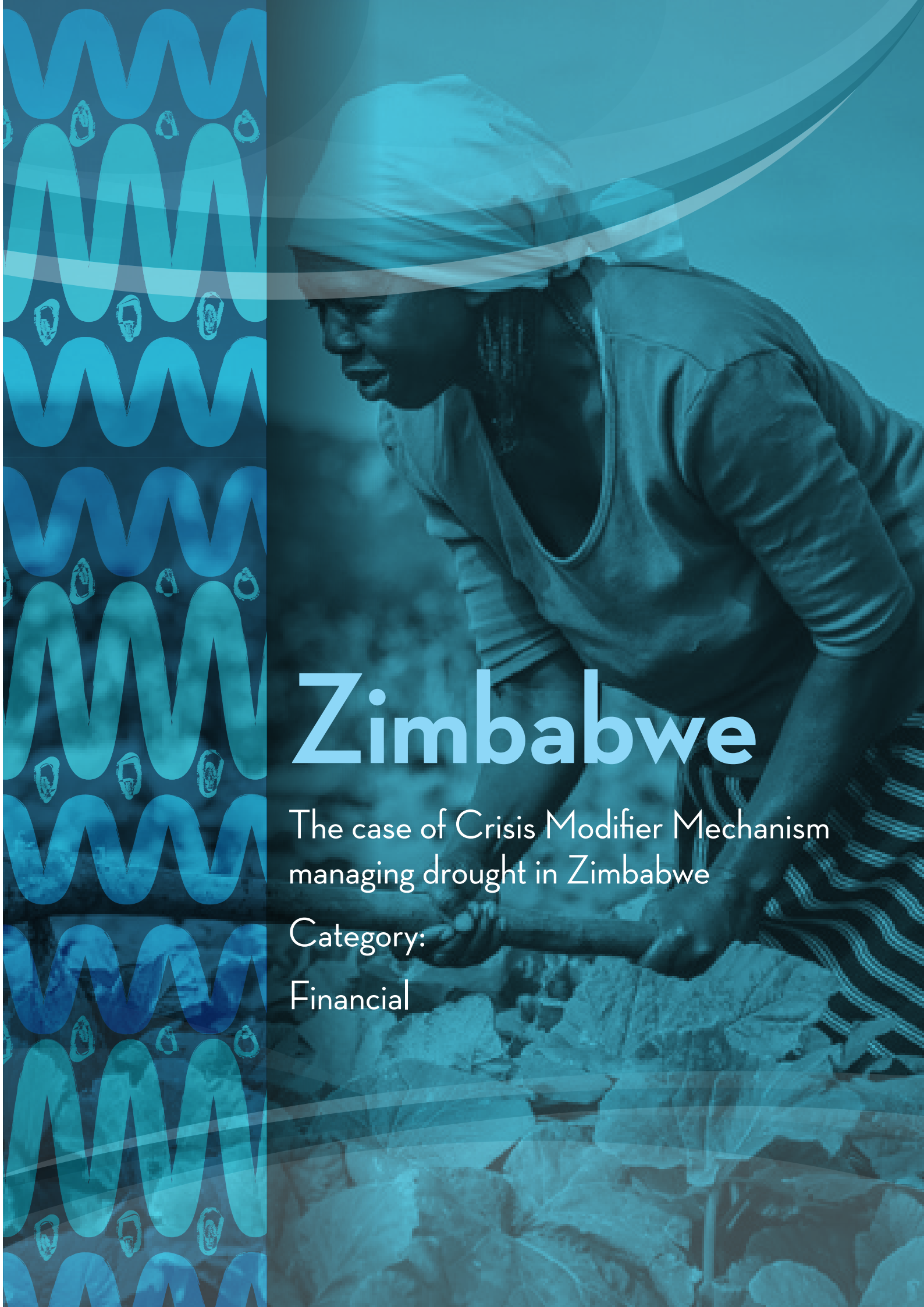
30 Republic of South Sudan and UN South Sudan (2017)

31 A boma is a lowest-level administrative division in South Sudan



Zimbabwe

The case of Crisis Modifier Mechanism managing drought in Zimbabwe

Category:

Financial

Summary

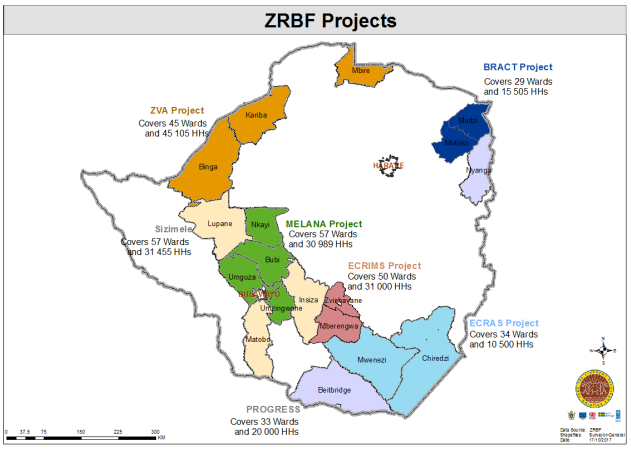


Figure 1. ZRBF target districts and their respective lead projects

The Zimbabwe Resilience Building Fund (ZRBF) made of 7 projects consortia (fig.1.), is a long-term development initiative with an overall objective of contributing to increased capacity of communities to protect development gains in the face of recurrent shocks and stresses enabling them to contribute to the development of Zimbabwe. In Zimbabwe, the 2014/15 drought, the 2015/16 El Nino and the late on-set of effective rains during the 2017/2018; 2018/2019 and 2019/2020 agricultural season threatened food and livelihood security[32] and affected the country agro-based economy whose livelihoods largely depend on rain fed agriculture and livestock production. With the drought effects, the ZRBF's projects are being undermined and these were severely impacting the poor communities, often wiping out investments made in tackling poverty and building resilience. Mostly in drought-prone districts where the shortage of pasture, water and supplementary feeding is widespread and where hunger has tormented vulnerable communities. Putting over 59% of the rural population in cereal insecurity during the peak hunger period (January to March 2020) translated in about 5.5 million rural people according to the ZimVAC [33].

The ZRBF's[34] response to these drought episodes exposed the underlying need of flexible donor funding mechanisms in resilience programming to provide a predictable, timely and cost-effective response to emergencies rolled out via existing safety net and other relevant programmes. These were addressed through the crisis modifier mechanism (CMM), an exciting and innovative risk financing mechanism within the ZRBF which provides appropriate, predictable, coordinated and timely response to risk and shocks to benefitting communities, from a resilience perspective. It is a resilience 'cushion' to crisis impact and future shock impeding development progress, designed to be ring-fenced budget contingency lines, built into existing multi-year grants. These are set up to be released when agreed early warning triggers of emerging crises are met.

Focused on drought, the funding flows to early action activities to mitigate the crisis and/or provide a vital bridge to protect development gains and prevent community to slide back, in the event of early warning signals or experience of a shock/stress that threatens development gains in 18 rural districts in Zimbabwe. It helps community deal with small-scale crisis that impede development progress and opens up new opportunities for better supporting vulnerable communities as they transition in and out of crises, without compromising wellbeing and longer-term development objectives. This resulted in protecting development gains towards breaking the poverty cycle and food insecurity by improving the most vulnerable communities' major economic drivers which are livestock and crop production and by making it possible for agricultural activities to sprout and usher the communities into a life of bountifulness for the first time.

32 For example, Farmers in Zimbabwe lost 50,000 cows in 2018 due to drought, poor grazing, lack of reliable water sources and outbreaks of diseases such as anthrax, January disease (Theileriosis) and tick-borne diseases due to lack of dipping chemicals

33 The 2019 Zimbabwe Vulnerability Assessment Committee (ZimVAC) Rural Livelihoods Assessment (RLA) report

34 The Zimbabwe Resilience Building Fund (ZRBF's) is a multi-donor program which is a currently supporting the improvement of the absorptive, adaptive and transformative capacities of the most vulnerable household in 18 rural districts in Zimbabwe via 7 projects consortia (fig.1).

Description

In support of ZRBF's resilience interventions at community level, an appropriate, predictable, coordinated and timely response to risk and shocks for participating communities have been established in the form of the CMM. The aim is to no longer held the risk of crisis in the project budget, but to convert it into an annual 'premium' and transferred out to a collectively owned facility that can pool this across different contexts and/or purchase re-insurance where needed. This ensures that there is the right money available to surge into the project, regardless of the scale of the crisis.

The CMM is operationalized via a series of nine steps based on a causal chain hypothesis that links annual contingency planning, early warning and early action to shocks/stresses and resilience outcomes protection. It is built on an extensive frequent monitoring system, and rest on a thorough analysis of the existing situation in the participating communities. These provides timeliness by removing some of the human bias in decision making, through setting clear and automatic triggers for funding that can then be validated and targeted effectively using on-the-ground assessments. The CMM is also built on the identification of an Early Warning – Early Action system based on a complex set of triggers thresholds[35] which enable to rapidly turn around proposals from ZRBF consortia partners for Crisis Modification Activities. Partners can apply for funding for early action when needed, with minimal bureaucracy and a rapid approval and disbursement process allowing communities to minimize the loss of development investments and gains and to recover quickly.

To avoid escalation of drought crisis, the CMM respond to signals that indicate that negative impacts are already happening, rather than reacting to early warnings. This has been allowed because the ZRBF projects worked closely with the community government and because those implementing these projects has seen the impact of drought on the beneficiaries. The CMM is implemented by UNDP via existing consortia partners, already implementing the "main ZRBF's program" activities on the ground. The coordination is led by Ministry of Lands, Agriculture, Water, and Rural Resettlement (MLAWRR). However, UN agencies, INGOs and NGOs are supporting the CMM implementation with technical expertise. District and Ward officials are keys actors in the CMM implementation given that the interventions are developed in consultation with the district, provincial stakeholders and communities.

As a result of the local engagement and the resulting collaborative network between all stakeholders, the CMM interventions have been appropriate and speaks well to the district response plans/contingency plans for the seasonal outlook. More importantly, the CMM implementation gives to farmers the opportunity to prioritized water harvesting, water management technique, borehole drilling and rehabilitation, and solar water harvesting techniques. These were issues particularly raised in the drought-prone districts while facing the agricultural season with longer, more frequent dry spells and fewer more intense rains, in which most farmers which were undertaking livestock season activities, were losing livestock due to lack of reliable water, outbreaks diseases[36], poor grazing, inadequate pastures and lack of dipping chemicals as a result of the extreme dry season. The sandy soils were not good for farming and the dryness makes it difficult to access water. These water accessibility – related problems make it difficult for agricultural and pastoral activities to sprout. People were just surviving under very difficult conditions. As the CMM is a people-centered approach it is going a long way in creating and reinforcing community and household resilience capacities[37] during shock events and building their capacities around shock mitigation.

The CMM has been embedded as a function into the multi-year ZRBF programming via a set of Standard Operating Procedures (SOPs), that can adapt to each context. It is financially sustained with an independent budget line under ZRBF ideally holding at any point in time 20% of the remaining programmable resources. CMM is managed by the United Nations

35 Alert stage such as an abnormal soil moisture levels indicate an emerging drought.

36 Such as anthrax, January disease (Theileriosis) and tick-borne diseases due to lack of dipping chemicals

37 *"The ability of at risk individuals, households, communities and systems to anticipate, cushion, adapt, bounce back better and move on from the effects of shocks and hazards in a manner that protects livelihoods and recovery gains, and supports sustainable transformation."* (Building Resilience in Zimbabwe: towards a resilience strategic framework, March 2015.

Development Program (UNDP) and co-funded by the same partners funding ZRBF. The CMM however, is also open to additional donors, for specific contribution. For example, during the 2019/2020 season, the government of Denmark channeled 2.9 M USD through the ZRBF CMM as part of their humanitarian contribution to combat hunger. This is a practical example of how ZRBF can function as a practical application of the Humanitarian-Development Nexus.

A CMM response is activity or cash based and build upon existing structures where possible to reach people in time and cost effectively, with a particular focus on the needs of female and single headed households. Since the ZRBF started in 2015, the CMM was activated four (04) times. It focuses on activities that, following more detailed contextual analysis and community resilience planning, offer protection against erosion of development gains achieved under core projects activities; and it reinforces good practice activities identified as core projects activities that, in the light of the prevailing shock/stress, needed to be accelerated or expanded to a larger beneficiary base. It provides early response to the recurrent drought crises that had a direct impact on project sites and to the sudden outbreak of livelihoods activities as well as to the resultant food security crisis in the targeted communities. The benefits gained from the CMM takes the process of resilience and sustainable development further than it has ever been in disaster reduction in Zimbabwe.

In the aftermath of the crisis, with the CMM, it was able to plan effective and accurate set intervention to respond with early action to the immediate and remaining needs and rebuild crucial protective infrastructure where the needs were highest, to provide a cushion of resilience to the community in respect with the trigger factor which was a high likelihood of poor rains. Thus, mitigating the potential risk of loss of acquired assets from ongoing interventions and the impacts of a lower than average rainfall season on human and livestock food and water scarcity by promoting production of drought tolerant small grains, fodder production, fodder preservation and improving the availability of water for both humans and livestock. This also sets a step toward strengthening farmer knowledge and response strategies to minimize human, crop and livestock loss as a result of the adverse effect of drought.

In Nkayi district, a solar-powered borehole was drilled. Using the solar-powered pump system, nine taps of 30 000 liters storage tanks have been installed including at a local school and a community garden. Singeni villagers, deep in the heart of Nkayi District in Matabeleland North are now the proud owners of a piped water scheme and solar-powered system that has improved their lives in the community - a prized possession which acts as a store of wealth. Drought damage meant communities were even more exposed to small drought events that the existing infrastructure/practices could have managed. The protecting demonstrated effect of the CMM provides wider reaching infrastructure-based actions to help community to not only rely on natural resources actions to protect individual livelihoods. The infrastructure is deemed to be related to a 'chronic' which is a new need that had emerged after the flash drought impeding the already undergoing activities.

Solar water pump in Singeni Village in Nkayi District

The chairman of the dip tank committee at the dip tank

Pipe water

Vegetables production

Until recently, Singeni community had no dip tank and the villagers were travelling a long distance to dip their cattle in Lupane while women and children, especially girls, would agonise over water scarcity, walking more than 5km to the nearest water source. Now communities managed to get water close to their doorsteps while their cattle are no longer dying of diseases as a dip tank was constructed in their ward. They no longer travel the painful and energy sapping distances of more than 10km to Lupane to dip their cattle. Life has become a little more comfortable than before. Sengeni village have found an answer to the shortage of dipping chemicals which now protect their pastoral activities. The new Singeni community dip tank now services 117 households with more than 1 700 cattle removing the burden of walking long distances as the water taps are located within a manageable radius from the nearest households. Women and girls are also greatly assisted. Their traditional role of looking for water has been made easy because we now have taps running.

The CMM investment in the pipe water help to stabilize safe agricultural production in the villages and enable beneficiaries to plan a safe crop season regardless of the potential occurrence of drought. Piped water is now helping the Singeni community to produce vegetables. In Nkayi, villagers did not have gardens to grow vegetables because they had no access to water. As a result, they brought the vegetables each time they travel to Nkayi center which was a bit strenuous and was eating much into their shallow pockets. Now they had succeeded to grow vegetables on land that could not previously be cultivated because of droughts.

The CMM intervention promotes the small grain production in the communities as these are more drought-tolerant and can sustain the people during

A 50kg of bush meal feed for livestock

Umzingwane women save dying cattle

dry spells. It supported a group of women in Sibangani Village, Ward 4 in Umzingwane District, Matabeleland South named Vusanani. They also produce seed banks of local genetically-preserved seeds as a fallback plan so that when the initial seed fails to germinate, one can still go to the seed bank for another seed and re-sow. They had broken a new ground in agribusiness by producing affordable stockfeed that has saved cattle from drought. Their stockfeed – Vusanani Bush meal Feed, has become a survival tool for livestock following high cattle deaths in the province. A 50kg packet of stockfeed made by the women is ZWL$100, cheaper than feed produced by corporates who sell for an average ZWL$300. Now, Vusanani has become the envy of Sibangani Village, as its members are self-sustainable, having also managed to run a profitable hammer mill. The group started off investing in money and lending it to other locals at five percent interest.

Relevance to the practice of recovery

The crisis modifier mechanism (CMM) in the ZRBF's has proven to be relevant to resilience building, early response, risk and recovery management practice in various ways. Firstly, the CMM is an innovative risk financing option which addresses for the first time the need for an agile and flexible programming mechanism to respond to environmental changes that threaten the development gains and investments made by the ZRBF. The CMM offers practical means and propose a set of intervention to protect the fragile development gains and prevent vulnerable communities from sliding back after the resilience support. It offers a way to cushion livelihoods from forecasted impacts of anticipated shocks and thus minimize the risk of participating households and communities to require external assistance during crisis.

Secondly, The CMM allows development agencies to respond quickly to anticipated **crises**, while continuing to invest in programmes that address the root causes of people's vulnerability to shocks and stresses. It is not just treated as a simple bolt-on to projects. Addressing risk here is elevated to the core of resilience-building. As a result, program that intends to build resilience for communities at the grassroots level considers the resilience of the programme itself. This is mostly important in contexts vulnerable to climate change, natural hazards, and conflict, where crises are not a peripheral possibility.

Thirdly, The CMM is becoming a vital step towards humanitarian and development aid working more effectively together. The CMM implementation shows that working to address crises in development projects requires a fundamental shift in the way development actors design, think and act. The CMM offer a means for development and humanitarian actors (where desirable and appropriate) to work coherently together to address disaster risks in specific locations. This allow opportunity for greater cohesion in working to address both the symptoms of vulnerability through humanitarian aid and the root causes through development programming.

Fourthly, the CMM is relevant in the resilience process with the inclusiveness of its implementation process which reinforce local ownership and transparency. It calls for a participatory process which engage relevant government stakeholders in decision making through the steering committee. It also engages district stakeholders and the community in participatory scenario planning through continual consultation and in line with the government goals. The CMM implementation indicates that it is a people – centered approach focusing on the most vulnerable and their real needs and ensuring they are adequately supported to successfully be engaged in the resilience building process.

Finally, based on a multi-hazard approach, the CMM offers the potential for crisis modifier activities funding to come from varying humanitarian and development sources which include modifications to core budget, a special contingency line in a development budget, funding from humanitarian sources and special risk funds. It is a long-term development initiative which provide the opportunity to change priority in the core activities as the needs occurs. Flexibility for adaptive programming and management approaches now became essential to resilience building programs and its effectiveness to mitigate shocks/stresses effects as well as to deal with transitions into recovery and back to 'normal' development programming. This highlights the relevance of the annual contingency planning on which to base the CMM response.

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Compendium

Good Practices in Asia Pacific Region

Bangladesh

Use of Drone Technology in post disaster recovery assessment in Bangladesh

Category of the practice:

Organizational[38] and Managerial[39].

38 Inter institutional and government coordination of recovery.

39 Inclusive and participatory processes that promote wide stakeholder participation such as the private sector, engagement of specific groups of the society such as women, youth, the elderly, IDPs, disabled etc.

Summary

Map: Bangladesh in South Asia

Bangladesh in South Asia is one of the world's most vulnerable countries to cyclones and floods. Over the last few decades, cyclones and associated storm surges and floods have caused humanitarian, physical and economic losses in the country. Climate change is expected to exacerbate the country's extreme vulnerability to hydro-meteorological hazards, as its location is in a seismically active and high-risk region.

The Government of Bangladesh, with support from UNDP, has over the years shifted from reactive relief to proactive risk reduction, which has reduced the impact of the disasters on people and assets. Institutional mechanisms have been established to focus on policies, strategies and planning for disaster risk reduction (DRR). These include, the Flood Forecasting Warning Centre, National Disaster Management Council along with coordinating structures that embraced civil society organizations and local government authorities, and UNDP supported multi-donor Comprehensive Disaster Management Programme. This shift to comprehensive planning for disasters was strengthened by prioritizing DRR in national fiscal planning, development of early warning systems and the introduction of innovative technology in house construction and resilient livelihoods.

However, post disaster recovery is less well organised in Bangladesh which tends to be uncoordinated. In May 2016, Cyclone Roanu[40] made landfall in Bangladesh causing significant damage and loss. Following immediate relief and response, UNDP initiated a Multi Sectoral Needs Assessment (MSNA) exercise in Banshkhali upazila of Chittagong district. The MSNA was a comprehensive assessment and a unique feature was the use of drone technology to assess damage and loss.

Description

Bangladesh is vulnerable to natural hazards, particularly tropical cyclones and floods. While the country has established policies and systems for disaster management, particularly with regard to early warning, emergency response and risk reduction, post disaster recovery is not as well institutionalized. Following a disaster, usually the affected communities initiate their own self-recovery. The Government engages in sectoral recovery with Line Ministries leading and investing in the recovery of their own sectors, often without cross-sectoral coordination. The lack of planning and coordination has been a missed opportunity for integrating build back better measures in the recovery process, thereby increasing peoples' vulnerabilities and creating chronic conditions of risks.

In May 2016, Tropical Cyclone Roanu made landfall in Chittagong district, causing significant physical

40 Tropical Cyclone Roanu made landfall in the southern coastal region of Bangladesh on the 21st May 2016. The storm caused heavy rainfall, winds of over 100km/h, and storm surges raised up to a height of about 2.7 metres. Seven coastal districts were affected by the cyclone: Chittagong, Cox's Bazar, Bhola, Barguna, Lakshmipur, Noakhali and Patuakhali. Early warning systems were well activated, and 5 million people were evacuated to cyclone shelters prior to the landfall along the coast. The storm destroyed houses, uprooted trees, breached embankments causing floods, swept away fisheries and interrupted power supply systems. The cyclone left 27 (15 men and 12 women) people dead and 1.3 million affected.

damage and economic loss. UNDP Bangladesh took an initiative to carry out a Multi Sectoral Needs Assessment (MSNA) exercise in Banshkhali Upazila of Chittagong district with the objective of developing and testing the MSNA methodology using drone technology to identify cross-sectoral impacts. The overall objective of the MSNA was to provide a coordinated and comprehensive assessment to develop a recovery plan for the affected community.

The MSNA exercise was a first of its kind in Bangladesh. The value of damage and loss across sectors at the local level was valued and an early recovery plan was developed. The most unique factor was the application of drone captured imagery in the local level damage assessment. The use of drones helped to provide quick and accurate damage data.

Figure 1 explains the process of how drone imagery was collected, analyzed and applied to developing early recovery plans. The disaster effects on different sectors such as agriculture, aquaculture, housing/ settlements, critical infrastructure etc. due to Cyclone Roanu were assessed through high resolution (4/5 cm spatial resolution, 64-bit data) imagery, which were captured by operating unmanned drone flights over Banshkhali Upazila. The captured imagery was geo-referenced so that these could be compared with other geo-referenced information like previous satellite images to detect change and integrate the data with different vector-based GIS information like mauza[41] maps with plot level demarcations.

Figure 1: MSNA Process using Drone Imagery

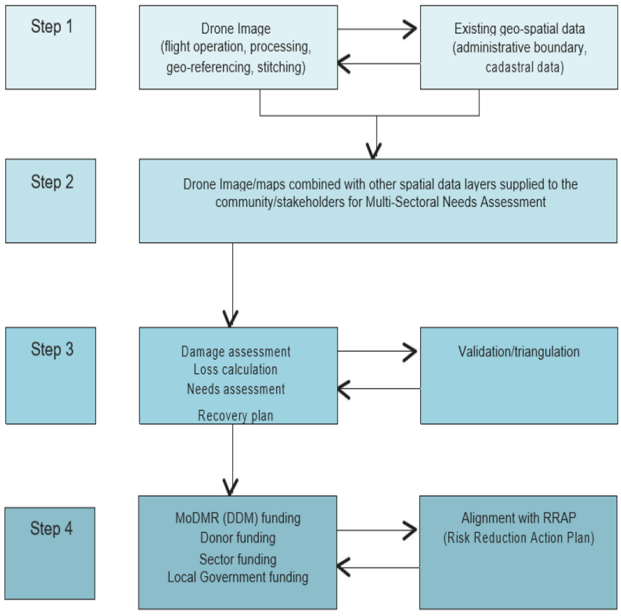


Figure 2: Flight area in Banshkhali Upazila covered by drone based aerial photographic survey

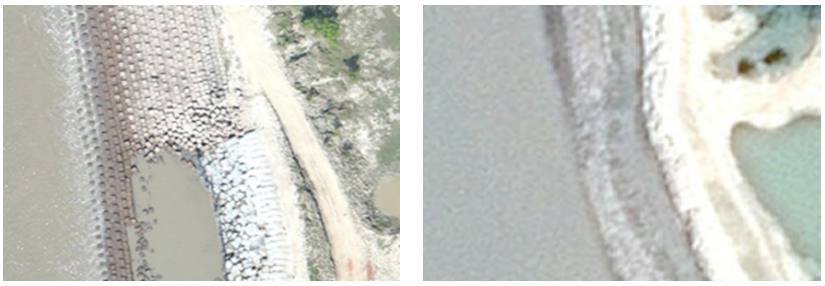
Based on the analysis made with the drone imagery, the monetary value of the loss and damage was estimated by relevant stakeholders and experts through a series of workshops at the national and local level. UNDP also conducted key informant interviews to prioritize the impacted areas for recovery initiatives under the leadership of the Ministry of Disaster Management and Relief (MoDMR) and Department of Disaster Management (DDM). The process to prioritize sectoral needs involved a wide range of relevant organizations, communities and individuals from the affected population themselves; together with the Line Ministries and the private sector. On the basis of this information, short-term, medium-term and long-term recovery interventions were identified and a five-year recovery plan with budget developed. The aggregate damage and loss across all sectors were estimated at Taka 123 crores (US$ 14.4 million) in Banshkhali and Taka 116 crores (US$ 13.6 million) for recovery needs. This information was used by the government, non-government organisations and donors in targeting their budgeting, planning and recovery fund disbursement.

The MSNA exercise showed how the use of drone images could help to carry out the assessment more efficiently, accurately and in a more participatory way. Community members were more engaged in the exercise since they could recognize the damage to their assets and properties in the drone imagery.

41 Local administrative unit in Bangladesh

Picture 1: Comparison between Drone Imagery and Google Earth Imagery

Drone Image **Google Earth Image**



Collapsed Dam

Damaged House

Furthermore, compared to satellite imagery, drone imagery is higher resolution, less costly and less technical in application. Aerial photos captured by drones could be easily used by less technical experts, so it is more accessible to local communities.

By overlaying cadastral [42] data on top of drone image, it was possible to quickly and accurately analyse the impact of the damage caused by the cyclone. While processing drone imagery requires time, it is much less compared to physical assessment and satellite imagery.

Relevance to the practice of recovery

The MSNA recovery experience of Bangladesh is a unique one and relevant to the recovery practice. Firstly, it was a first of a kind recovery process in the country undertaken by complementing in the field multi-sectoral needs assessments with state-of-the-art drone imagery by providing timely, detailed and accurate data to make the process more comprehensive.

Secondly, the recovery process was a participatory one, with community engagement and identification with the drone generated images of damages to their areas. The government and other stakeholder who also participated in the process, found the drone technology central to planning for the immediate, medium term and longer-term recovery planning.

Thirdly, being a relatively lower cost, widely available and easy to use technology it is more accessible to the communities who once trained can use this for future risk reduction purposes (tracking the changing coastline, vegetation cover, etc.).

The MSNA exercise has set up standards in Bangladesh for multi-sectoral assessments. The use of drone technology to accelerate assessments and thereby recovery in the country has potential to be replicated in future disaster assessments in the country. Based on drone operating laws in other countries, drone imagery can be used in other contexts as well.

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References

1. Multi-Sectoral Needs Assessment for Recovery of Cyclone Roanu Impact in Banshkhali Upazila of Chittagong District

42 (Of a map or survey) showing the extent, value, and ownership of land

Indonesia

Post Disaster Recovery Transformation, Indonesia

Category of the practice: Organizational [43], Managerial [44] and Financial [45].

43 Inter institutional and government coordination of recovery.

44 Inclusive and participatory processes that promote wide stakeholder participation such as the private sector, engagement of specific groups of the society such as women, youth, the elderly, IDPs, disabled etc.

45 Promotes the development of dedicated financial mechanisms for recovery with legally binding mechanisms, addresses cash transfer options.

Summary

Indonesia, a diverse archipelago with over seventeen thousand islands in Southeast Asia, sits on the Pacific "Ring of Fire"[46] and is therefore vulnerable to volcanic eruptions, earthquakes and tsunamis.

While the country has experienced multiple natural hazards, the turning point in its disaster risk reduction (DRR) strategy came after the devastating 2004 Indian Ocean Tsunami. The Government took several actions: established the National Coordinating Board for Disaster Management (Bakornas PB 2005-2008); enacted a Disaster Management Law (Law No. 24) in 2007; c) established the National Disaster Management Agency (BNBP) in 2008; and d) developed a Disaster Recovery Framework, one of the first in the world.

Indonesia's development plans consistently promote disaster management in the country. The 2015-2019 plan outlined Indonesia's disaster management policy with an aim to reduce risk, increase the resilience of national and local governments and support communities facing disasters. Most recently, the 2020-2024 plan highlights DM as a strategic priority for the country to converge disaster risk reduction (DRR) and climate change adaptation (CCA).

The post disaster recovery transformation in Indonesia resulted in the setting up of clear institutional mechanisms to respond to current and future disasters and address vulnerabilities. Through laws, frameworks, guidelines and databases, the country has institutionalized disaster management including recovery and is an example for other countries the world over.

Description

Indonesia is a major emerging global economy; however, it is in one of the world's most disaster-prone areas and is at risk from extreme weather and geophysical events[47]. The adverse impacts of these across sectors, compounds the vulnerabilities of the country[48]. Over the last few decades, there have been an average of 289 significant natural disasters per year and an average annual death toll of approximately 8,000[49].

In 2000, the National Coordinating Board for Disaster Management and Refugee Management (Bakornas PBP) was set up to address social issues around displacement caused by disasters. Following the 2004 tsunami, the government set up the *Agency for the Reconstruction and Rehabilitation of Aceh and Nias* (BRR), to coordinate multiple agencies engaged in the recovery process. To address risk reduction concerns, the National Coordinating Board for Disaster Management (Bakornas PB) was established (2005-2008). To have a more comprehensive DM system in place (Figure1), dealing with emergency response,

46 Path along the Pacific Ocean characterized as the world's most seismically and volcanically active zone (USGS).

47 Natural Disasters Risk Index (2011)

48 10% of 264 million population lives below poverty line; many public services (health, education) accessible to all

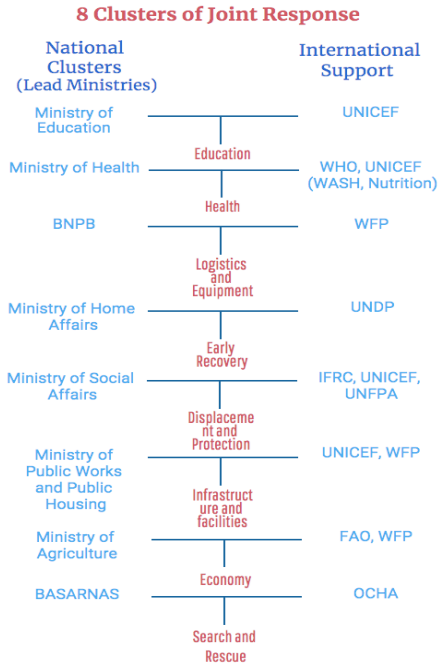
49 GFDRR, Indonesia, https://www.gfdrr.org/en/indonesia

Figure 1: Institutional Changes in Recovery

recovery, mitigation and preparedness, the DM Law of 2007 led to the constitution of the National Disaster Management Agency (BNPB) in 2008 with a mandate to formulate a Recovery Policy and coordinate implementation of the Recovery Programme[50]. A Regional Agency for Disaster Management (BPBD) at provincial and district/city levels was established to decentralise recovery.

The National Disaster Response Framework (NDRF), one of the few in the world, was also created by the new recovery and reconstruction regulations. It articulated the legal and institutional arrangements, role of lead agencies, timeline for recovery, planning process, funding sources and monitoring and evaluation mechanisms required for recovery. The framework, supported by the New Zealand Government, outlined eight national clusters led jointly by the Government of Indonesia (GOI), the UN and other international agencies (Figure 2) to manage the recovery process. It aligned these to the Incident Command System (ICS)[51] and established the Government Reserve Fund for disaster response[52]. It constituted a response coordination framework and mechanism to support affected communities and institutionalize global best practices and disaster response mechanisms into the government system. The Post Disaster Needs Assessment (PDNA) and formulation of the Action Plan for Rehabilitation and Reconstruction (Renaksi) emerged as key elements of the recovery planning process, involving local government and other key stakeholders.

Figure 2: 8 Clusters of Joint Response, Indonesia



50 Provision to constitute an ad hoc coordinating agency for recovery, when needed, to assist the BNPB.

51 Standardized incident management approach to improve coordination and communication among the various actors and agencies involved in disaster response. (supported by USAID/OFDA)

52 USD 47 million allocated for 2018, UNDP

UNDP [53] has supported Indonesia to manage a few recovery and reconstruction programmes using this framework [54]. In 2010, as part of the comprehensive, multi-donor and multi-funded (IMDFF-DR)[55] Mount Merapi (eruption) rehabilitation and reconstruction project, UNDP partnered with BNPB and the New Zealand government to set up a Village Information System for Disaster (SID). The SID is a tool to digitize data, which made it more accurate and efficient to access[56] information following the eruption and resulted in a faster and informed recovery and reconstruction process to aid the victims and affected areas. Since 2012, UNDP has supported the strengthening of SID as an Early Warning System (EWS) to mitigate disaster risk in the region. This tool is an inclusive one as both village communities and the government can access and update it resulting in more efficient information management, response timeframe and effective planning for disaster risk.

UNDP supported other initiatives under the Merapi Recovery Response (MRR) project, jointly with FAO and IOM, to further the objectives of the DRR based Rehabilitation and Reconstruction (DR4) umbrella project, in partnership with BNPB and Bappenas[57]. Special emphasis was placed on livelihood recovery and diversification[58] for alternative income generation to build resilience in the community, especially for the most vulnerable including women[59]. Initiatives included strengthening local government capacities to coordinate DRR based recovery programmes and mainstream into district level DM plans; coordinating support for implementation of rehabilitation and reconstruction activities; and participating in monitoring information systems (SID, longitudinal study etc.) periodically to assess the impact of recovery on for strategic planning[60].

Figure 3: Disaster Recovery Index

UNDP also supported BNPB in developing training modules on a range of recovery related tasks including recovery planning, funding, management, implementation, and monitoring and evaluation. Based on the global PDNA methodology, UNDP supported BNPB to localize and institutionalize the PDNA (JituPASNA)[61]. This enabled the GOI to align essential aspects of the PDNA with national recovery governance and financing as regulated by the National Disaster Management Law. Overall, these initiatives increased BNPB's capacity to lead post-disaster recovery planning.

In 2013, Indonesia launched a Disaster Recovery Index (DRI), a joint collaboration between BNPB and UNDP through DR4 (MRR) and other DRR forums[62] in

53 United Nations Development Programme

54 Post-earthquake West Sumatra 2009, HRNA first rolled out through PDNA (combined with DaLA), post-tsunami Mentawai recovery, post- Mount Merapi eruption in DI Yogyakarta and Central Java recovery

55 Indonesia Multi Donor Fund Facility for Disaster Recovery (IMDFF-DR) established by GoI, World Bank, UN

56 Number of people evacuated etc

57 Badan Pembangunan Nasional – Bappenas, Ministry of Development Planning.

58 Batik making, stalls selling local snacks etc. for those who've lost their livelihoods due to disaster.

59 Vocational training for women to set up snack stall, batik shops etc.

60 Combination of measure change in communities over time and use of technology like GPS to assess sectors.

61 Localized and institutionalized recovery needs assessment methodology adopted from the global PDNA methodology formulated by UNDP, World Bank and the European Union (EU)

62 DRR Forum Yogyakarta, Central Java and Survey Meter

the country to measure the progress of recovery[63] in communities affected by the Mount Merapi eruption and cold lava floods in 2011. The DRI is a unique data analysis tool to help government and stakeholders better understand the post- disaster challenges that communities and individuals face (Figure3). In this multi-stakeholder role sharing approach, UNDP provided support to coordination, data collection training, reporting and publication. The main objective of DRI is monitoring, evaluation and analysis of the recovery process and to implement suitable adjustments to ensure recovery interventions will increase resilience leading to sustainable development pathways.

To further strengthen the recovery and reconstruction process, UNDP partnered with the GOI to initiate the Safer Communities through Disaster Risk Reduction in Development (SC-DRR) programme over two phases between 2007-2016 to make DRR and climate risk management part of the regular development planning[64], embedded in the core functions of the central and local governments and public and private partners. Particular emphasis was placed on local communities, to reduce people's vulnerability through public awareness raising[65] and education[66] as well as community level DRR initiatives[67] to build resilient communities. Furthermore, institutional strengthening was undertaken in a twofold manner – through the setting up of the National Platform on DRR[68] (and provincial level forums) and a national Indonesian Disaster Information Database **(DIBI)** with similar databases in the target provinces, to ensure multi-stakeholder coordination of recovery. By providing historical data on disasters, DIBI is a useful tool for developing risk maps, formulating disaster management plans and coordinating disaster response. SC-DRR provided training for local users and administrators in order to maintain and update the system. As a digital database, DIBI makes disaster information easy to update, review and retrieve. As a result, the GOI was able to ensure the safety and resilience of its communities by mainstreaming DRR principles into development policies, laws and regulatory frameworks for informed planning.

The 2015-2019 development plan based on the Sendai Framework[69] and Sustainable Development Goals (SDGs) further advanced the DRM agenda and national priorities to include, improving the understanding and use of disaster risk information; enhancing community-driven development; strengthening urban resilience and continuing initiatives to strengthen the resilience of school infrastructure. In 2016, BNPB launched **InaRISK,** an interactive risk assessment portal that summarizes the result of disaster risk assessment as data services that describe disaster prone areas, impacted population, potential physical and economic loss and potential environmental damage. It also maps hazard vulnerability and acts as a mechanism for spatial data sharing (GIS service). UNDP contributed to its establishment by providing data services essential to its functioning. As a tool for monitoring the disaster risk reduction index, it supports various stakeholders to understand disaster risks and develop policies and strategies in implementing disaster risk reduction programmes.

In 2018, GOI-UNDP initiated the PETRA[70] project (2018-2021), after two large-scale disasters (West Nusa Tenggara[71] and Central Sulawesi)[72], to support medium and longer-term recovery. This KfW[73] funded project, coordinated under IMDFF-DR, is to align with other recovery interventions by the government and international partners. It facilitates UNDP to engage with national and provincial governments

63 Variables determining community recovery- restoring infrastructure, housing, livelihoods, social etc.

64 Development plans, legislation – National Disaster Management Plan, National Action Plan on DRR etc.

65 Media campaigns in target provinces – North Sulawesi, Central Java, DIY etc.

66 Supporting Ministry of Education (MOE) formulate the National Strategy on Disaster Education and the development of a comprehensive disaster education curriculum.

67 Training of masons on earthquake-resistant building techniques, local disaster preparedness and evacuation planning.

68 Bringing together civil society, private sector and government to discuss and advocate DRR policies.

69 State has the primary role to reduce disaster risk along with others i.e. local government, private sector etc.

70 Programme for Earthquake and Tsunami Infrastructure Reconstruction Assistance

71 West Nusa Tenggara - Nusa Tenggara Barat (NTB)

72 Earthquake in NTB, Earthquake, Tsunami and soil liquefaction in Central Sulawesi

73 KfW Development Bank, Germany

and international partners (World Bank, ADB, JICA[74]) to contribute to rehabilitation and reconstruction of key infrastructure to support the resilient recovery of disaster-affected communities in both provinces. It addresses the need to accelerate the restoration of critical public services (eg. health, education), improve economic livelihood opportunities for affected communities while enhancing resilience to future shocks. A vulnerability and gender[75] sensitive approach to build back better is being adopted to ensure future resilience and development for all. Moreover, a scientific geological analysis with the National Geological Agency was undertaken to enable application of risk preventive measures and a data-driven planning process. Critically, the project is guided and informed by nationally-led and locally driven recovery efforts, with a view to ensure full national and local ownership and sustainability.

Most recently, the GOI's 2020-2024 plan underscores DM as one of its seven strategic priorities[76] to improve disaster resilience through the convergence of DRR and CCA by strengthening information systems (data), regulation and governance of disaster, especially through the integration of the Action Plan for Disaster Reduction with the Action Plan on Climate Change Adaptation at the national and regional level. This will be complemented by integration of inter-regional cooperation and risk based spatial planning and implementation of DM. In addition, strengthening emergency management, rehabilitation and reconstruction along with multi-hazard mitigation systems (INATEWS, MHEWS); increased mitigation and management of disaster infrastructure; and strengthening preparedness through social re-engineering of multi-level disaster resilience (especially family, community, village). Through the implementation of the National Adaptation to Climate Change in priority sectors, the aim is to increase climate resilience is through the protection of the coastal and marine sector, water security in climate risk areas, food security, public health and general environment protection against climate change impacts. This will be undertaken through strengthening eco-system based adaptation of infrastructure, public awareness, diversification of income generation of at risk communities and development of technology.

Another critical area is the increased development and innovation of alternative financing measures for DM. Indonesia has been using integrated strategies like blended financing, multi-donor funding and its own national disaster reserve fund to finance recovery. Moving forward, with support from the World Bank, Indonesia is developing disaster risk financing and insurance mechanisms that could ease the burden on the state budget, create reserves for future disasters and play a critical role to protect public assets and accelerate recovery.

To conclude, UNDP support to GOI in strengthening its disaster management process, particularly to build a recovery planning system and implement it based on principles of disaster risk mitigation (DRM) has enabled the government to lead from the front in establishing and consolidating it's recovery practices. This has led to a transition from response and early recovery to longer term recovery by institutionalizing it through progressive policies, laws, frameworks and path-breaking techniques to make the recovery process more dynamic and adaptable to changing scenarios. Furthermore, UNDP also harnessed its global and regional network to exchange information and lessons learned about DRR, especially across Asia where similar DRR initiatives have been underway[77]. This has benefited Indonesia in critical information sharing and building relations across the region and with international agencies to enhance its disaster management process and take a lead in showing the way to recovery.

Relevance to the practice of recovery

The recovery process in Indonesia is relevant to the recovery practice and path breaking in many ways. Firstly, the government understood the need to transition from emergency response to disaster management (recovery, mitigation and preparedness) for meaningful and longer-term

74 ADB – Asian Development Bank, JICA – Japan International Cooperation Agency

75 Livelihood, leadership and participation in recovery; differently abled and gender friendly infrastructure etc.

76 Priority 6- building the environment, improve disaster resilience and climate change

77 The Convergence Group has played a critical role in sharing information and understanding between GoI and the international community and continues to coordinate UN agencies and other donors engaged in disaster management in Indonesia

resilience building. This resulted in establishing institutional mechanisms, laws, frameworks and tools for recovery at various levels of government and in the community. This *institutionalization of recovery* signaled the government's intent to approach disaster management in a comprehensive manner employing proactive measures of disaster risk reduction (mitigation and preparedness), emergency response, and recovery (rehabilitation and reconstruction) to ensure future resilience to the impacts of disasters.

Secondly, the government envisaged *recovery as a collective effort* on the part of various stakeholders with complementing roles and functions. This resulted in *decentralization of recovery* (national, provincial, local), which made it more inclusive by taking on board the needs and aspirations of different levels of government, civil society and most of all, the affected communities (especially the vulnerable like women). Furthermore, involvement of stakeholders across the board in recovery initiatives (housing reconstruction, livelihood diversification and managing of digital databases) gave it widespread acceptance and further importance in building resilience to future shocks and stresses.

Thirdly, by *forming partnerships* with international organizations like the UN, the GOI benefited from their technical expertise in the recovery process. While the government took a lead on recovery it was supported by these agencies through joint recovery measures (PDNA, early recovery, mainstreaming DRR in planning with UNDP). In addition, GOI could take advantage of the regional networks and platforms created by these agencies to share its recovery experiences with other countries and learn from theirs. This further strengthened *inter institutional and government coordination of recovery.*

Fourthly, the partnership with UN agencies enabled the government to *align its recovery objectives* with those of *international frameworks and guidelines* like the SDGs and the Sendai Framework, as well as the MDGs and HFA that preceded them[78]. This ensured that a *build back better approach* to address underlying risks was employed for long-term recovery, which encompasses the multi-year process of returning to sustainable development. This correlation of disaster management to the development process is central to any recovery process and made the Indonesian one more relevant.

Fifthly, a unique aspect of the Indonesian recovery process has been the dynamic digital databases. They take into account historical data and continuously build upon current data, updating it to make it more relevant. These innovative and dynamic tools are inclusive, both capturing data and needs of the most vulnerable along with enabling government and communities to access and manage the database to address the changing nature of disasters. Communities therefore have as much control over the data and its use in the decision-making process as the government. As a result, they have informed and enriched the planning and decision-making process of recovery in the country. Indonesia has played a pioneering role in this respect with DRI[79], and informative and comprehensive tools like InaRISK are already being adapted with UNDP support in other countries facing similar disaster risks.

Finally, the financing of recovery in Indonesia drew on different *funding mechanisms* such as government budget, specific recovery funds, government schemes, private sector, insurance as well as international donors. The adoption of this blended financing approach along with IMDFF-DR helped allocate resources efficiently, avoided duplication and wasteful use of resources and most importantly spread the risk of financing with a view to longer-term building of financial stocks to tackle future risks.

Indonesia has come a long way in addressing disaster-associated vulnerabilities and successfully putting in place frameworks, guidelines and structures to enhance preparedness and recovery. This has been achieved in a proactive manner at all levels of governance and society to ensure longer-term sustainability and resilience.

78 MDGs – Millennium Development Goals; HFA – Hyogo Framework for Action

79 A significant tool to measure success of recovery programmes, provide extremely valuable information to policy makers on how to design long-term recovery programmes.

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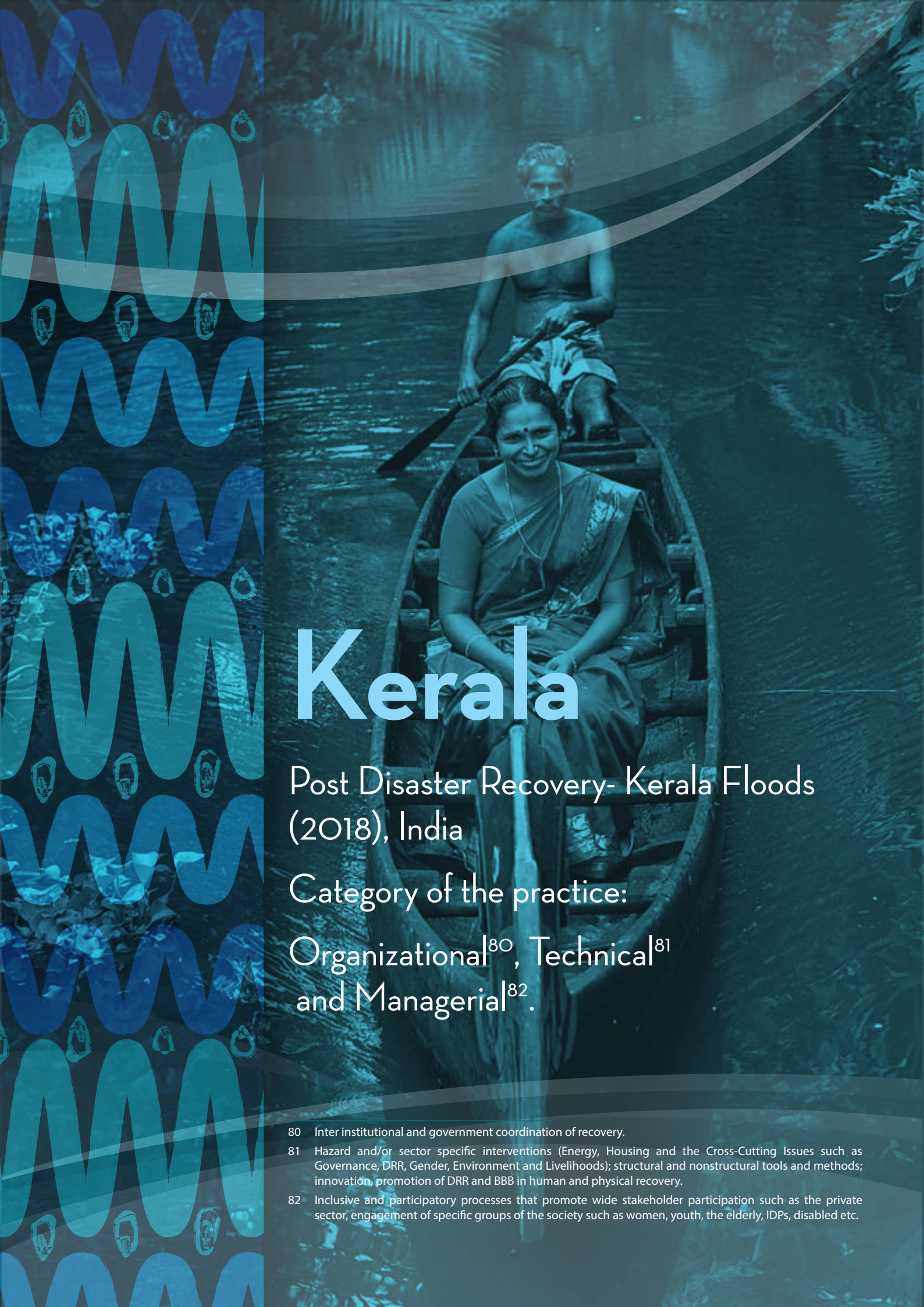
References

1. Disaster Management System, Indonesia, BNPB, accessed at: https://bnpb.go.id/sistem-penanggulangan-bencana
2. Disaster Relief for major natural calamities: KfW supports Indonesian government in reconstruction, KfW; accessed at: https://www.kfw.de/KfW-Group/Newsroom/Latest-News/Pressemitteilungen-Details_500288.html
3. FCG New Zealand (FCG-ANZDEC Ltd.), Successfully Completed Disaster Response Project in Indonesia; accessed at: https://fcg.nz/successfully-completed-disaster-response-project-in-indonesia/
4. Germany extends Euro 25 million assistance to UNDP Indonesia to rebuild quake hit Central Sulawesi and NTB, UNDP Indonesia; accessed at: https://www.id.undp.org/content/indonesia/en/home/presscenter/pressreleases/2018/9/germany-extends--25-million-assistance-to-undp-indonesia-to-rebu.html
5. History of the establishment of BNPN, Government of Indonesia; accessed at: https://bnpb.go.id/sejarah-bnpb
6. InaRISK, Government of Indonesia; accessed at: http://inarisk.bnpb.go.id/
7. Indonesia Overview, The World Bank; accessed at: https://www.worldbank.org/en/country/indonesia/overview#1
8. Indonesian Multi Donor Fund Facility For Disaster Recovery (IMDFF-DR); accessed at: http://mptf.undp.org/document/download/5910
9. Indonesia, GFDRR; accessed at: https://www.gfdrr.org/en/indonesia
10. Building Indonesia's Resilience to Disasters, GFDRR; accessed at: http://documents.worldbank.org/curated/en/318951507036249300/pdf/106245-REVISED-PUBLIC-Building-Indonesia-s-Resilience-to-Disaster.pdf
11. Indonesia, Advancing a National Disaster Risk Financing Strategy- Options for Consideration, GFDRR; accessed at: https://www.gfdrr.org/sites/default/files/publication/Indonesia_DRFI_Report_FINALOct11.pdf
12. Incident Command System (ICS) Performance Evaluation, Indonesia, DevTech; accessed at: https://devtechsys.com/insights/2018/06/20/incident-command-system-performance-evaluation-indonesia/
13. Launching of the World's First Disaster Recovery Index, UNDP Indonesia; accessed at: https://www.id.undp.org/content/indonesia/en/home/presscenter/pressreleases/2013/11/27/launching-of-the-world-s-first-disaster-recovery-index.html
14. Programme for Earthquake and Tsunami Infrastructure Reconstruction Assistance (PETRA), UNDP; accessed at: https://www.id.undp.org/content/indonesia/en/home/projects/PETRA.html
15. Straits Times, Indonesia adopts new financing and insurance strategy to tackle disasters; Published 10 October 2018; accessed at: https://www.straitstimes.com/asia/se-asia/indonesia-adopts-new-financing-and-insurance-strategy-to-tackle-disasters



Kerala

Post Disaster Recovery- Kerala Floods (2018), India

Category of the practice:

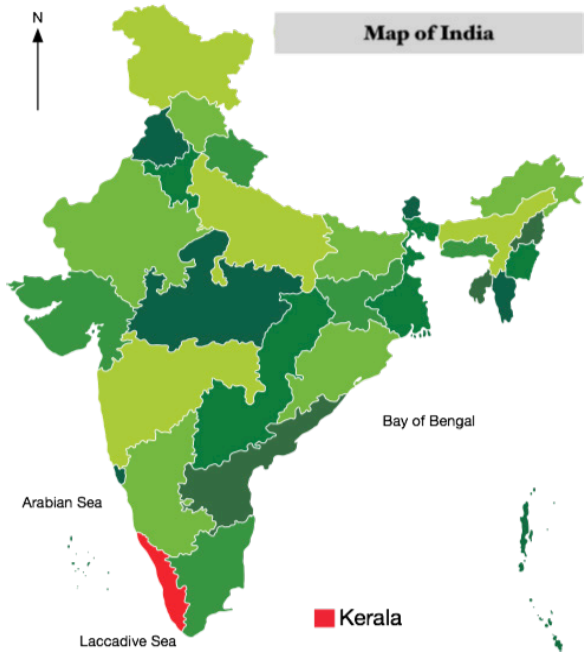
Organizational[80], Technical[81] and Managerial[82].

80 Inter institutional and government coordination of recovery.

81 Hazard and/or sector specific interventions (Energy, Housing and the Cross-Cutting Issues such as Governance, DRR, Gender, Environment and Livelihoods); structural and nonstructural tools and methods; innovation, promotion of DRR and BBB in human and physical recovery.

82 Inclusive and participatory processes that promote wide stakeholder participation such as the private sector, engagement of specific groups of the society such as women, youth, the elderly, IDPs, disabled etc.

Summary



Map 1
Map of India depicting Kerala

In August 2018, Kerala, a coastal state in southwest India, experienced torrential rainfall leading to the worst floods in almost a century. All 14 of its districts[83] were impacted by floods and landslides[84], affecting 5.4 million people, displacing 1.4 million and taking 450 lives[85].

The floods exposed the underlying vulnerabilities in the state across key sectors, which were identified through a multi-sectoral assessment and planning process. This was led by the Government of Kerala and supported by international agencies and civil society organizations with an aim to rebuild a green, resilient and inclusive Kerala. The recovery process was initiated by a comprehensive Post Disaster Needs Assessment (PDNA),[86] a first of its kind in India and the establishment of the Rebuild Kerala Initiative (RKI) for an inclusive and resilient recovery and rebuilding.

Description

The unprecedented floods and landslides led the state government to undertake a comprehensive assessment to evaluate the damage, loss and recovery needs post disaster. In September 2018 a PDNA was carried out by a team led by the Government of Kerala (Ministry of Revenue and Disaster Management and Directorate of Fisheries, Kerala State Disaster Management Authority [KSDMA][87]) in partnership with the National Disaster Management Authority (NDMA), 10 United Nations (UN) agencies, the European Union (EU)[88] and civil society organizations

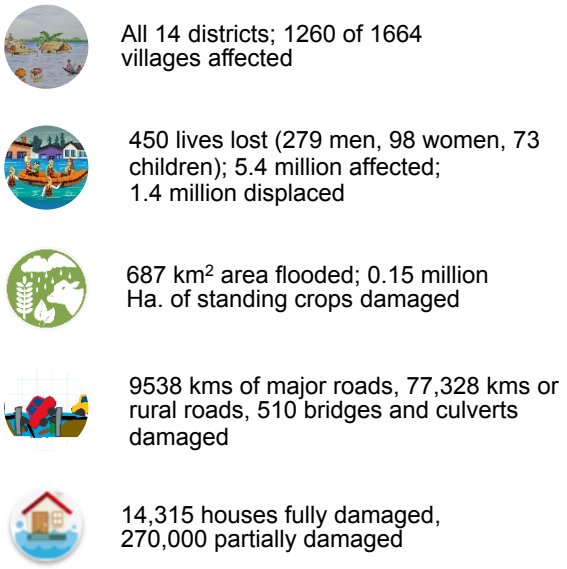


Figure 1 Impact of the floods Kerala

83 7 worst affected districts were Pathanamthitta, Alappuzha, Kottayam, Idukki, Ernakulam, Thrissur and Wayanad

84 Incessant rainfall triggered landslides, forced release of excess water from 37 dams aggravating impact.

85 Kerala State Disaster Management Authority

86 A standard methodology developed in 2008 by the UN, World Bank and EU to harmonize assessment and recovery strategy to be used internationally for damage, loss, and recovery needs of any disaster.

87 Kerala government disaster management body constituted under the Disaster Management Act of India (2007)

88 FAO (Food and Agriculture Organization), ILO (International Labour Organization), UNDP (United Nations Development Programme), UNEP (United Nations Environment Programme), UNESCO (United Nations Educational, Scientific and Cultural Organization), UNFPA (United Nations Population Fund), UNICEF (United Nations Children's Fund), UNWOMEN, WFP (World Food Programme), WHO (World Health Organization); ECHO (European Civil Protection and Humanitarian Aid Operations)

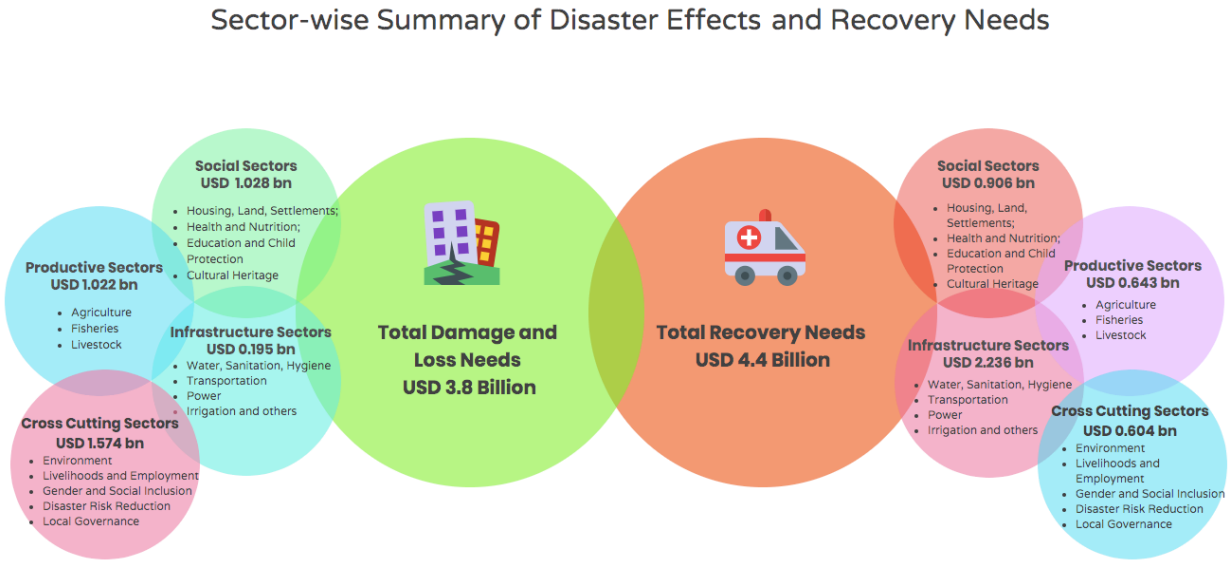


Figure 2: Sector-wise Disaster Effects and Recovery Needs

and complemented the Joint Rapid Damage and Needs Assessment (JRDNA) carried out by the World Bank (WB) and Asian Development Bank (ADB). The damage caused by the floods and the accompanying landslides was estimated to be USD 3.8 billion and the recovery needs were estimated at USD 4.4 billion.

The main aim of the PDNA was to assess the damage, loss, and recovery needs across key affected sectors of the state economy and put in place planning mechanisms to reduce future risks and build resilience at all levels of government, economy and society. Through the PDNA process, the Government of Kerala articulated its vision of a Nava Keralam (New Kerala) as a Green and Resilient Kerala. As a result of the assessment, the Rebuild Kerala Initiative (RKI) was established to develop, coordinate, facilitate and monitor the Rebuild Kerala Development Programme (RKDP), a resilient recovery policy framework, that rests on 4 Pillars (Figure 3) and several essential building blocks and innovations that define priority action areas and groundbreaking ideas across sectors.

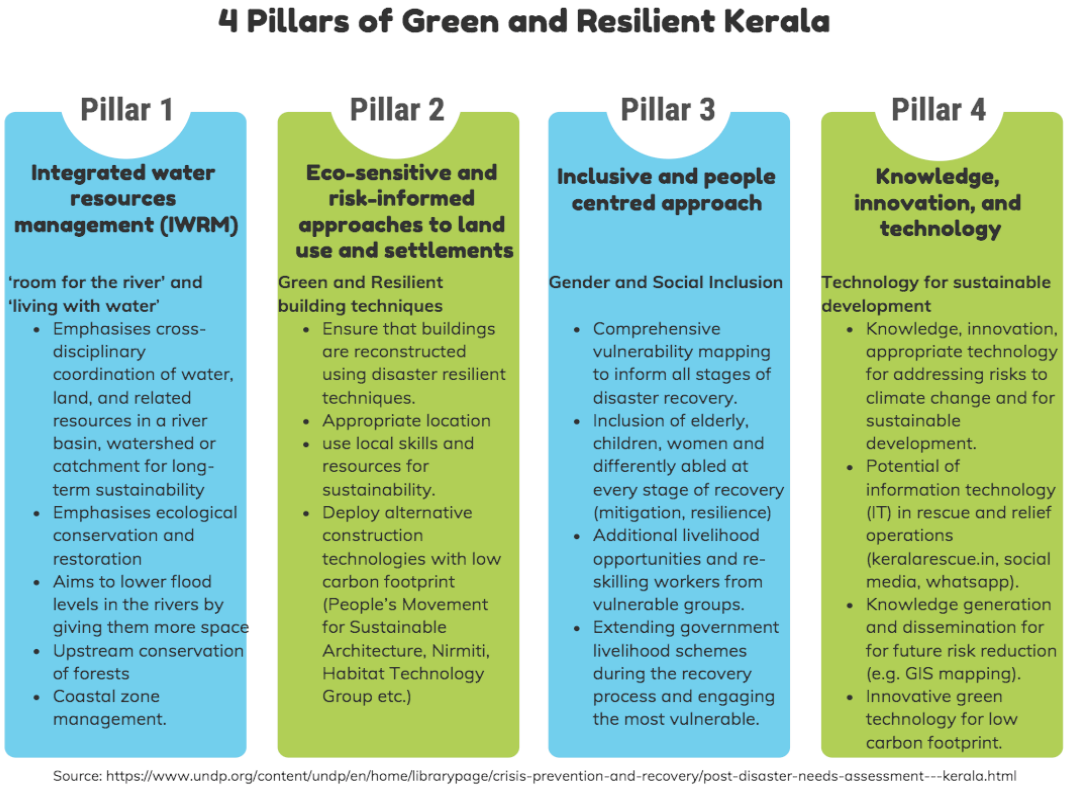
Figure 3 explains the 4 Pillars of Green and Resilient Kerala that emerged from the recovery needs and strategies for building back better across sectors. For instance, measures towards achieving this in the agriculture sector include reviewing land use patterns to maximize their natural eco-system functions and *changing consumption patterns* to minimize environmental footprint. Closely linked to this is Integrated *Water Resources Management (IWRM)* for a balanced approach to land, water and natural resource management[89]. Reconstruction measures include putting in place *sustainable building guidelines and maximizing the use of solar energy* to power all new buildings constructed to reduce carbon footprint[90]; greening of *schools and health care infrastructure facilities*[91] and ensuring the availability of clean drinking *water, sanitation and hygiene*. Building on the potential of information technology as seen during the rescue and relief process[92], proposed measures aim to develop early warning systems and effective communication with enhanced GIS/tech-backed capabilities for last mile connectivity and

89 Focus on legislation and education on multiple uses of water resources; their security and management etc.

90 Using local environmentally friendly construction materials, technologies and designs to regulate the internal environment of the buildings to reduce the energy consumption and carbon footprint

91 Building designs based on local climatic conditions, green building principles; strengthening biodiversity parks in schools and allocating resources to health facilities most at ecological or hazard risk.

92 Whatsapp groups and website www.keralarescue.in helped identify victims, camp locations/requirements, volunteer registration. Rebuild Kerala app. For damage assessment and CMDRF for mobilizing funds for recovery.



Source: https://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/post-disaster-needs-assessment---kerala.html

Figure 3: Pillars of Green and Resilient Kerala

effective mitigation and preparedness[93]. Innovative measures include the *creation of green technology and integrated solid waste management centres* as cooperative societies in villages to improve the environment quality[94] and lead to the creation of *green jobs* for the people (install and maintain green technology). The creation of a *green tourism sector* through the better maintenance of natural resources, proper waste management and introduction of an eco-tax for tourists would also contribute to Kerala's vision of becoming a green state. Tourism would get a boost by making *cultural heritage* more resilient by getting livelihoods back on track and employing the building back better approach to tangible, intangible and movable heritage.

Following the PDNA, a number of organizations supported the state government to implement recovery actions across sectors. In early recovery, a synergy of UN[95] agencies established a technical Project Management Unit (PMU) to support the Kerala government to address the socio-economic impacts across sectors in a holistic manner. Strengthened by the success, the partnership resulted in further joint recovery initiatives supported by the 5-7 member[96] expert PMU based at the KSDMA office to provide technical support and coordination to shelter reconstruction, livelihoods and DRM. In addition, 7 UNDP District Project Officers (DPOs) were placed with the district administration of the seven most affected districts.

UNDP supported the government's *shelter reconstruction* project by establishing facilitation centres called *shelter hubs*[97] with the aim to provide *technical assistance* to multiple community stakeholders (masons, house owners, contractors, engineers) involved in house reconstruction. The activities of these hubs focused on promoting disaster resilient and sustainable construction practices

93 Geo-tagging beneficiaries to track compensation; virtually consolidating databases and social audits.

94 Recycling, domestic composting and sewage management

95 Expertise of different UN agencies used– UNDP (emergency shelters), UNICEF (WASH), FAO (food security) etc.

96 UNDP recovery coordinator, technical experts in shelters, livelihood, DRM, documentation etc.

97 Pathanamthitta, Idukki and Wayanad (10 hubs in 3 districts); government scaled up to 30 hubs state-wide.

Photo 1: Flood Resilient House Reconstruction on Stilts

Photo 2: Kudumbashree - Trained women masons

through consultancy, outreach, advocacy, networking and *resource mapping* to locate critical buildings such as schools and hospitals, along with updated data for efficient response[98]. The government set up additional hubs along these lines, to take the process forward. As of March 2020, 9,684[99] houses had been completed and multiple stakeholders[100] oriented on DRR and green house construction methods[101]. In addition, *building guidelines* **incorporated DRR for longer-term resilience to explore context specific alternative ecological practices and multi-hazard resilient design and construction practices[102].** Worth noting here is that this was an inclusive process with vulnerable groups (women, differently abled) consulted in the housing design and involved in the construction process[103]. UNDP's *financial assistance* to the most vulnerable flood affected house owners[104] for repairing their houses or constructing transitional shelters, was also scaled up by the government[105].

UNDP provided critical and timely assistance to government programmes[106] for the socio-economically vulnerable for *green job* creation in *agriculture* and related activities[107], preventing the loss of another cropping season and ensuring minimum impact to *food security*. Supporting vulnerable women for a quick and effective recovery of livelihoods for income generation reduced their risk of falling into debt and increased their *livelihood security*. Therefore, both in the housing construction and agricultural sector, '*green jobs*' to develop local skills for future *sustainability and self-reliance* were put in place to make the people more resilient to future climate shocks and stresses.

UNDP's technical support was given to KSDMA on *DRR programmes* on school safety, hospital management and virtual cadre roll out to improve climate literacy and promote decentralized action for adaptation and mitigation. As part of this, schools[108] were supported

98 Inventory of available manpower, building materials - their cost, vendors (for renewable energy systems, decentralized waste management and rain water harvesting systems)

99 As of March 2020 with an aim to complete 17,067, Government of Kerala (RKI)

100 934 masons (369 women), 203 house owners, 60 contractors and 373 civil engineering diploma students

101 Waste management and rain water harvesting etc.

102 Building houses on stilts as a measure of flood protection

103 Trained women masons through Kudumbashree for livelihood generation.

104 Criteria of selection – families with members having longer term health issues, differently abled persons and women headed households with young children (5,000 beneficiaries in three districts)

105 Prathyuthaanam scheme in 8 districts supporting 7,300 beneficiaries.

106 Kudumbashree; Government of Kerala poverty reduction and women empowerment programme and MGNREGA a rural employment guarantee scheme

107 40,000 person-days (cash for work programmes - desalination and preparation of land for re-cultivation) 500 beneficiaries (recovery kits) and 200 emergency grants (small start-ups) for immediate recovery of enterprise.

108 28 schools (2 in each in 14 districts) with plans to cover all schools in the state.

in preparing Disaster Management (DM) plans and school curriculum incorporated DRR elements to build the capacity of children in the longer term. DM plans were also developed in government hospitals[109] at the district level with plans to replicate this across major hospitals state-wide. Furthermore, UNDP supported *seminars* and *trainings* in school and hospital safety[110] and virtual cadre[111] and civil society organizations like RedR to train community representatives[112] in disaster resilient construction practices and quality monitoring. In addition, *Information Education and Communication (IEC) materials* were developed and distributed in all districts for awareness raising on various risk reduction and preparedness measures. These included, a handbook on Flood and Landslide Resilient Housing in Kerala, brochures on Flood Resilient Construction Practices and Inclusive House Design to name a few. *Information dissemination* to a wider audience was carried out through statewide exhibitions and road shows[113] to promote disaster resilient housing. Round table consultations were aimed at providing technical advice to the government to facilitate informed decision making in housing reconstruction.

To surmise, UNDP played a pivotal role through its technical expertise and manpower to support the state government in the recovery process in Kerala. Critically, by building a relationship of trust with the government, UNDP managed to embed its response through the administration to facilitate longer-term post disaster recovery and reconstruction. This was reiterated when the government contracted several UNDP technical experts to support the reconstruction process. UNDP also successfully liaised between the government, civil society and private sector to enhance the recovery coordination[114].

Relevance to the practice of recovery

Recovery planning in Kerala has proved to be relevant to the recovery practice and core UN recovery interventions in various ways. Firstly, the Kerala PDNA was a first of its kind effort in which *inter institutional and government coordination of recovery* took place with the Government of Kerala taking the lead, supported by the central government and in partnership with various bilateral and multilateral agencies like the UN and World Bank, as well as civil society groups. A team of over 75 experts and 300 government and civil society representatives came together to collect and analyze data across key sectors. A core team led and coordinated the assessment process including the drafting of the PDNA report.

Secondly, the PDNA formed the pathway to *'green' planning* and a *resilient* Kerala. As a result, the RKI, a new *institutional arrangement for recovery* was *set up* to develop, coordinate, facilitate and monitor the RKDP through a *participatory and inclusive* process. The uniqueness of the RKDP is that it goes a step further from the already established Kerala State Disaster Management Plan (2016) to constitute a strategic roadmap for a green and resilient Kerala, while encompassing crosscutting and sector-based policy, regulatory and institutional actions as well as priority investment programmes that are critical for resilient and sustainable recovery and rebuilding of the state[115]. This indicates that green recovery is envisioned for planning for future disasters in the state. Furthermore, the *implementation* of the *building back better* recovery practice has followed the green model by using latest available green technologies, eco-friendly building strategies, giving more room to rivers and learning to live with floods. This is a step towards ensuring future resilience to climate uncertainty in programme planning.

Thirdly, the PDNA and recovery process engaged the participation of local self-government officials, bureaucrats and technical experts in line with goals of the government. This combined with continual consultations with community representatives

109 14 hospitals

110 1,644 people (792 men, 852 women)

111 Departmental nodal officers for DM responsible for supporting district and state authorities

112 2,058 engineers and masons (1,159 men, 899 women)

113 8 exhibitions (2,000 people) and 8 roadshows (7,300 people)

114 UNDP DPOs bridged grassroots with government - facilitated Tata Trust to access government schemes for recovery of its affected tea plantations.

115 Address drivers of floods, natural hazards, climate change risks, strengthen preparedness to future disasters.

highlighted the inclusive nature of the recovery process. It has been a *community driven* process, which reinforced *transparency*, *ownership* and *collective responsibility* to guarantee the marginalized got selected, prioritized and supported[116]; and participated in driving forward the recovery process making it more relevant and sustainable.

Finally, the *PDNA set a precedent* for future such assessments as was seen in the swift response and mobilization of resources and experts for a PDNA after the Odisha cyclone in 2019[117]. Both the state and national governments were familiar with and amenable to using the PDNA as a tool by then and it resulted in a faster approval of the process by the concerned government authorities. Therefore, the Kerala recovery experience proved to be *replicable* in that it was *adaptable* to similar post disaster situations elsewhere. With growing capacities and tools on PDNA, this further enhanced the national recovery planning system and formed a basis to develop a national cadre of recovery experts. It established that *institutionalization of recovery* has now become a priority for the national as well as state governments, which took a lead in the process, with intent to approach future risk reduction and resilience measures by following the green recovery model. Going forward from the two PDNAs, the central government issued guidelines on PDNA[118] based on existing tools and methodologies and further collaboration is sought from UNDP to support their roll out through capacity building at various levels[119]. This indicates seriousness on the part of the government's approach to recovery planning and an acceptance of the post crisis assessment and planning propagated by the UN system.

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References

1. Kerala State Disaster Management Authority, Reports, accessed at: https://sdma.kerala.gov.in/floods_2018/
2. KSDMA Memorandum 1 – Floods 2018, accessed at: https://sdma.kerala.gov.in/wp-content/uploads/2019/08/Memorandum1-Floods-2018.pdf
3. KSDMA Memorandum 2 – Floods 2018, accessed at: https://sdma.kerala.gov.in/wp-content/uploads/2019/08/Memorandum2-Floods-2018.pdf
4. Rebuild Kerala Initiative (RKI), accessed at: https://rebuild.kerala.gov.in/en/
5. Rebuild Kerala Development Programme (RKDP), accessed at: https://kerala.gov.in/documents/10180/5f7872f9-48ab-40c8-bf3f-283d8dceacfe
6. Prathyuthaanam scheme, Government of Kerala, accessed at: https://sdma.kerala.gov.in/prathyuthaanam/
7. Kudumbashree, Government of Kerala, accessed at: http://www.kudumbashree.org/

116 Social Inclusion and Vulnerability mapping (ecologically sensitive zones, areas where marginalized affected)

117 Cyclone Fani made landfall in Odisha on the east coast of India.

118 National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Government of India (2019)

119 Training programmes at the national and state level

8. Kerala State Disaster Management Plan 2016, accessed at: https://sdma.kerala.gov.in/wp-content/uploads/2018/11/Kerala%20State%20Disaster%20Management%20Plan%202016.pdf

9. National Institute of Disaster Management (NIDM), Handbook on Post Disaster Needs Assessment India, accessed at: https://nidm.gov.in/PDF/pubs/handbook_pdna.pdf

10. United Nations, Resident/Humanitarian Report on the use of CERF Funds in India, Rapid Response, Flood 2018, accessed at: https://cerf.un.org/sites/default/files/resources/18-RR-IND-31935-NR01_India_RCHC.Report.pdf

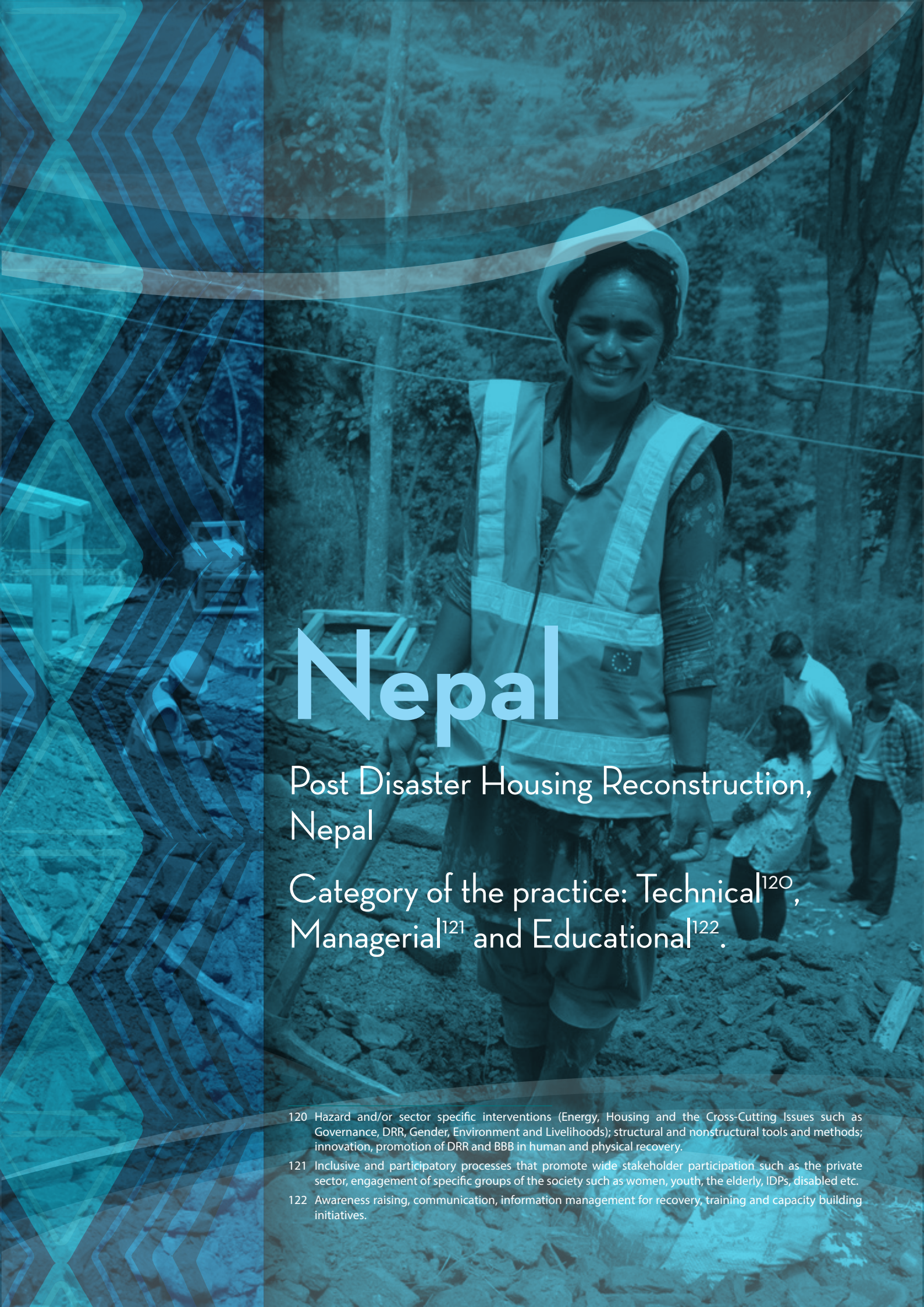
11. UNDP, Post Disaster Needs Assessment, Kerala 2018, accessed at: https://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/post-disaster-needs-assessment---kerala.html

12. UNDP, Post Disaster Needs Assessment, 2014, accessed at: https://www.undp.org/content/undp/en/home/2030-agenda-for-sustainable-development/planet/disaster-risk-reduction-and-recovery/post-disaster-needs-assessments.html

13. World Bank, Commits Support to Rebuild a more Resilient Kerala, accessed at: https://www.worldbank.org/en/news/press-release/2018/10/16/world-bank-commits-support-to-rebuild-a-more-resilient-kerala

14. World Bank, Resilient Kerala Program, accessed at: http://documents.worldbank.org/curated/en/476681561946430308/pdf/India-First-Resilient-Kerala-Program-Development-Policy-Operation.pdf

15. World Bank, Program Information Document, accessed at: http://documents.worldbank.org/curated/en/428421551979689773/pdf/Concept-Program-Information-Document-PID-Resilient-Kerala-Program-P169907.pdf



Nepal

Post Disaster Housing Reconstruction, Nepal

Category of the practice: Technical[120], Managerial[121] and Educational[122].

120 Hazard and/or sector specific interventions (Energy, Housing and the Cross-Cutting Issues such as Governance, DRR, Gender, Environment and Livelihoods); structural and nonstructural tools and methods; innovation, promotion of DRR and BBB in human and physical recovery.

121 Inclusive and participatory processes that promote wide stakeholder participation such as the private sector, engagement of specific groups of the society such as women, youth, the elderly, IDPs, disabled etc.

122 Awareness raising, communication, information management for recovery, training and capacity building initiatives.

Summary

Map: Nepal in South Asia *(Encyclopedia Britannica)*

Nestled in the Himalayas and its foothills, Nepal is in a region highly vulnerable to the impacts of natural hazards and climate variability. In recent times it has experienced more frequent and high intensity hazards such as earthquakes, floods[123], flash floods, cloud bursts, GLOFs[124] and droughts on the one hand; and secondary hazards such as landslides, mud flows and slope failures as a result of torrential rains on the other. To reduce risks and increase the resilience of its communities, Nepal has developed institutional mechanisms, laws, policies and frameworks to implement disaster management (recovery, mitigation and preparedness) at the national, provincial and local levels[125]. Following the 2015 earthquake, the Government of Nepal (GoN) conducted a Post Disaster Needs Assessment (PDNA) to assess the damage, loss and recovery needs and mobilized resources for the large scale reconstruction and recovery efforts. A year later, the Post Disaster Recovery Framework (PDRF) laid out the policy, institutional, financial and coordination mechanisms to implement the recovery and reconstruction programme in the country.

The earthquake caused significant damage across all sectors, especially housing in all 31 districts. The Government of Nepal embarked on a massive housing reconstruction programme covering over 800,000 households across 31 districts in Nepal with support from many partners, including the Government of India (GOI)[126]. The Nepal Reconstruction Authority (NRA), set up in 2016 was responsible for coordinating the housing recovery programme. The main aim of the UNDP- GOI Nepal Housing Reconstruction Project (NHRP) 2018-2021, is to directly assist earthquake-affected families in the Gorkha district, enabling them to reconstruct their homes in a desirable and timely manner, in line with GoN's reconstruction guidelines, standards and processes through socio-technical facilitation services.

Description

Nepal has been increasingly susceptible to multiple geological and hydro- meteorological hazards. In April 2015, a 7.6 magnitude earthquake struck the Gorkha district and its surrounding areas, followed by several hundred aftershocks of over 4.0 magnitude. These resulted in physical, social and economic devastation with around 9,000 casualties and over 22,000 people

Figure 1: ODR Components

123 Kosi floods 2008

124 Glacial Lake Outburst Floods

125 National Planning Commission (NPC), National Reconstruction Authority (NRA), National Emergency Operations Centre (2010), Reconstruction and Rehabilitation Policy (2016), Disaster Risk and Management Act (2017) etc.

126 Government of India has committed US$ 1 billion, of which US$ 150 millions is for housing reconstruction

injured[127]. Over 800,000 houses were destroyed, another 75,000[128] damaged and several UNESCO world heritage sites within Kathmandu Valley's seven World Heritage Monument Zones[129] were severely damaged.

The Government of Nepal's (GoN) NHRP commenced in March 2018 focusing on housing, education, health and cultural heritage. Safer reconstruction of 50,000 houses is being undertaken in two districts, Gorkha (26,912 houses) with UNDP support and Nuwakot (23,098 houses) with UNOPS (United Nations Office for Project Services) support. The housing reconstruction programme is being implemented through an Owner Driven Reconstruction (ODR) approach. Based on government guidelines, the ODR is being adopted since most reconstruction will take place in rural areas that traditionally follow an owner-led self-build approach (Figure1). To facilitate self-building, it is essential to support house owners to access finance, materials, knowledge, technologies, skills and land, together known as 'socio-technical facilitation' (Figure2), which is also critical to promote safe reconstruction. To effectively deliver high quality socio-technical facilitation services, UNDP has partnered with the Owner Driven Reconstruction Collaborative (ODRC) in India. The ODRC is a network of registered institutions in India working to support national and state governments in instituting and facilitating the owner driven housing reconstruction process[130]. The ODRC in Nepal includes four participating organizations from India that are working along with local partners to implement the components of the NHRP (Figure2).

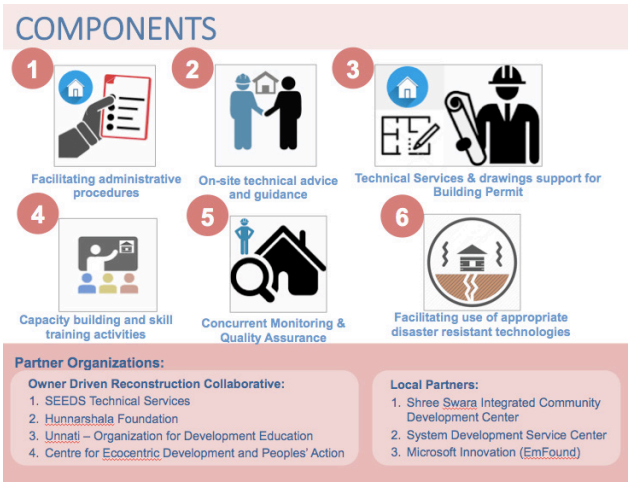


Figure 2: NHRP Components and Partners

The NHRP commenced three years after the earthquake, therefore an assessment of the prevailing status of the housing reconstruction process was carried out. UNDP supported a Beneficiary Status Survey (BSS) of the project households in the Gorkha district, to provide an overview of the present status of housing reconstruction and assess the needs for support on social and technical aspects. The survey concluded that a significant number of households, including the most vulnerable such as Women Headed Households, People with Disabilities etc. entitled to receiving the housing grant provided by the GoN, require hands-on socio-technical assistance to build safer and code-compliant structures.

The NHRP is being coordinated by the NRA at the national level. At the central level, a Project Management Team (PMT) provides overall guidance and managerial support including liaison, coordination, reporting to GoI and GoN/NRA. A Core Technical Team (CTT), comprising of heads of the four ODRC partner organisations, provides technical guidance, mentoring and handholding to the project teams based in two urban (*nagarpalika* or NP) and six rural (*gaupalika* or GP) municipalities in Gorkha district. At the district level, a District Support Team, with technical and social experts, leads coordination, project management with quality assurance and documentation. The project team at the GP/NP level, comprising of trained engineers, architects and mobile masons (ANS)[131], community facilitators (CF) and team coordinators; works directly with the house-owners, facilitating the administrative process, providing on-site advice and training of masons to strengthen the housing reconstruction process. In addition, field offices have been set up in strategic areas across administrative levels to additionally support the implementation of the project.

127 PDNA, Sector Report 2015

128 UNDP, NHRP Gorkha (Paper)

129 Krishna Mandir, Vishveshvara, Bhimsen Temples in Patan; Svayambhu Stupa, Changu Narayan Temple etc.

130 ODRC supported Governments of Kashmir (2005 earthquake), Bihar (2008 Kosi floods) in India

131 Awas Nirman Sathi

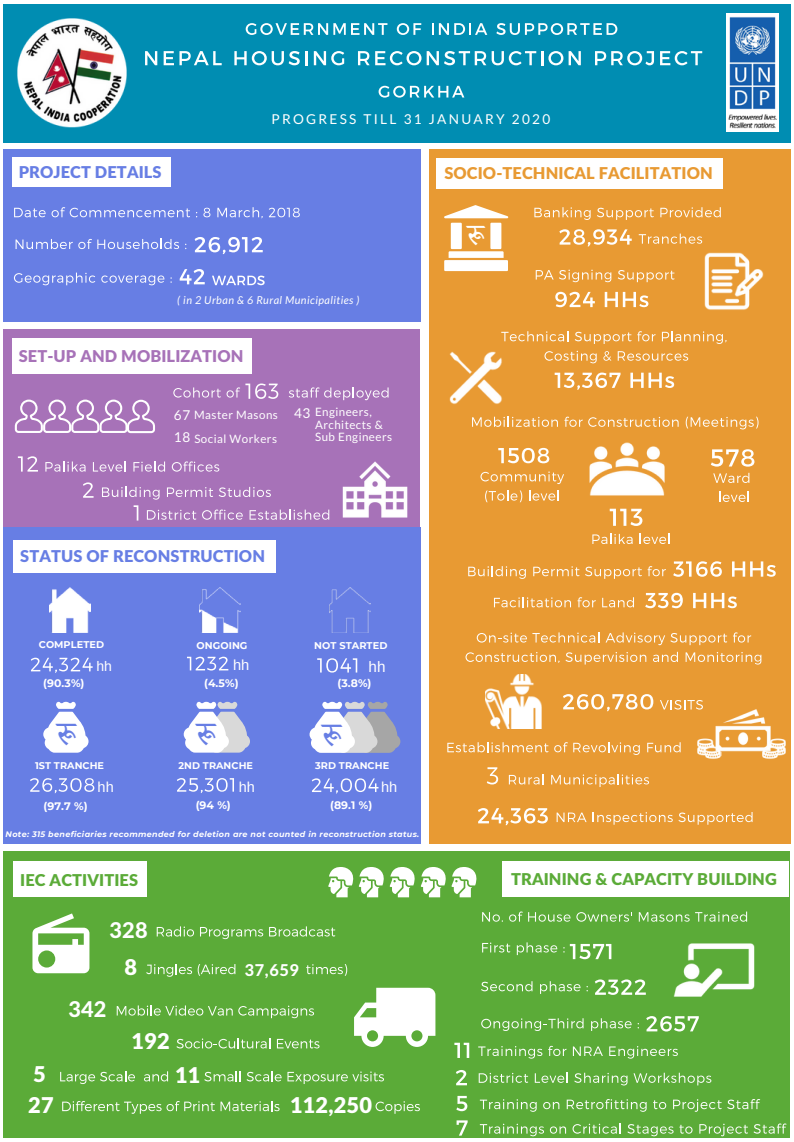


Figure 3: NHRP Progress January 2020

Till date[132], the UNDP supported project has seen encouraging progress as a result of the socio-technical support provided to affected households (Figure3). The *facilitation on administrative procedures* of signing partnership agreements[133], tranche release, technical inspection, grievance redressal, bank procedures and access to land are being undertaken smoothly. House-owners are supported to access entitlements, through their engagement with wards, municipalities (*palikas*) and district stakeholders. Vulnerable landless house owners are assisted to get approval for land grants. Administrative support, including technical support to DLPIUs[134], together with social mobilization has helped in effectively accelerating reconstruction activities and bringing the vulnerable and left behind households into the process of reconstruction. The project support has eased the tranche release from banks by liaising with the DLPIUs, linking house

132 February 2020

133 Land ownership certificate is necessary for the house-owners to sign the PA, required for accessing government's tranches.

134 District Level Project Implementation Unit

owners with the local banks and placing a full-time staff at DLPIU-GMALI[135] to expedite support in banking procedures to increase the pace of reconstruction. UNDP has provided technical support to the project teams at different levels for better coordination and cohesion in the reconstruction process. It has helped various stakeholders engage with one another, understand the project objectives and take ownership of initiatives.

The NHRP introduced the Resilience Fund, an innovative mechanism to ensure financial access for all, which was developed by UNDP and shared with the NRA (2017). This is a basket fund established in municipalities to provide interest free loans[136] to the most vulnerable households[137]. As inspection and approval for tranche release is overseen by the *palikas*, they coordinate with the house-owners and line agencies to ensure the loan is paid back upon receipt of the tranche and the next set of owners are provided with the fund in a revolving mechanism.

On-site door-to-door technical supervision and support is provided to the house-owners in selecting appropriate technology, designs and materials which is applied with the help of trained masons. The field team helps house-owners take informed decisions and provides orientation during construction to ensure compliance with government construction codes. In addition, building permit studios have been established within the *palika* premises in two NPs, Gorkha and Palungtar, to provide free *technical consultation services, design and structural drawings and analysis* to the house-owners, for *obtaining building permits* to initiate reconstruction. *Concurrent monitoring and quality assurance* during the construction process by the project team ensures that once completed and inspected by the NRA engineers, these houses are given a completion certificate. Therefore, locally available material, skill and resources are harnessed and developed to reconstruct technically safe houses with reduced disaster risk. UNDP has provided technical support to the project teams for *capacity building and skill training activities* to train NRA engineers, local masons and house-owners on improved construction practices. These include training NRA engineers on earthquake resilient building construction, alternative

Photo 2: 70 year old House Retrofitted

technologies (containment reinforcement) and retrofitting. Masons have been trained on prevalent construction technologies as well as on retrofitting solutions. On-the-job trainings have been provided to masons and engineers at damaged houses awaiting retrofitting. Overall, the trainings have improved the quality of construction in several ways: the use of earthquake safe construction techniques, the quality of building materials used, the adherence to building codes and procedures and the application of disaster resistant technologies. F*acilitating use of appropriate disaster resistant technologies* such as containment reinforcement using GI wire on locally available stone and mud or similar technologies for retrofitting houses is practical, adaptable, replicable, less intrusive and economical. Such techniques are more environmentally friendly and significantly lower in cost than new construction using imported materials.

A unique aspect of NHRP is the use of the Reconstruction Information Management System (RIMS) developed with support from UNDP, for real-time tracking of the status of construction, tranche release, facilitation provided, and support required to accelerate the reconstruction process. Mobile based and web-based data collection systems in both Nepali and English have been developed to capture the facilitation provided to each house-owner, along with automated geo-tagging that helps gather spatial information. Customized mobile-based modules are developed specifically for ANSs, CFs and Engineers.

135 Grant Management and Local Infrastructure

136 Up to NPR 50,000 (app. USD 415), established in 4 municipalities (2020), UNDP

137 Poor, Dalit (lower caste), single women, persons with disability etc.

Data from mobile and web-based applications are uploaded in the database accessed by the project team remotely at all levels for monitoring and quality assurance of the activities. Data analytics help to generate dashboards to display data of reconstruction status and of each beneficiary. This easy to navigate technology makes it convenient to access up to date data for more efficiency and transparency of project execution and planning.

Concurrent *monitoring* on construction quality and project updates are regularly shared between the DLPIUs, palikas and house-owners, keeping the reconstruction process on track and even accelerating its pace. NHRP teams are helping house owners with redressal of their grievances through a toll-free service[138] based centrally at NRA, and supporting 31 districts, aided by appropriate follow up by the field teams. To strengthen the process and effectiveness of the project activities, concurrent quality assurance has been integrated as a key aspect with an independent team of experts exclusively for monitoring the project activities.

Information, Education and Communication (IEC) materials developed by the project are building awareness among stakeholders on safe construction practices. The project promotes *visibility and outreach* of initiatives in a variety of ways – organizing social-cultural events like street theatre and radio shows; using display boards and Mobile Technology Clinic (MTC) vans; and publishing stories on the UNDP website and social media.

As described above, UNDP's support to the NHRP has been valuable in helping the earthquake affected communities in Gorkha district to rebuild their homes safer while being cost effective. It has increased transparency and accountability of the recovery process by putting in place data and monitoring systems that are online and real time. Finally, all efforts have been made to ensure that reconstruction takes place in a timely manner and is even accelerated so that affected communities recover faster.

Relevance to the practice of recovery

The housing reconstruction process in Nepal is relevant to the recovery process in several ways. Firstly, it emphasizes that *responsive governance* that prioritizes the needs of the people and addresses their issues in a timely manner is key to successful recovery. By providing socio-technical facilitation to the affected communities the Government of Nepal has been able to build a consensus between the communities, house-owners and administration and bridge the gaps in the housing reconstruction process and thereby expedite the recovery of affected communities.

Secondly, by approaching *recovery as a collective effort* on the part of many stakeholders (government, house owners, experts), the NHRP has made the process more *decentralized* and *inclusive*. It has successfully established strong coordination and facilitation networks across levels (national, district, municipal) and empowered local government to take decisions regarding inspection and approval of tranche release. Furthermore, house-owners have presided over the reconstruction process (selection of housing design, appropriate materials) and the adoption of ODR has ensured that recovery is led by the community based on their needs, preferences and aspirations. This has led to a growth in confidence in their abilities, a sense of ownership and an increase in their resilience to future risks.

Thirdly, NHRP has taken on board issues of *vulnerability* by supporting *social mobilization* of the more vulnerable such as the poor, women, people with disabilities and landless from the community. This has been done by prioritizing their needs through initiatives like the Resilience Fund (interest free loans), toll-free helpline for grievance redressal, tailored on-site technical assistance and access to land grants to ensure they do not get left behind in the recovery process and are provided with safety nets for future risks.

Fourthly, by implementing disaster resilient reconstruction techniques such as using locally available cost effective materials and techniques to retrofit existing houses and building skills within the community to take forward disaster risk reduction construction practices, the project has *integrated build back better* measures in the housing reconstruction process.

138 5289 calls from NHRP-Gorkha project area

Fifthly, by using *new and innovative technology* like RIMS, the project is making the process of recovery more *accessible and transparent*. The dynamic database with its up to date information can support current implementation, course correction and more effective future planning for recovery and sustainable reconstruction.

Finally, UNDP in developing and implementing this project leverages on its decades' long experience of development, recovery and reconstruction in Nepal and globally. By collaborating with ODRC India, UNDP has also supported *regional cooperation* in recovery.

Contact Information

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References

1. Disaster Risk Reduction in Nepal (2019), GoN, ADPC, UNDRR; accessed at: https://www.undrr.org/publication/disaster-risk-reduction-nepal
2. Government of India-UNDP, Nepal Housing Reconstruction Project (NHRP), Project Brief
3. Relief Web, Nepal Earthquake 2015: Post Disaster Recovery Framework 2016-2020; accessed at: https://reliefweb.int/report/nepal/nepal-earthquake-2015-post-disaster-recovery-framework-2016-2020
4. Nepal Risk Reduction Portal, Government of Nepal; accessed at: http://drrportal.gov.np/document/category/ndrrpsap
5. Post Disaster Recovery Framework; accessed at: https://www.np.undp.org/content/nepal/en/home/library/crisis_prevention_and_recovery/post-disaster-recovery-framework-pdrf2016-2020.html
6. Post Disaster Needs Assessment; accessed at: https://www.npc.gov.np/images/category/PDNA_volume_BFinalVersion.pdf
7. Policies and Institutions for Disaster Risk Management in Nepal: A Review, The Geographical Journal of Nepal, Vol. 11: 1-24, 2018, Central Department of Geography, Tribhuvan University, Kathmandu, Nepal
8. UNESCO to assess the impact on Nepal's cultural heritage of the devastating earthquake, UNESCO; accessed at: https://whc.unesco.org/en/news/1268
9. UNDP Nepal, Innovations in Early Warning System, Climate Smart Agriculture and Resilient Reconstruction; accessed at: https://www.undp.org/content/dam/nepal/docs/2018_undpnepal/UNDP_NP-Tech4SDGs-RamrajNarasimhan.pdf

Recommendations Asia Pacific Region

Recommendations: Recovery Best Practice Asia Pacific Region

The Asia Pacific region is a disaster prone area, highly vulnerable to geological (earthquakes, volcanic eruptions, landslides) and hydro-meteorological (cyclones, floods, cloud bursts, droughts) hazards. In recent times, the rate and severity of disasters has increased with climate change and environmental degradation exacerbating the situation. The worst hit is the vulnerable like the poor, women and people with disabilities, who do not have adequate safety nets to protect them from the disaster impacts. UNDP has supported governments across the region to undertake recovery with a focus to strengthen institutional mechanisms, policies and frameworks for recovery planning and implementation; build back better to promote community driven green recovery and disaster risk reduction measures (DRR) in housing reconstruction, diversification of livelihoods and develop digital databases to name a few and link these with cross-cutting issues like climate change adaptation (CCA) and disaster risk management (DRM) for longer term resilience and sustainability. While there has been progress along with achievements and challenges, several other measures to strengthen recovery regionally and globally need to be explored.

Firstly, *strengthening existing global and regional platforms or creating new ones as required* for sharing experiences/best practices/lessons and real time data when a disaster strikes. Several countries like Indonesia (InaRISK, DRI, DIBI)[139] and Nepal (RIMS)[140] have led the way in creating digitized databases, while others like Bangladesh have used drone technology to support multi-sectoral need assessments with up to date, accurate, and detailed information that is accessible to both communities and government to make recovery planning and implementation more efficient and effective. These and other recovery initiatives (like the PDNA[141] in Kerala, India) should be shared on global/regional platforms in a more proactive and regular manner so that other countries, which are yet to or in a nascent stage of developing recovery mechanisms can benefit from these experiences and hasten their own recovery planning process. Furthermore, while real time information sharing from databases in the region/globally on a potential disaster situation unfolding (Tsunami and cyclone warnings), is being done to support countries to prepare in a timely fashion, however strengthened regional/global partnerships, revisited and updated to suit the ever-changing nature of disasters in the region would make them more effective. Several international coordination networks formed by the UN and other agencies (International Red Cross and Red Crescent Societies, the World Bank etc.) already exist with a purpose to address issues related to DRR, such as IASC[142] and its regional counterpart IASC RN, OCHA[143] and SDMC[144] and should be used in an effective manner. In addition, tools and services like expertise of technical teams (UNDAC)[145] and standby surge rosters[146] (OCHA[147], RedR), stockpiles and knowledge portals (PreventionWeb, ReliefWeb) for wider dissemination of information should be strengthened for better coordination of the recovery process.

Secondly, the *role of new technology* in recovery should be proactively considered to enhance the recovery process. Global and regional experience

139 Disaster Recovery Index (DRI), Indonesian Disaster Information and Database (DIBI)

140 Reconstruction Information Management System

141 Post Disaster Needs Assessment (PDNA)

142 Inter-Agency Standing Committee, Inter-Agency Standing Committee Regional Network for Asia and the Pacific

143 Office for the Coordination of Humanitarian Affairs

144 SAARC Disaster Management Centre

145 UN Disaster Assessment and Coordination

146 Inter-agency, NGOs and private sector

147 OCHA Emergency Surge Mechanisms

shows that disaster prevention and preparedness, enabled by communication and space technologies, can be far more effective and at a lower cost for disaster monitoring, early warning, and emergency response efforts[148]. UNESCAP's 'Asia Pacific Information Superhighway' initiative aims to increase the availability and affordability of broadband Internet for all people across the region, especially the most vulnerable, to access transformative digital technologies in education, health and financial services, thereby enhancing their knowledge for a more secure future. Newer technologies like Artificial Intelligence (AI) and machine learning, till recently considered future technologies, are beginning to be used for resilience building. The World Bank managed GFDRR[149], through its 'Disruptive Technologies for Disaster Resilience', GFDRR Innovation Lab (Open Data for Resilience [OpenDRI] and Spatial Impact Assessment), is exploring the use of disruptive technology (3D printing, drones, AI and geospatial and satellite imagery) for DRM and resilience. Crucially this brings together the private sector (technological industry) and government representatives from across the world to pilot initiatives focused on applying specific disruptive technology for urban planning for future resilience building. Therefore harnessing new and innovative technology such as ICT, E-Resilience, cloud technology is critical to enhancing future regional and global recovery planning for risk reduction and resilience to disasters.

Thirdly, *new funding mechanisms* also need to be explored to expand the scope of risk reduction measures. These include issuance of Green bonds[150], financial support issued by private firms and public entities (banks like the World Bank) wanting to back climate and environmental investments in emerging markets and developing economies[151](Fiji, Malaysia); developed country governments' social development funds (like JSDF, Japan) to support developing economies become more climate resilient; and other private enterprises looking to fund climate and disaster risk reduction initiatives. Furthermore, the Green Climate Fund, tapping into both public and private finance flows, to engage across sectors to unlock high impact and paradigm shifting climate investments in adaptation and mitigation initiatives, through loans, equity, guarantees and grants, to achieve climate risk related Sustainable Development Goals (SDGs)[152], can work in tandem with existing funding mechanisms to plan for effective recovery with sustainable outcomes.

To conclude, while a lot of progress in recovery planning has been made in the Asia Pacific region, one of the most vulnerable to climate variability and disaster risks and with wide ranging disparities in human development; however, there is still scope for further development. Amongst other measures, for longer-term sustainability and cohesive resilience building, partnerships and networks amongst all stakeholders need to be strengthened across the region to learn from each other's' experiences, share critical data and information using traditional techniques and cutting edge new technology as well as tapping into innovative funding opportunities to expand the scope and depth of risk reduction initiatives for a better prepared future for all.

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Resources

1. Asian Disaster Reduction & Response Network (ADRRN); access at: https://www.preventionweb.net/organizations/1516
2. Asia Pacific Disaster Resilience Centre (APDRC), The Red Cross and Red Crescent; access at: https://www.apdisasterresilience.org/who-we-are.html

148 UNESCAP's Regional Cooperative Mechanism for Drought Monitoring and Early Warning enhances the capacity of governments to use space-based data for effective drought monitoring, allowing countries to issue early warnings before a drought is visible.

149 Global Facility for Disaster Reduction and Recovery (GFDRR)

150 Pioneered by the World Bank Group

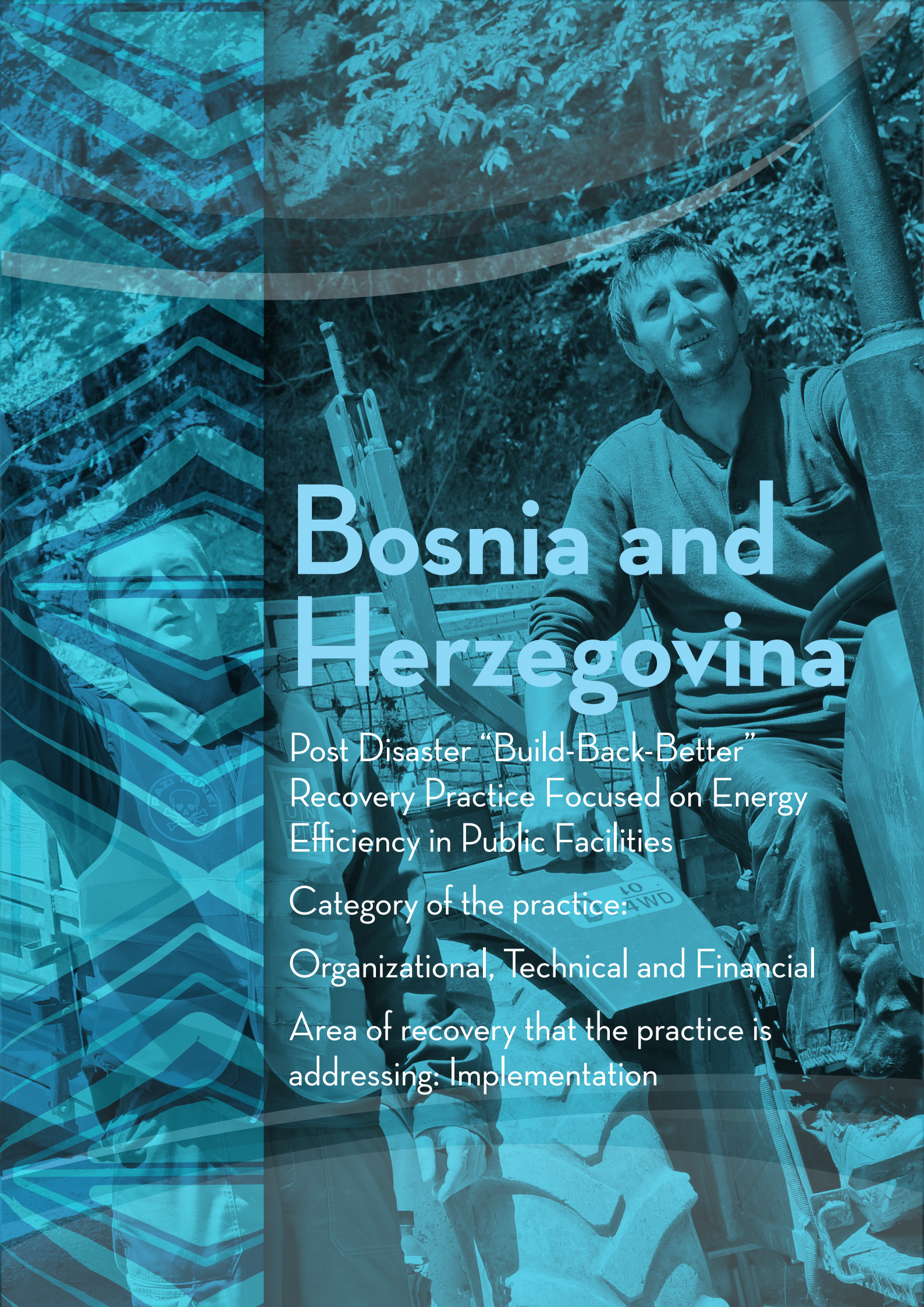
151 Investors are attracted to green bonds because they can invest in climate-smart business and track the impact of their investment through reporting required under the Green Bond Principles.

152 Climate action and sustainable cities and communities to name a few.

3. Asia-Pacific Disaster Report 2019, UNESCAP; access at: https://www.unescap.org/publications/asia-pacific-disaster-report-2019
4. Asia-Pacific governments embrace technological innovations, regional network to boost disaster resilience, UNESCAP; access at: https://www.unescap.org/news/asia-pacific-governments-embrace-technological-innovations-regional-network-boost-disaster
5. Disruptive Technologies for Disaster Resilience, GFDRR, World Bank; access at: https://www.gfdrr.org/en/disruptive-tech
6. Disaster Response in the Asia and Pacific - A Guide to International Tools and Services; access at: https://asiadisasterguide.unocha.org/images/download/ROAP_DisasterGuide.pdf
7. GFDRR Labs; access at: https://www.gfdrr.org/en/gfdrr-labs
8. Green Bonds, World Bank; access at: https://www.worldbank.org/en/results/2017/12/01/green-bonds
9. Humanitarian Data Exchange (HDX), OCHA; access at: https://data.humdata.org/
10. ICT and Disaster Risk Reduction, UNESCAP; access at: https://www.unescap.org/our-work/ict-disaster-risk-reduction
11. One Challenge, Many Challenges: Machine Learning for Mapping, OpenDRI, GFDRR; access at: https://opendri.org/one-challenge-many-challenges-machine-learning-for-mapping/
12. Open Data for Resilience Initiative (OpenDRI), GFDRR; access at: https://opendri.org/project/?mapregion=&mappilar=community
13. Open Source Geo-spatial Content Management System, GFDRR; access at: http://geonode.org/
14. PreventionWeb; access at: https://www.preventionweb.net/english/
15. Spatial Impact Assessment, Innovation Lab, GFDRR; access at: https://www.gfdrr.org/sites/default/files/4_Innovation_lab_Factsheet_SIA_rev.pdf
16. Recent Significant Disasters in the Asia-Pacific Region, Asian Development Bank (ADB): access at: https://www.adb.org/news/infographics/recent-significant-disasters-asia-and-pacific-region
17. ReliefWeb; access at: https://reliefweb.int/
18. World Green Building Council; access at: https://www.worldgbc.org/

Compendium

Good Practices in Eastern Europe and Central Asia Region



Bosnia and Herzegovina

Post Disaster "Build-Back-Better" Recovery Practice Focused on Energy Efficiency in Public Facilities

Category of the practice:

Organizational, Technical and Financial

Area of recovery that the practice is addressing: Implementation

Summary

Extraordinary rainfalls affected Bosnia and Herzegovina in May 2014 and led to significant losses in human lives and spreading damages across the country caused by floods and cascading landslides. The disaster had particularly severe impacts on key sectors i.e. housing, infrastructure and agriculture, and public and private facilities. Total damage and losses were estimated at 2.518 billion US Dollar[153]. Consequently, EU and UNDP Bosnia and Herzegovina, launched the EU Floods Recovery Programme aimed at restoring the living conditions in the most affected municipalities.

One of the five components of the Programme was the rehabilitation of public institutions for re-establishment of access to education, health, social and municipal services. Cooperation with the Energy Environment Fund of Federation of Bosnia and Herzegovina was established and resulted in co-financing of energy-efficiency measures in eight public facilities that were damaged during the floods. The "Build Back Better" approach allowed energy-efficiency to be institutionalized and co-financed in public facilities rehabilitation thereby enhancing the level of ownership and broadening the recovery process and intervention. The practice has shown numerous economic, environmental, utility system and disaster risk management benefits for the communities and local authorities.

Description

Unprecedented rainfall in May 2014 caused large scale flooding in Bosnia and Herzegovina with cascading landslides in the northern, eastern and central part of the countries affecting one-third of the population and half of the territory. Severe damages and destructions were registered in 46 municipalities[154] across the country. The total price tag of this disastrous event was estimated at 2.6 billion USD or approx. 15% of the country's GDP. Consequently, the international community, led by UN, organized a donor conference[155] and as a result, the European Union allocated 52,148 million US Dollar and in partnership with UNDP (1.58 million US Dollar contribution) launched the ***EU Floods Recovery Programme for Bosnia and Herzegovina.*** Main objective was to restore living conditions in the most affected municipalities with provision of support in five key sectors (housing, communal infrastructure, public institutions, economic recovery and risk assessment). The Programme in cooperation with municipal authorities and competent ministries identified key public institutions in need of rehabilitation i.e. 156 schools and 12 kindergartens for more than 71,800 students and children, six health care centres for 288,381 users, four social welfare-centres for 22,859 beneficiaries, and buildings for three municipal administrations that service 206,781 people[156]. One of the components was immediate rehabilitation of vital public sector infrastructure and restoration of critical functions and essential public services in prioritized municipalities. Since most of the facilities were in poor and dilapidating conditions before the floods, main approach was to scale-up the "Build Back Better" principle in reconstruction and rehabilitation of public infrastructure, which offered a crucial opportunity in integrating energy efficiency measures in their resilient reconstruction.

Energy efficiency focused recovery

Based on the assessed recovery needs[157] for rehabilitation of public facilities and portfolio of projects in disaster/climate risks reduction and energy efficiency, UNDP BIH identified the opportunity for a novel approach to post-disaster recovery – ***integration of energy efficient retrofitting in resilient rehabilitation of public facilities.*** Accordingly, UNDP established partnerships with key institutions and mobilized resources from the Energy Environment Fund of the Federation of Bosnia and Herzegovina (co-financing of 30% of the costs for rehabilitation of eight public facilities from health, education and administration sectors as presented in Table 1).

153 https://ec.europa.eu/fpi/sites/fpi/files/pdna/pdna_bih_2014_-_final_report_0.pdf

154 https://europa.ba/wp-content/uploads/2016/02/EUFRP_Monograph-en-web.pdf

155 https://ec.europa.eu/commission/presscorner/detail/en/MEMO_14_490

156 https://europa.ba/wp-content/uploads/2016/02/EUFRP_Monograph-en-web.pdf

157 https://ec.europa.eu/fpi/sites/fpi/files/pdna/pdna_bih_2014_-_final_report_0.pdf

#	Location	Public Facility	Total	Male	Female
1	Maglaj	Elementary School	631	330	301
2	Maglaj	Combined High School Centre	800	401	399
3	Maglaj	Kindergarten	75	44	31
4	Maglaj	1st Elementary School	810	453	357
5	Maglaj	Healthcare center	23,146	11,430	11,716
6	Maglaj	Municipal Building	23,146	11,430	11,716
7	Orasje	Elementary School "Orasje"	407	185	222
8	Sanski Most	Combined High School Centre	718	412	306
Total:			26,587	13,255	13,332

Table 1 - Overview of number of beneficiaries per public facility

Main objective: Enhanced provision of services in resiliently recovered eight public facilities, as follows:

- creation of energy-efficient public facilities,
- decrease of operating and maintenance costs,
- reduction of energy consumption and CO2 emissions,
- ensuring payback of investments in the next 25-30 years,
- generating savings in municipal budgets that can further be allocated for risk reduction actions.

Key partners: Ministries of education and health, Environmental Fund of the Federation of Bosnia and Herzegovina, local governments and relevant public facilities.

***Beneficiaries*:** 26,587 beneficiaries (50% male/50% female) from Maglaj[158], Orasje and Sanski Most.

Recovery practices

This programme extended beyond the scope of essential disaster restoration ensuring that what is damaged is not only recovered but is built back better. This approach enabled public facilities to be disaster resilient, energy efficient and disabled-accessible. In terms of environmental sustainability, energy efficiency was mainstreamed through installation of new "green" heating systems, new floorings, better joineries, placement of thermally insulated façades, roofs, refurbishing of walls, and in two schools, their sport halls were additionally insulated. This helped to manage the buildings carbon footprint and to reduce beneficiaries' operational costs. Furniture, laboratory, and other teaching equipment was supplied for improvement of the practical teaching curriculum.

In addition, few other aspects of the recovery process were considered: recovery works supported the revitalization of the struggling construction sector in the country; investments in recovery works supported the local economies and when purchasing materials, focus was placed on suppliers that can provide quality flood-resistant materials and products.

This project had direct and positive impact on the affected communities. Citizens benefited through better conditions for efficient and effective provision

158 With 4,894.600 EUR, Maglaj was the municipality with the highest damage of the public facilities. In 2019, the Municipality of Maglaj was awarded the Business-Friendly Certificate of South East Europe as a favorable business environment and introducing internationally recognized standards of efficient and transparent local administration.

No.	Public facility	Municipality	Total investment ($, VAT excluded)	Amount of EE measures ($)	Energy consumption savings (kWh)	CO2 emission reduction (t)	Energy cost savings ($ per year)	Simple payback period (years)
1	2	3	4	5	6	7	8	9
1	Elementary School Maglaj	Maglaj	422.601,75	165.903,20	581.868	73	18.839,53	8,9
2	Combined High School Centre in Maglaj	Maglaj	459.562,37	247.441,81	999.600	85	22.017,11	11,3
3	First Elementary School Maglaj	Maglaj	316.649,21	174.514,56	475.660	60	21.313,30	8,2
4	Maglaj Kindergarten	Maglaj	211.183,46	112.131,58	255.000	32	8.256,42	13,6
5	Health Care Centre in Maglaj	Maglaj	591.100,95	276.162,92	680.000	85	22.017,11	12,6
6	Building of Maglaj Municipality	Maglaj	384.136,22	234.510,59	311.313	39	10.080,02	23,3
7	Elementary School "Orašje" in Orašje	Orašje	219.638,64	85.071,05	419.688	53	13.589,00	6,3
8	Combined High School Centre in S. Most	Sanski Most	149.492,73	73.616,55	997.988	137	35.550,57	2,1
	Total (average)		2.754.365,32	1.369.352,26	4.721.117,00	564,00	151.663,06	10,1

Table 2 - List of public facilities rehabilitated in cooperation with the Energy Environment Fund with indicators and emphasis of the energy cost savings – green frame

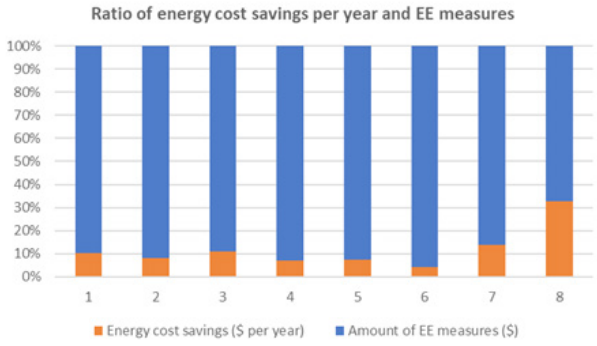


Chart 1 – Ratio of values shown in columns 5 and 6

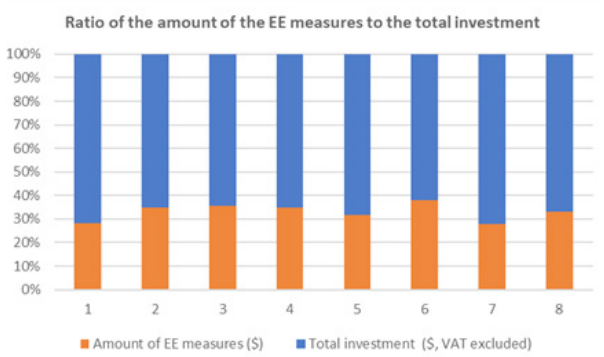


Chart 2 – Ratio of values shown in columns 5 and 8

of education and health services. In total 3,441 children and students were able to resume education process with minimal disruption in rehabilitated facilities with better working environment, improved teaching and studying conditions. On the other side, 23,146 citizens were able to access basic health care services in very short period in a functional facility ensuring their healthy lives and well-being. Furthermore, these facilities provides easier access for the disabled. Finally, capacities of the local authorities were strengthened and now they are capable of implementing complex response and recovery interventions while integrating energy efficiency measures.

Replicability of the practice

This recovery practice focused on energy-efficiency of public buildings has a great potential for replication and scaling up in future recovery efforts in the country and beyond. As a combination of resilient rehabilitation works with essential energy efficiency measures significantly contributed to:

- reduced electricity bills amount,
- reduced energy consumption and carbon footprint,
- provided better indoor environment, functionality and services,
- short pay-off period, and in the long run it saves energy (costs),
- decrease the air pollution, and
- improved local climate change mitigation.

Lessons learnt

- Energy efficient recovery requires close cooperation of various stakeholders from public (e.g. national/regional/local authorities and institutions) and private sectors (e.g. construction companies).
- Determining factors that plays a crucial role for the success of this type of recovery are following: proper collection and sharing of data, unconventional and innovative institutional and financial mechanisms, multi-sector approach, mainstreaming of advanced technical knowledge and expertise.
- This action went beyond traditional DRR centred recovery with successful exploration and integration of untraditional measures like energy efficiency, sensemaking the post-disaster recovery.
- Energy efficient recovery of public buildings should be anchored and institutionalized in strategic and programme documents on national and local level. Example is the 2018 revision of the Local Development Strategy of Maglaj where implementation of energy efficient and resilient recovery and increase of co-funding of energy efficient measures in residential buildings are being incorporated.
- It provided an excellent demonstration to local communities and authorities on the importance of disaster risk reduction and energy efficiency and how to increase investments in both areas generating benefits for the citizens.

Photo 1 - First Elementary School Maglaj before - after

Photo 2 - Combined High School Centre Maglaj before - after

Relevance to the practice of recovery

Natural and human-made disasters have devastating impacts on societies, local communities and individuals. On the other side, they can be unique development opportunities especially in post-disaster phase. Recovery and energy efficiency are activities with complementary policies, common stakeholders, and objectives. Until now, integration of energy efficiency into recovery processes was probably the most overlooked and underestimated "Build Back Better" measure. Nevertheless, UNDPs innovative approach proofed that it can be linked to broader recovery interventions having a huge impact on community resilience. Energy-efficient recovery is not only contributing to community development, but also is supporting the national adherence to the Sendai Disaster Risk Reduction and the Sustainable Development Goals (SDG 7: ***Ensure access to affordable, reliable, sustainable and modern energy for all***[159]). Ultimately, energy-efficiency, as a recovery practice, offers huge potential that additionally contributes to reduction of greenhouse gas emissions and climate change mitigation.

Institutional awareness about the importance and value of energy-efficiency for disaster resilience and safety, funds/co-financing and government's absorptive and implementation capacity imply that energy efficiency measures require government support. Accordingly, following principles are essential: public involvement and ownership; understanding; transparency; local contribution, and cost-effective investments.

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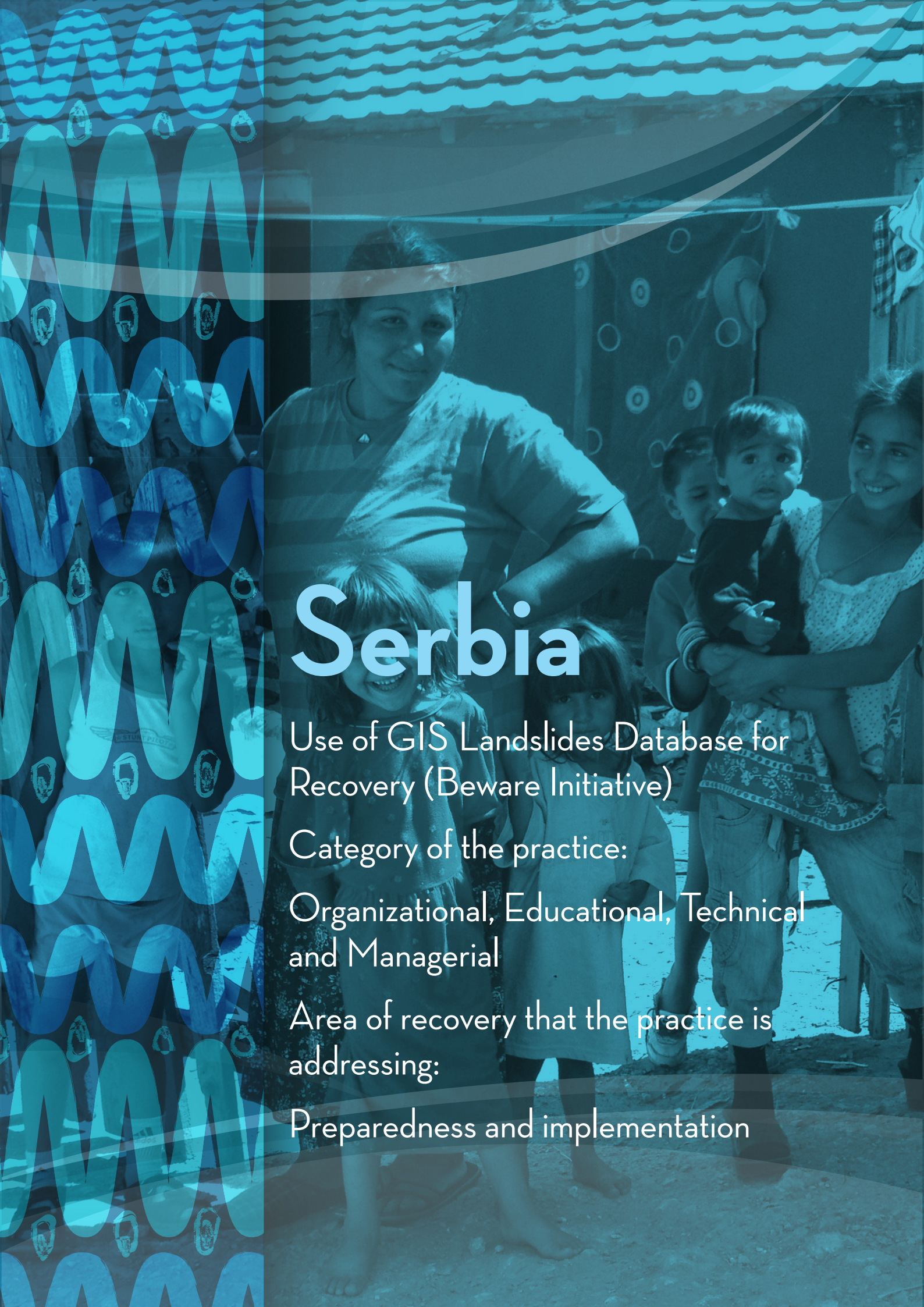
159 SDG Target 7.3: By 2030, double the global rate of improvement in energy efficiency.



Serbia

Use of GIS Landslides Database for Recovery (Beware Initiative)

Category of the practice:

Organizational, Educational, Technical and Managerial

Area of recovery that the practice is addressing:

Preparedness and implementation

Summary

In May 2014, following heavy rainfalls, river and flash floods, massive occurrence of landslides was triggered, causing state of emergency. Urgent need for survey and GIS (Geographic Information Systems) mapping of landslides appeared, since existing capacities and resources were insufficient causing hindrance to immediate recovery and risk reduction efforts.

BEWARE (Beyond Landslide AWAREness) Initiative was launched as an innovative GIS based approach that enhanced collection, analysis and visualization of landslide data, which were used to plan, implement and monitor recovery and rehabilitation initiatives. As a result, during the recovery process, 1,785 landslides were surveyed and 1,298 were mapped using remote sensing in 27 municipalities, including collection of data, risk and vulnerability mapping, identification of critical landslides and designing of remediation measures. Especially it was successful in the Municipality of Krupanj were 160 landslides were immediately surveyed and mapped as part of the comprehensive community based recovery actions i.e. cost-effective remediation and safe relocation with construction of 17 new and disaster safe houses for 64 affected citizens.

As a sustainable risk reduction practice, it continued beyond the post-disaster recovery phase with surveying and analysis of 2,225 landslides. Consequently, the Cadastre of Landslides in participating municipalities is now supporting their resilient development, through risk-informed land management, spatial and urban planning solutions, and support of timely and effective decision-making in case torrential floods repeat in these locations.

Description

BEWARE Essentials: design of intervention and key considerations

Historical floods from heaviest rainfalls in 120 years of recorded weather measurements affected Serbia in May 2014 causing huge destructions and triggering many landslides. This caused flooding impacts to be multiplied, heavily affecting population and critical infrastructure in many landslide-prone municipalities. At that time, existing capacities and resources for GIS recovery mapping were insufficient and limited i.e. there was only one GIS map of potential landslide for Krupanj[160], technical expertise was limited, and landslides registries were in analogue form and with uneven quality and consistency[161].

Given the disaster magnitude, there was an immediate need for surveying, data collecting and GIS mapping of potentially active landslides to enable timely and informed decision-making for appropriate recovery and rehabilitation actions. Therefore, innovative risk reduction programme during the recovery phase was designed ***("Harmonization of Landslide Data and Training of Municipalities for its Monitoring: BEWARE")*** as part of the UNDP project "Increased Resilience to Respond to Emergency Situations: Saving Lives, Sustaining Development" funded by the Government of Japan.

Main objective:

- Establishment of GIS Landslides Database, with handbook for application and training materials;
- Production of technical documentation for recovery remediation of 6 critical landslides;
- Rehabilitation (stabilization) of two landslide areas in the municipalities of Krupanj and Loznica;
- Supply of equipment for 25 municipalities (personal computers, tablets and GPS devices);
- Specialized trainings of 50 civil servants (2 per municipality) for recovery mapping, landslide categorization and monitoring using Open Data.

Key partners: Government Office for Reconstruction and Flood Relief, Ministry of Energy and Mining, Faculty for Geology and Mining, Geological Survey of Serbia, local governments.

160 Data available at: https://a3.geosrbija.rs/share/54e2dd2cb6a9

161 http://geoliss.mre.gov.rs/beware/?page_id=8

Beneficiaries: 27 municipalities around the country[162] including Krupanj and Loznica where two landslides were physically rehabilitated providing safety and security for 1,522 citizens.

Technical capacity of the BEWARE tools

- Uses GeoIISS - Geological Information System[163] of Serbia web platform, based on ESRI, ArcGIS technology.
- Alphanumeric data with geolocations in XML and JSON format, while raster data are in GEOTIF. They are free for download and available for search and list options. Terrain modelling with polygons is in TPK format for mobile applications.
- Field mapping survey was enabled through an Android application "aBeware"[164] including Landslide Field Mapping on-line form with 54 attributes (i.e. landslide ID, municipality, type of Instability, ground, recovery guidelines, etc.).
- Collected information is sent to database server, and is ready for analysis and processing.
- Field surveyor can draw dots, lines and polygons, using different background maps (e.g. topography, engineering, geological, etc.).
- Easy review/modification/delete of filled-in data, even off-line, through a folder with GPS coordinates of site visits routes.

Figure – "aBeware" Android application and filled-in form for Landslide Field Mapping

BEWARE in Action: benefits for citizens and reduction of risks

- During the post-disaster recovery phase, 2014 – 2016, 1,785 landslides were field surveyed and 1,298 were mapped using remote sensing, satellite imagery.[165]
- Surveying and mapping of 160 landslides in the Municipality of Krupanj led to implementation of a set of risk reduction actions and cost-effective remediation works. In an inclusive and participatory manner, landowners of affected households were included in the decision-making and relocation process. As a result, 17 new houses were constructed on a safer ground using the "Build Back Better" principle. Those new houses provided safe housing for 64 affected citizens: 23 male, 29 female and 12 children under the age of 18. This clearly highlighted resilient recovery and community solutions in the short-term period.
- BEWARE Initiative identified additional risk exposure of 139 citizens and 1,388 facilities e.g. 707 households, 614 infrastructure units, 38 energy structures, 12 industrial complexes and 17

162 Full list of the municipalities which benefited from this recovery programme can be seen here: https://tinyurl.com/y74dxraw

163 http://geoliss.mre.gov.rs/

164 For this Android application, BEWARE project team received "Annual award of Belgrade Chamber of Commerce for the best technical improvement in 2015".

165 Đurić, D., Mladenović, A., Pesic-Georgiadis, M., Marjanović, M., Abolmasov, B. (2017) Using multiresolution and multitemporal satellite data for post-disaster landslide inventory in the Republic of Serbia, Landslides, Vol. 14, p. 1467-1482

cultural and natural heritage sites. Consequently, remediation measures were recommended for preparation of technical solutions and designs in order to ensure their long-term disaster resilience.

- During the immediate and mid-term recovery phase in the affected areas, BEWARE was utilized as a main tool for surveying and selection of optimal locations for 18 torrential barriers in 8 municipalities aimed at preventing future torrential flooding and landslides.
- As a sustainable and long-term risk reduction tool, it continued to be used beyond the immediate recovery phase and until now, 2,225 landslides in the participating municipalities have been surveyed and analysed, supporting resilient planning and development.

Figure 2 - Fieldwork of Landslides Mapping in Krupanj

Replicability of the practice

BEWARE Initiative is an innovative risk reduction in recovery practice that has a great potential for replicating and scaling up even beyond the borders Serbia. Sustainability is ensured since it is based on the Open-data platform for collection and provision of data from various institutions to various users, as well as because as a risk reduction tool it is widely utilized by the local authorities. Consequently, established Cadastre of Landslides in participating municipalities is now supporting their resilient development, through risk-informed land management, spatial and urban planning solutions, and supporting timely and effective decision-making in case torrential floods repeat in these locations.

Lessons learnt:

- Determinants for success were good inter-institutional communication and willingness to innovate and improve system practices, e.g. to mainstream the use of open data on landslides.
- This practice required motivated and responsible governmental structure and well-trained and professional technical expertise.
- As a dynamic ICT solution, it is impacting resilience strengthening of related development sectors, on national and local levels e.g. disaster risk management, land management, spatial and urban planning.

- GIS Database can be used for defining and protecting critical infrastructure corridors, e.g. public roads, railways, telecommunication and electricity supply networks, etc.
- GIS mapping of landslides revealed several cases of landslides spreading over administrative borders of two municipalities and inter-municipal cooperation needed to be established. Accordingly, BEWARE Initiative triggered new procedural arrangements and innovative governmental mechanisms, contributing to long-standing results at the policy-making level and development of new legislative solutions regarding inter-municipal cooperation for risk reduction during recovery.

Relevance to the practice of recovery

For the purposes of disaster risk reduction, it is important to survey and assess the potential landslide hot spots and their impact on people, households, built environment facilities. Survey results support risk-informed prioritization and decision-making by government authorities, including the recovery and rehabilitation efforts. It therefore contributes to planning and implementation of targeted recovery.

BEWARE Initiative as a risk reduction programme has addressed all areas of the recovery process. In assessment phase, it provides key inputs for vulnerability and risk assessments. Within the recovery preparedness, it contributes by providing information on areas at risk and serving as pre-alert for civil protection units. Finally, it is used in implementation phase, providing crucial information on areas that are safe and unsafe for construction, contributing to implementation of the "Build-Back-Better" principle.

Furthermore, BEWARE Initiative contributed to resilient recovery practice since it has utilized technology for advancing risks reduction from landslides. It has unified the landslide data records on critical sites during the recovery phase for landslide rehabilitation, alongside with creation of risk and hazard maps and enhanced capacities for landslides digital reporting. In this way prevention and preparedness in the entire country is strengthened by using the BEWARE Initiative as tool for assessing, mapping and defining the priority risk reduction measures.[166] In addition, it improved spatial and urban planning by prohibiting civil construction in unstable and unsafe landslide prone areas[167], contributing to resilient development in the long-term period. BEWARE Initiative is linked, also, to resilience of various crosscutting sectors e.g. innovations (use of Open Data for resilience), real estate and insurance markets (identification of exposure of properties to landslide risk), enhancing the land management through prevention of illegal

166 Interview with Zdravko Maksimović, Head of Emergency Management Section of Kraljevo, on December 5, 2019

167 Via Information on site location, an official document containing urban parameters and conditions for each plot.

construction, as well as scientific research. Finally, based on this initiative, the government initiated the development of more holistic, complete on-line Risk Cadastre for Serbia.

BEWARE Initiative standardized the post-event landslide database and closely involved local community of affected municipalities and prepared them to cope with similar disastrous events in the future. This lead to more secure, better prepared and more resilient communities in western, central and eastern parts of Serbia, which seem to be the most fragile parts of the country.

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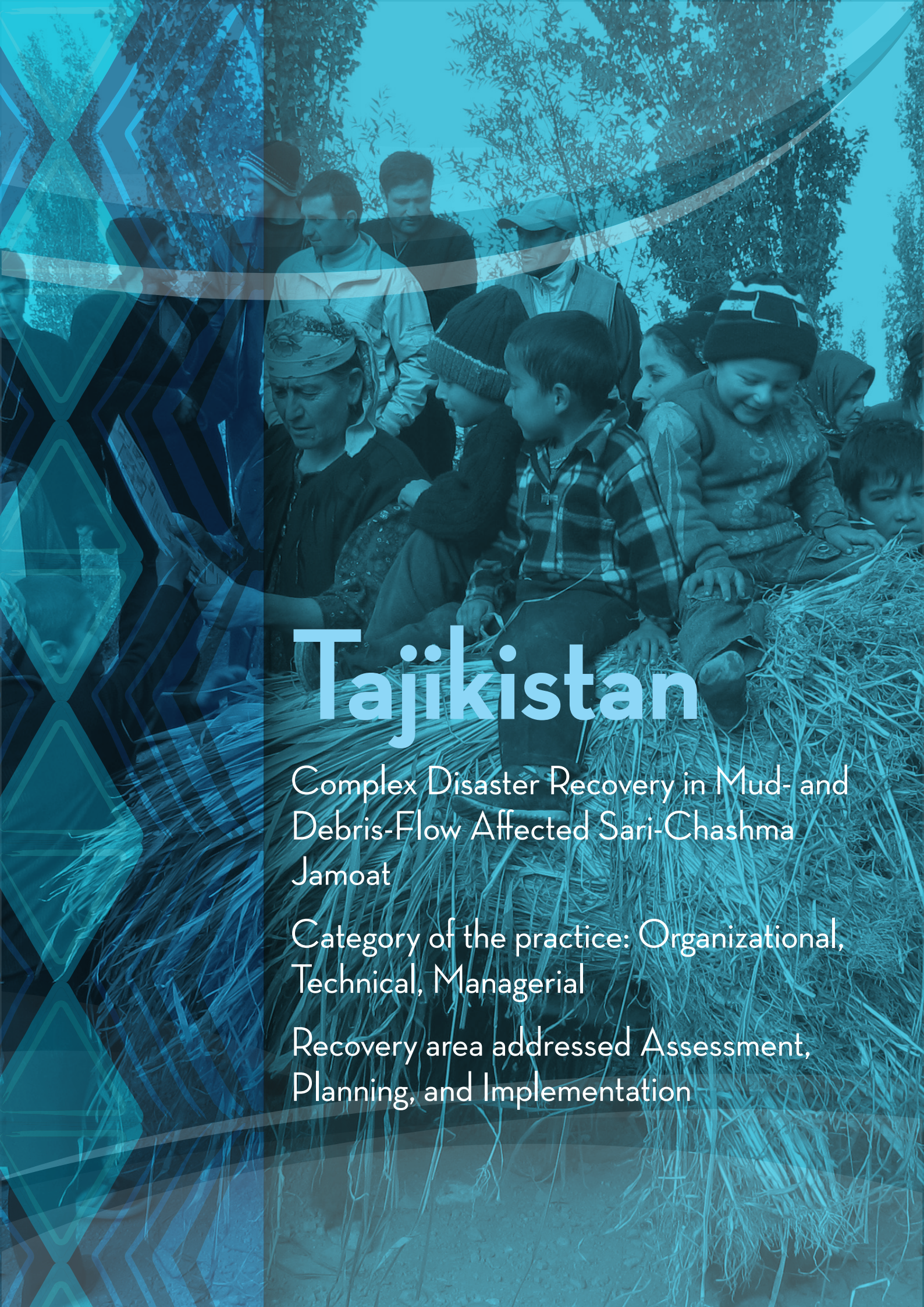

Tajikistan

Complex Disaster Recovery in Mud- and Debris-Flow Affected Sari-Chashma Jamoat

Category of the practice: Organizational, Technical, Managerial

Recovery area addressed Assessment, Planning, and Implementation

Summary

Villagers in front of one of the newly constructed houses

In 2014-2016, UNDP Tajikistan implemented a complex "Floods Recovery to Resilience" project to address critical recovery needs and increase social and physical resilience of the rural communities in southern Tajikistan affected by the series of flash floods and mudflows. The holistic approach to post-disaster recovery allowed moving beyond traditional rehabilitation of the social infrastructure, with restoration of affected livelihoods and introduction of various risk reduction options ensuring the long-term community resilience. Recovery project intervention directly targeted 710 people (52% women), while positively affecting the life of 11,800 people – total population of the ***Sari-Chashma*** Jamoat in Tajikistan.

Description

In April and May 2014, heavy rains led to numerous flash floods, debris- and mudslides in six districts of South East Khatlon Province of Tajikistan. The disaster resulted in 20 human casualties (11 men/9 women, out of which 4 boys and 4 girls), 37 persons injured and caused significant damage to over 500 households (~3,500 people) and local infrastructure (26 km of

Sari-Chashma Jamoat Profile

Rural Jamoat of Sari-Chashma with 11,800 inhabitants is located on the slopes along the Sari-Chashma River – an intensively meandering seasonal creak with eroding banks.

About 52% of the Jamoat's active-age male population (at least 1 person in 70% of families) has migrated for employment, leaving the tasks of domestic up keeping to women and elderly.

Local livelihoods are limited to small-scale farming and livestock breeding in the immediate vicinity of the villages, causing land degradation and increasing the risk of mudflows and shallow landslides.

Recurrent extreme weather events (mainly intense precipitation triggering mudflows) affect the area in 4 to 6-year cycles, damaging people's assets and public infrastructure, causing human casualties and livestock losses.

The area is at medium to high seismic risk, which poses another challenge to shelter and infrastructure.

local roads, 17 km of power supply lines, 5 social infrastructure facilities). Sari-Chashma Jamoat[168] in the Shamsiddin Shohin district was affected most, with 13 people killed, 11 houses destroyed and 123 damaged, 118ha of agricultural land covered with mud, and with overall damage estimated at USD 5.3 M.

National and international partners - members of the "REACT" disaster coordination mechanism[169] - conducted joint damage and needs assessment and initiated immediate response activities:

- evacuation and/or relocation of affected population;
- provision of temporary shelter (60 tents, 200 plastic sheeting), some 78MT[170] of food and 130 sets of non-food relief items (matrasses and blankets, kitchen and hygiene sets, construction tools etc. provided by the Red Crescent Society);
- distribution by UNDP of households items, hygiene sets and kitchen utensils to 420 most affected citizens;
- debris removal supported by UNDP to unblock 20 km of access roads, allowing assistance to the affected sites.

Recovery process

Following the Government's request for support the recovery needs of the affected population from May 2014, UNDP embarked on comprehensive recovery coordination and needs assessment identifying these aspects:

- Immediate housing needs of 20 families whose houses have been completely destroyed;
- Provision of community infrastructure services to 101 households that were given land plots (0.8 ha per family) in a disaster safe location i.e. drinking water supply, access to health and education services;
- Establishment of livelihoods and income generation mechanisms, since the main sectors i.e. agriculture and livestock were heavily affected, and the authorities developed no recovery plans.
- Lack of streamlined recovery intervention, since the focus of the authorities was on the restoration of the state-owned infrastructure and facilities.

As a result, a holistic approach to recovery was designed, focusing on recovery of livelihoods as well as rehabilitation of the community infrastructure to ensure long-term resilience of the most affected communities. In July 2014, UNDP Tajikistan's Disaster Risk Management Programme commenced "***Floods Recovery to Resilience***[171]" project to address these critical recovery needs of the population in severely flood-affected areas of the Sari Chashma Jamoat.

Budget: UNDP provided 941,000 USD, out of which 800,000 USD were mobilized through the Bureau for Policy and Programme Support as part of the post-disaster Recovery to Resilience (R2R) Programme.

Key partners: Committee on Emergency Situations and Civil Defence, district-level Commission on Emergency Situations, Local Executive Authorities of Khatlon Province, and Jamoat authorities, as well as community representatives.

Beneficiaries: In total 710 direct beneficiaries (52% women), while positively affecting the life of 11,800 citizens – total population of the Sari-Chashma Jamoat.

This intervention was designed to ensure people-centred recovery of the community with building back better the communal infrastructure (construction of houses/water supply system rehabilitation/recovery of the communal health services) and livelihoods restoration (support to income generation/hazards screening for informed decision making).

- ***Disaster proof housing:*** Some of the destroyed houses were located in disaster prone areas and the Government allocated 44 ha of land in a disaster safe location in the Bobo Nosir village

168 "Jamoat" is a sub-district administrative unit consisting of several villages. 4 to 10 Jamoats normally form a "district"; 58 districts are grouped into 4 provinces (Viloyat) of Tajikistan.

169 Rapid Emergency Assessment and Coordination Team (REACT) – a coordination platform, co-led by the government, OCHA and UNDP, which since 2003 brings together national agencies, donors and international partners active in the field of disaster risk management in Tajikistan.

170 MT – Metric Tons

171 https://tinyurl.com/yd7hs89b

of Sari Chashma Jamoat. Most economically disadvantaged families that were affected by the flood were relocated to this site. In community inclusive and participatory manner, several steps were implemented for ensuring resilience of the new settlement and benefits for the citizens: rapid hazard and environmental risk screening and profiling of the new location, development of a new urban plan and preparation of construction design as per the national building code and in line with "Build Back Better" principle. Therefore, new houses are resistant to seismic risks and inundation, since they were constructed using burned bricks, reinforced concrete and galvanised roof sheeting. As a result, 18 seismically appropriate core houses were constructed providing housing for 158 community members (37 families), including 70 women.

- ***Restoring access to water:*** Lack of sustainable access to potable water was identified as one of the main issues potentially preventing relocation of affected families to new location. Accordingly, UNDP initiated rehabilitation of the malfunctioning water supply system through expansion of the existing water spring source and installation of new pumps, construction of 2.5 km of new pipeline, replacing damaged one and increased water storage facilities with a new 180-m3 water-collecting reservoir connecting the new location and providing water to the Jamoat boarding school. Disaster risk reduction aspect was mainstreamed in the design and construction of this water supply system. The pumps and engines are located 1 meter above the ground to prevent them from future flooding. Community ownership is guaranteed through the Water Users Association that manages and maintains the system, while the financial sustainability is ensured through collection of monthly fees from the households for covering the operational costs.
- ***Restoring communal healthcare services:*** Provision of health care services for the population was significantly enhanced through recovery of the Sarhadchi Medical Center in the neighbouring Hamadoni district, which extends its services to Sari-Chashma Jamoat. Full rehabilitation of this health facility included also energy efficient measures (replacement of windows, doors, placement of thermo-insulated façade) ensuring payback of investment and savings, as well as reducing energy consumption and CO2 emissions. Now, 2,600 citizens have access to basic health-care services ensuring healthy lives and well-being of the community.
- ***Restoring livelihoods:*** Through a community, participatory approach UNDP has conducted consultation with the community members on the community-preferred practices to livelihoods restoration in order to ensure ownership and sustainability of actions, aimed at reducing risk of disasters. Specific Jamoat profile (e.g. high male emigration, high unemployment rate, restricted access to services, women-led households and income generation activities) and outcomes of the community consultation process designed this recovery component. Accordingly, 101 most affected families received one dairy cow each through a lottery process to avoid possible dissatisfaction with the distribution results. The donation was complemented with 45,000 kg of mixed cattle fodder to ease the livestock management burden, reduce pressure on the pastures and immediate support during the crisis period. This option was also largely supported by women, as livestock management becomes the tasks for female household members due to the high level of male labor migration. As part of the agriculture livelihoods restoration, 20,200 kg of high-quality wheat seeds and 10,100 kg of fertilizers were distributed to the affected households. Improvement in the seeds quality increased the harvest yields (1MT per ha reported). Furthermore, a tractor with a trailer to support their livelihood recovery was delivered to the community. Additionally, 12,800 fruit tree seedlings were planted on the degrading hill slopes and distributed to the villagers to prevent land erosions and to generate additional income for families.
- ***Hazard screening for disaster-informed local development:*** UNOSAT[172] services were utilised to conduct rapid remote sensing to identify hazardous processes in Sari-Chashma watershed resulting in identification of 707 potential

172 Operational Satellite Applications Programme (OSAT) of the UN Institute for Training and Research (UNITAR).

landslides sites, of which 375 were newly developed landslides, 72 existing landslides re-activated by the 2014 weather events and 260 stable landslides. Outcomes of the assessment were presented to the district authorities and the local office of Committee of Emergencies for use risk-informed decision making and planning in local development. In particular, this assessment highlights the new approach in local land management and settlement planning options ensuring resilient community recovery.

Replicability of the practice: This approach for community recovery is replicable and scalable in other parts of Tajikistan, as well as in broader Central Asia region given the similar hazard and vulnerability profiles. Sustainability is guaranteed by prolonged income generation to households through locally accepted livelihoods options. Post-project monitoring in December 2019 showed that since distribution most of the cows delivered 3 to 4 calves, and the population were using the milk to make cheese, domestically consumed and marketed in the district centre.

Lessons learnt:

- Inclusive and participatory recovery needs assessment, decision-making, coordination and planning raised awareness on the recovery implementation as a potential entry point for development support, moving away from the perception of a disaster recovery as a task of humanitarian actors only.
- Even limited in scale recovery projects can apply comprehensive recovery approach providing inclusive support to the citizens through introduction of innovative elements into the rural development (e.g. changing the type of wheat used traditionally or promoting eco-system based slope stabilization techniques).
- For the sustainability of recovery actions, it is necessary to integrate community both at recovery planning stage (e.g. when selecting livelihoods options accepted by the population) and in the post-recovery period (e.g. introduction of the water users' fees and generating local jobs for future operations and maintenance).
- Local development planning and decision-making in land management and urban planning areas benefit from hazard assessment ensuring resilient development of the community.
- Community inclusive restoration of livelihoods options not only kept the preferred income generation sources, but also improved their quality and continuity while contributing to the community's resilience to future disasters.

Relevance to the practice of recovery

Disaster recovery in Tajikistan is managed on a case-to-case basis, with national government allocating resources from the central budget for larger-scale emergencies. Smaller-scale emergencies remain the responsibility of the local authorities with limited local budgets and stay under the radars of the major

development partners. In cases when recovery is framed into the governmental or international assistance, the focus stays on reconstruction of shelters and public infrastructure, leaving livelihoods restoration, psychosocial support and risk reduction unattended. Contrary to this, this recovery practice is a successful example and a ***blueprint*** for resilient community recovery planning and resource mobilization in a relevantly short term – within two months after the end of disaster series and going in parallel with response activities – using the momentum and attention of the stakeholders to the issue. The project design, including measures beyond "***hardware***" reconstruction and featuring hazards assessment of the area wider than the project target became certain "***on job training***" for all the involved parties – national, local and non-governmental.

Both community members and local authorities were part of the consultations and recovery planning during damage and needs assessment and identification of recovery options. A dialogue between the local authorities, affected population and other actors was promoted through the project planning consultations and implementation of activities. These served as a platform to discuss and agree on recovery options and actions and - potentially – for further development planning, and the project becoming a ***de facto*** mediator in these discussions.

Finally, resilient recovery actions had a significant impact on the citizens in terms of directly improving their lives and contributed to national attainment of the Sendai Disaster Risk Reduction Framework priorities and the Sustainable Development Goals – SDGs (1, 3, 6 and 13).

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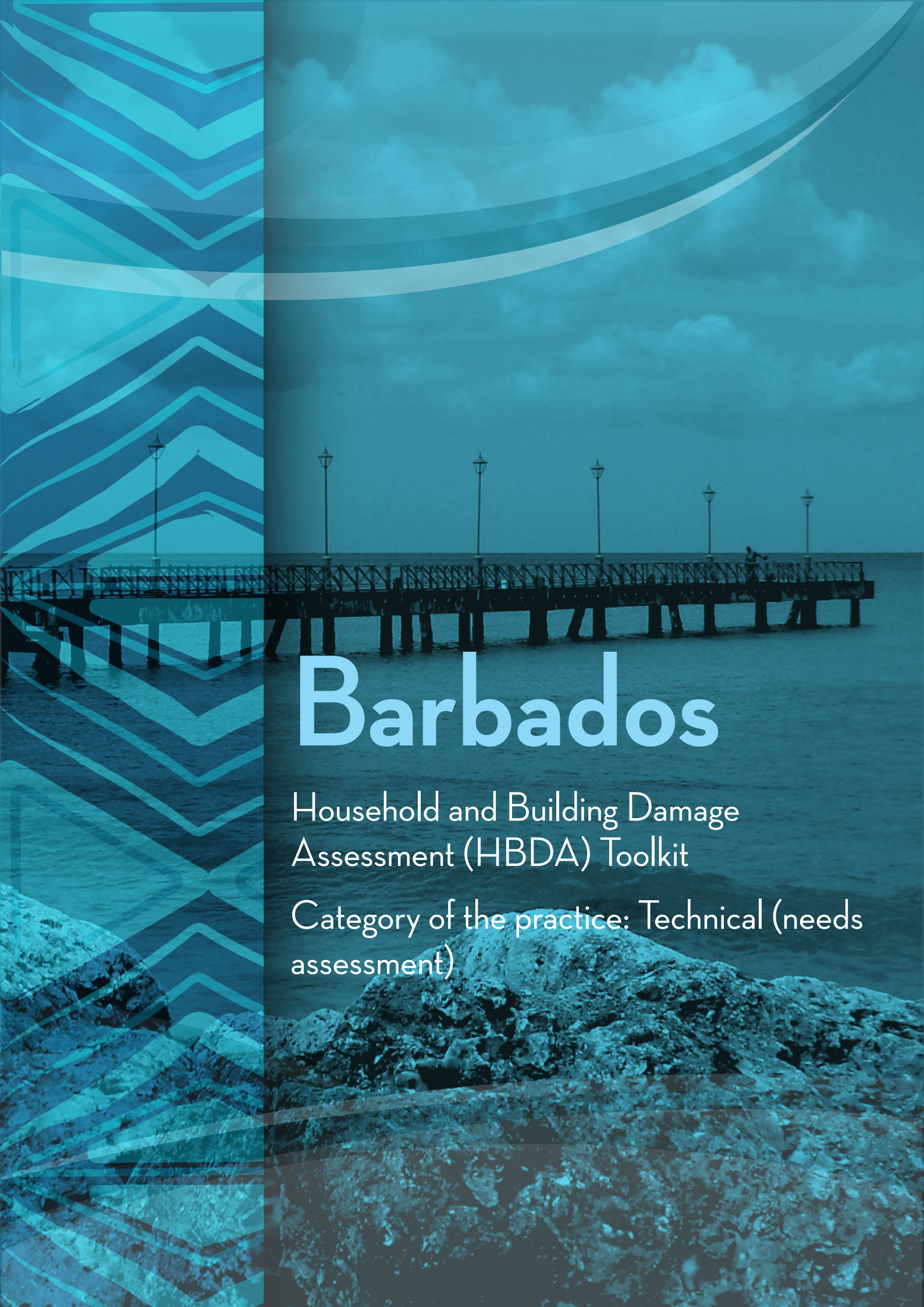
Compendium

Good Practices in Latin America and The Caribbean Region



Barbados

Household and Building Damage Assessment (HBDA) Toolkit

Category of the practice: Technical (needs assessment)

Summary

Assessing the impact of hazards is a complex, time-consuming process that involves the participation of large teams of experts to collect and analyze large volumes of data on damage to infrastructure and other facilities and its effect on communities. The Household and Building Damage Assessment (HBDA) Toolkit was introduced by UNDP in Dominica and Barbuda in 2017 following the landfall of Hurricanes Irma and Maria, as an innovative digital technology that facilitates the collection, analysis and visualization of data on disaster damage, which governments can use to plan, implement and monitor recovery and reconstruction programmes.

In December 2018, the HBDA Toolkit was piloted to improve its functionality. Most recently, the methodology was successfully implemented in the Bahamas to assess the damage caused by Hurricane Dorian in September 2019 and in Albania to assess the vulnerability of people affected by the earthquake that struck Tirana on November 2019. In partnership with IMPACT (a think tank specialized on data collection during crisis situations), plans are underway to further upgrade and refine the HBDA Toolkit in 2020, including capacity-building training and promoting its use as a UNDP corporate tool in other disaster-affected countries.

Description

Pioneering the Household and Building Damage Assessment Toolkit (HBDA)

It was in Dominica and Barbuda when UNDP first introduced the HBDA Toolkit to support the Government to assess the damage caused by Hurricanes Irma and Maria in 2017. The HBDA toolkit allowed government teams to use smartphones to gather the necessary data on damage to houses and critical public and commercial infrastructure such as schools, hospitals, and hotels, using a pre-designed online questionnaire. In Dominica alone, almost 29,500 buildings were assessed by over 150 surveyors in three months.

Building on the successful experience in Dominica and Barbuda, UNDP has been working to improve the HBDA toolkit, by integrating a more comprehensive questionnaire in order to register the damage to other infrastructure such as on public education and health facilities, and to gather key data on demographics and household vulnerability. In this sense the HBDA toolkit has been developing into a multidimensional data gathering platform, in collaboration with other UN agencies such as UNICEF, WHO and WFP.

Photo: HBDA data collection in Dominica

In order to test the improved HBDA toolkit, UNDP implemented a pilot exercise in Roseau, the capital of Dominica, with a team that included members of the Ministry of Planning and the Ministry of Housing from the Government of Dominica, students from the Dominica State College, the Climate Resilient Execution Agency for Dominica, Engineers Without Borders, UNDP and other UN agencies.

The exercise proved to be a useful test of the different components of the HBDA toolkit, such as the list of questions in the questionnaire, the digital survey, the training program, the evaluation protocol, the interaction with occupants, etc. Some bottlenecks were identified for further improvement and fine-tuning, such as GPS accuracy.

Since its initial development and application in Dominica and Barbuda in 2017, the HBDA Toolkit has been used to support assessment and recovery in the Bahamas following the landfall of Hurricane Dorian in September 2019. In addition, the methodology is currently being used by the Government of Albania to assess the damage caused by the earthquake that struck Tirana in November 2019.

The capacity of the HDBA toolkit

The digital technology behind the HBDA Toolkit enables the collection of damage data on smartphones and tablets. The HBDA Toolkit uses Microsoft PowerBI to facilitate the analysis of geo-referenced data generated by the assessment, as well as the visualization of data in a user-friendly dashboard with graphics and maps. With the HBDA Toolkit the assessment process is more efficient, in real-time and in formats that facilitate decision-making by governments and helps them to plan and implement recovery and reconstruction processes.

The HBDA Toolkit presents a library of questions divided into different modular sections, which can be used separately or collectively depending on the needs of governments. Some of these sections include:

Damage: this module is designed to assess the physical structural damage to all types of buildings, from private residential and commercial buildings to public structures including schools, hospitals or community centres. It is tailored to capture the measurement of the building, the type of materials

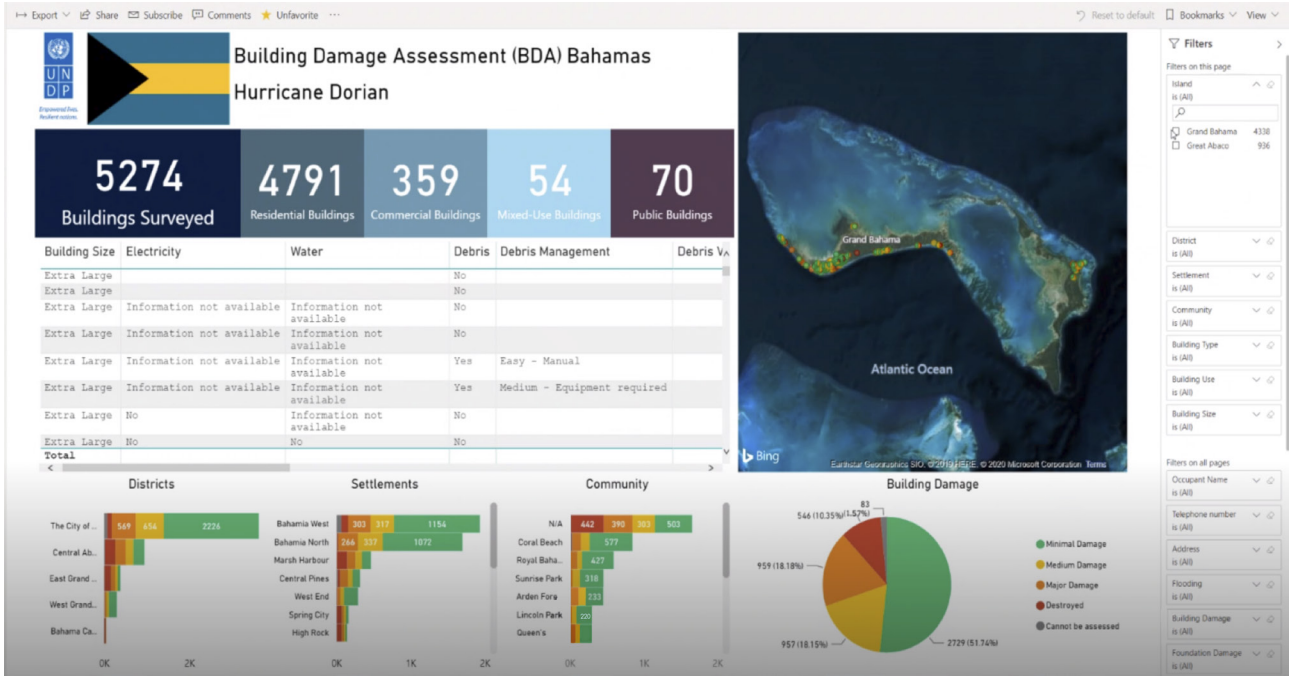


Fig 1: Example of the HBDA Dashboard

used to build it, and the particular damage caused to its structure, foundation, roof, walls and floor. The HBDA provides a damage color-coding that classifies the level of damage from green to red.

Vulnerability: this module captures information about the population affected, particularly on vulnerable population groups such as the elderly, children with special needs, pregnant and lactating women.

Services: this module records access to basic services by the affected population, such as access to drinking water, sanitation and electricity.

Debris: this module enables the rapid estimation of the debris left by the disaster, especially the volume and type of debris to determine the most appropriate mechanism for collection and disposal, and even the recycling opportunities.

Preparedness: this module collects information that helps to determine the extent to which a given structure is exposed to future disasters, for example its proximity to areas at risk of disasters, or if it has been built in line with local building codes or with building techniques that safeguard it from disasters.

Developing a Corporate HBDA Toolkit

At present, with the HBDA Toolkit UNDP can support countries facing a disaster with the following unique features:

- The deployment of a team of UNDP experts within 48 hours to a disaster-affected area to train local inspectors to conduct an effective HBDA.
- The ability to process the data collected on a real-time basis, producing immediate visual, dynamic and interactive tables, graphs, maps and reports.
- The HBDA Tool can be made available in different languages.

In 2020, in partnership with IMPACT, UNDP plans to further develop the HBDA technology into a robust corporate tool that is more comprehensive to better support assessments and recovery processes, and to promote its use in other countries around the world.

Plans are underway to develop a more flexible design for the toolkit so that it can be adapted to different disaster scenarios. In order to facilitate the adoption and use of the HBDA toolkit in other countries, among other things, UNDP is developing a practical HBDA Handbook with step-by-step instructions on its use and requirements, and will roll-out a training programme to establish a team of experts in every region who can be deployed to undertake post-disaster assessments using the HBDA toolkit.

Relevance to the practice of recovery

When hazards strike, it is critically important to immediately assess its impact on people, housing, infrastructure, health and education facilities and other vital services. The assessment results inform decisions by government authorities and the international community, including on what recovery efforts are needed, where and by whom. It therefore contributes to the planning and implementation of national recovery strategies.

Yet, it is a challenging and time-consuming process to assess the impact in every community, district and province affected in the country and across all sectors. Collecting and analyzing data involves large teams of government and international experts working in a time-constrained post-disaster environment.

In this context, time is of the essence and reliable data is critical to governments to respond effectively. Technologies such as the HBDA Toolkit enable a more rapid and effective collection, analysis and visualization of geo-referenced disaster information. The ability to access real-time data empowers governments to make time-sensitive decisions. In a digital format, data can be analyzed in ways that are most useful to governments, for example to understand the disaster impact in a particular geographic area or for a given sector nationwide. Visual formats such as graphs, tables and maps also make data more user-friendly for decision-makers. The HBDA Toolkit is a platform that can assist disaster-affected countries to plan, implement and even monitor recovery and reconstruction.

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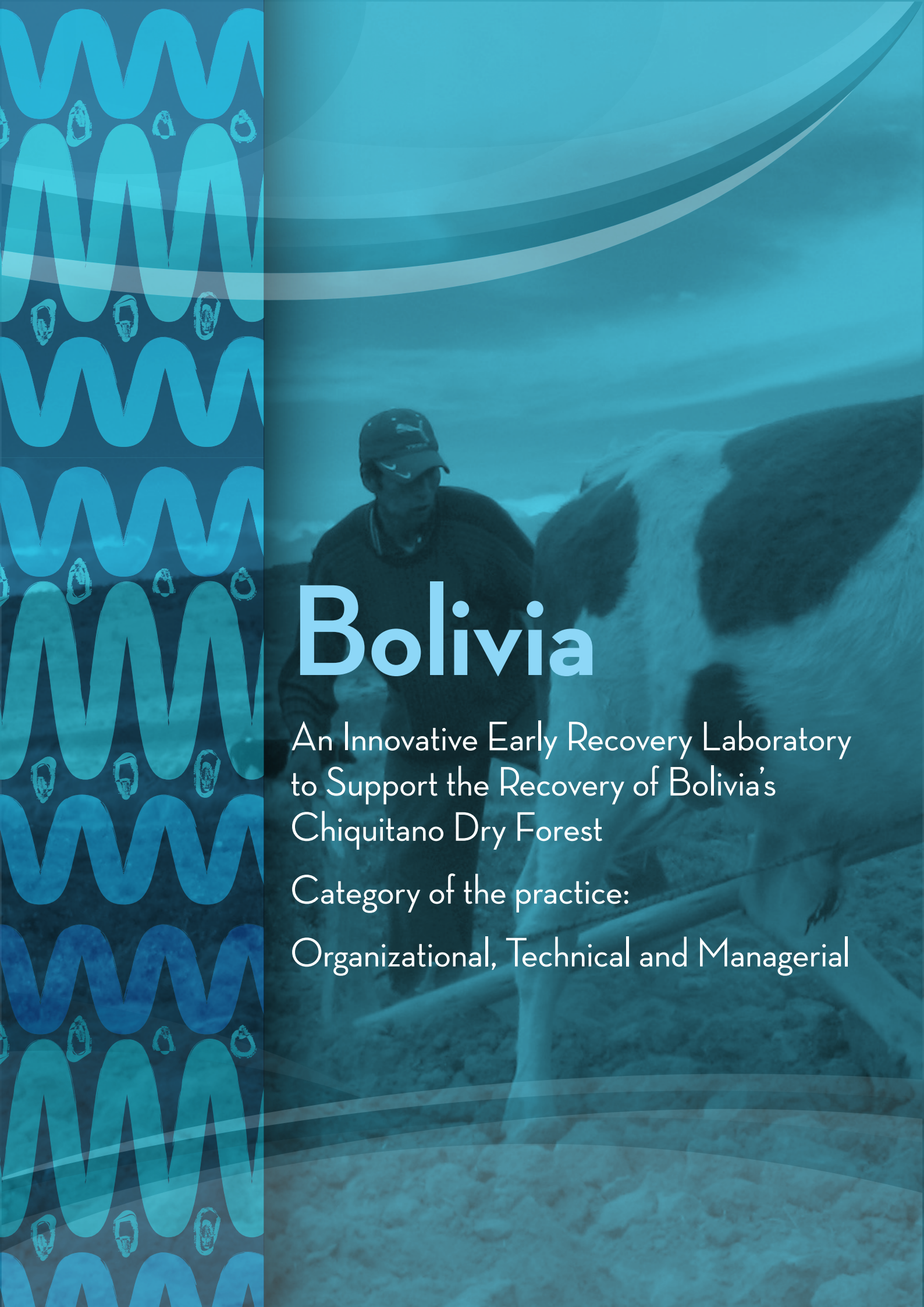

Bolivia

An Innovative Early Recovery Laboratory to Support the Recovery of Bolivia's Chiquitano Dry Forest

Category of the practice:

Organizational, Technical and Managerial

Summary

Bolivia's Chiquitano Dry Forest burned under fire for much of the winter and spring of 2019. Classified as a megafire, it burned approximately 4 million hectares of one of the most biologically diverse dry forests in the world. In response and recognizing the complexity and challenges these fires posed, UNDP introduced the Early Recovery Laboratory (ERL) initiative to request proposals from affected communities as well as from academia, NGOs and other institutions, inviting innovative solutions to address the most urgent needs and help to restore key environmental functions. The ERL initiative therefore adopted an approach that is community driven, participatory and open to novel solutions to a complex challenge. The ERL is a fund to finance the best proposals, aiming to later up-scale these and integrate them into the National Recovery Plan that the Government of Bolivia planned to prepare with the technical support of UNDP. This initiative is supported by the Korean Government and through a private partnership with Mercantil Santa Cruz Bank Foundation.

Description

The challenges of megafires in Bolivia´s Chiquitano dry forest

Bolivia's Chiquitano Dry Forest burned under fire for much of winter and spring in 2019. The Chiquitano is one of the most biologically diverse dry forests in the world, and an eco-region that sits as a transition zone towards the Amazon forests. It is home to indigenous communities, as well as to deer, jaguars, pumas and ocelots, and hosts a number of threatened and endangered species like the giant otter, the giant armadillo, and the maned wolf. The forest fires, which followed on the heels of a drought, were severe and classified as a sixth-generation wildfire or mega fire. Its impact was far-reaching. To date the following consequences have been recorded:

- A total of 16 municipalities were affected, mainly in Santa Cruz;
- About 4 million hectares were burnt, equivalent to 18% of the Chiquitano Dry Forest;
- Almost 1.7 million hectares of protected areas were burned;
- Over 2.8 million hectares of jaguar habitat was affected;
- Ten river basins were affected, particularly 1.2 million hectares of the Rio Curichi Grande basin.

Although not quantified, the fires killed local fauna, destroyed its flora, eroded the forest's biodiversity, contaminated water sources, degraded the quality of soils, affected the livelihoods of local forest communities, and left vulnerable the forest ecosystem. In addition, scientists predict that the fires will alter precipitation cycles and decrease rainfall, which will provoke more severe and prolonged droughts, not only in the forest itself but also surrounding regions.

Forest fires of this magnitude are becoming more frequent but are still new and not well understood by science. Their full impact on ecosystems and forest communities is largely unknown. In this context, finding appropriate and sustainable recovery solutions is a challenge, though many experts highlight the importance of recovering the lost flora and fauna.

The early recovery laboratory

In response to the fires in the Chiquitano Dry Forest, including nearby National and Municipal Protected Areas, and recognizing the complexity and challenges they posed, UNDP introduced the Early Recovery Laboratory (ERL) initiative to invite proposals from affected communities, academia, NGOs and other institutions that addressed the most urgent needs and helped to restore important environmental functions.

The ERL initiative therefore adopted an approach that is community driven, participatory and open to innovative solutions to a complex challenge. For this purpose, it created the ERL Fund to finance the best proposals, with the expectation that these will be scaled-up and integrated into the National Recovery Plan that the Government of Bolivia planned to prepare with the technical support of UNDP.

The ERL was initiated by UNDP in September 2019 and is still in the early phase of implementation. The following are the main features integrated into the design of the ERL initiative:

- Communities could represent themselves and submit proposals, as well as local governments, NGOs, universities, foundations, producer associations, women's groups and other organizations;
- Criteria was established to guide the selection and approval of proposals, such as innovation, resilience and ability to scale-up and replicate;
- Proposals are expected to have the gender and human rights approach mainstreamed into the project;
- A committee was set up to evaluate and approve the proposals, represented by the municipality, the departmental and national government authorities, donor(s) and UNDP;
- A maximum of USD 15,000 in funding would be allocated to each approved proposal, to be implemented within six months in line with the early recovery objective;
- The bidding process for the submission of proposals was advertised through various media and social networks with the participation of local actors;
- Two information sessions were organized during the bidding process to allow interested participants to receive advice and support.

A website was set up with information on the ERL and the application was placed online along with guidelines and approval criteria. Proposals were guided as well by the following set of thematic priorities to stimulate ideas for project proposals:

1) The natural or assisted regeneration of forests;
2) Reforestation in strategic locations such as water recharge areas / main water sources;
3) Water harvesting for human consumption or productive purposes;
4) Sustainable production practices that support the recovery of the forest;
5) Community regulatory norms for forest protection and conservation;
6) Productive enterprises that support soil conservation and the regeneration of the forest;
7) Early warning systems for fires;
8) Training in the use of alternatives to the slash-and-burn practice;
9) Promoting ecotourism in protected areas and biological corridors.

The bidding process received a total of 96 proposals, testimony of the high interest in the protection and recovery of the Chiquitano Dry Forest. In its first phase, the following five proposals have been approved by the ERL:

1) The collection, management, storage and protection of seeds from native forest trees;
2) Water harvesting and conservation for human consumption and irrigation;
3) Introduction of agro-silvo-pastoral practices to support sustainable livestock production;
4) The establishment of a garden to regenerate native forest pollinators;
5) Early warning system for forest fires.

Approved projects will receive advice and support in three phases to ensure their success and sustainability. The first phase will consider the theory of change, the project's objectives, indicators, monitoring and evaluation mechanism, and budget. The second phase will support the implementation process, including a mentoring program with UNDP staff. The third phase will systematize the lessons learned and good practices and includes a final evaluation.

The collection, management and storage of genetic forest resources

The five approved proposals reflect innovative ideas and solutions to the challenges now facing the Chiquitano Dry Forest as a result of the fires. One

example is the approved proposal to develop good practices in the collection, management and storage of the native genetic resources of the Chiquitano forest.

The project will collect good quality seeds from native forest tree species, store them in a seed bank under refrigerated storage facilities, and later distribute them to restore forest plantations in areas affected by fires. The project will introduce a revolving fund that will facilitate the purchase, commercialization, distribution and future collection of forest seeds, ensuring a longer-term sustainable approach to seed conservation.

Local forest communities will be active partners in the project, participating in the collection, selection and propagation of seeds, and to this end will receive training to build their knowledge and capacity. The project will be implemented in seven communities in the municipalities of San Antonio de Lomerio and Concepcion, under the coordination of the Autonomous University Gabriel Rene Moreno (UAGRM). The university's Institute of Forest Research has extensive expertise in seed management and manages a seed bank and seed storage facilities.

The project will also be implemented in partnership with several institutions, including the GIZ German Cooperation, the Seed Bank in Cochabamba, the community-based Association Sembrando Vidas, municipal authorities and other partners.

The destruction of forest ecosystems including native tree species makes this project an important initiative. The seed conservation and propagation measures will help to protect the native genetic resources of the Chiquitano forest and prevent their loss.

Relevance to the practice of recovery

Mega fires such as the one that scorched the Chiquitano Dry Forest in Bolivia in 2019 are becoming more common worldwide, yet their full implications and consequences are not well understood by science. Like other extreme weather events precipitated by climate change, they pose new challenges and require innovative solutions. In this context, the Early Recovery Laboratory is an innovative approach adopted by UNDP in Bolivia to invite forest communities to propose ideas based on their own needs and priorities as well as on the native knowledge they have of their forest environment. At the same time, the ERL promoted proposals from academic institutions, NGOs, municipal authorities, associations and other organizations to harness the ideas of experts and promote multi-disciplinary partnerships that are more likely to be effective.

This initiative also generates evidence for UNDP to develop strategies for the recovery of livelihoods in post-fire scenarios, an area still largely unexplored. It is also a methodologically important experience since the generation of response alternatives from affected communities was a key element to establish a strategic alliance with the Korean Government and with the private sector.

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Resources

ERL Website

https://www.bo.undp.org/content/bolivia/es/home/presscenter/articles/2019/laboratorio-de-recuperacion-temprana--lrt-.html

ERL Video

https://drive.google.com/file/d/1kofztDlx9_3qANFbFAi4xaBVmfH-mq4L/view

Colombia

Colombia's new governance framework on disaster risk management strengthens post-disaster recovery

Category of the practice:

Legal and Organizational

Summary

The Government of Colombia embarked on an ambitious reform process in 2011-2012 to establish a robust governance framework on disaster risk management. This included new legislation introduced in 2012, a National Policy on Disaster Risk Management, and a corresponding National System for Disaster Risk Management. The new framework was overdue, as the former normative and planning instruments were outdated and had important gaps that needed to be addressed. Colombia's new legal and governance framework is an example of a comprehensive and forward-looking approach that reflects international standards and good practices. It encompasses all phases of risk management, including preparedness, response and long-term recovery, and follows fifteen core principles including sustainable development, risk reduction, decentralization and participation.

Description

The need for a renewed risk management policy

In 2012, the Colombian Government approved a new legislation, known as Ley 1523, which adopted a comprehensive National Policy on Disaster Risk Management and established a corresponding National System for Disaster Risk Management (NSDRM) in the country.

This new legislation and policy on risk management was overdue and much needed in the country. The former National System for Disaster Prevention and Response, created in 1988 as the main regulatory body and system, which had not been significantly modified since. Although Colombia had developed some normative and planning instruments on risk management, there were important gaps that needed to be addressed:

- There was no consolidated and comprehensive risk management policy that was clearly articulated within the public administration;
- The 1988 Law focused on disasters and on phases: prevention, management, rehabilitation, reconstruction, and development;
- The existing national system was not in line with the 1991 Constitution, which established decentralization and the principles of autonomy, coordination, concurrence, subsidiarity, and participation;
- Existing instruments and programs did not have the political mandate necessary for effective risk management, and did not define the scope of public and private responsibility at the territorial and sectoral level;
- Risk management was not incorporated in planning instruments by all responsible public administration actors;
- The National Calamity Fund focused mainly on financing disaster management activities.

Colombia's new legal and policy framework on disaster risk management

The new legislation introduced in 2012 (Ley 1523) set the basis for the country's National Policy on Disaster Risk Management and its corresponding National System for Disaster Risk Management (NSDRM).

With the adoption of the law Colombia established a comprehensive and forward-looking legal and policy framework for disaster risk management in the country that reflects the latest international standards and good practices. On the one hand, the legislation and policy is enshrined in fifteen core principles necessary for effective risk management, while on the other, the NSDRM embodies the institutional arrangements, mechanisms and processes needed to implement them.

This section will highlight some of the principles and key features of Colombia's 2012 legislation and policy on risk management.

Risk management as a social process linked to development

The national policy defines disaster risk management as a 'social process' linked to development and makes all government authorities and the population both co-responsible for implementing the policy.

Declaration of a state of emergency

The legislation establishes the criteria for declaring a state of emergency at all levels (national, provincial, district and municipal), and empowers governors and mayors to make such a declaration within their respective jurisdiction, thereby decentralizing decision-making and governance.

Making 'action plans for recovery' mandatory

The legislation calls for the development of Action Plans for Recovery and Reconstruction once a state of emergency has been declared, which is made mandatory at national, provincial, district and municipal levels for all public and private entities that contribute to the recovery process.

High-level oversight

The policy defines the oversight and coordination bodies and mechanisms for the National System for Disaster Risk Management, as well as their role and responsibilities, such as those of the National Council and the National Unit on Disaster Risk Management, and the National Committee for Disaster Management.

The National Council on Risk Management is represented by the highest levels of government including the President, line Ministers, the Director of the National Planning Department and the Chief of the National Unit for Disaster Risk Management.

Decentralized coordination

At sub-national level the policy creates provincial, district and municipal Councils on Disaster Risk Management and bestows them with a mandate and responsibilities over disaster risk management within their territorial jurisdiction, including those of Governors, Mayors and sector ministries.

Planning instruments

The legislation and policy call for risk management plans and the integration of risk management in key planning instruments, namely the development of the following:

- A National strategy for disaster response.
- Plans for risk management at all levels of government to prioritize, program and implement actions on behalf of the National System for Disaster Risk Management.
- The mainstreaming of risk management in provincial, district and municipal development plans.
- Risk assessments for all large public works or other industrial activities that may create disaster risks, to identify the potential impact of disasters on its infrastructure and operations and makes mandatory the adoption of measures to reduce risk including contingency plans.

The principle of participation

The principle of participation establishes that it is the duty of authorities and the entities of the National Disaster Risk Management System to recognize, facilitate and promote the organization and participation of communities, civil society, ethnic groups, and neighborhood, charitable, voluntary and common-use associations. Likewise, it establishes the duty of all people to be part of the risk management process in their community.

The principle of environmental sustainability

The principle of environmental sustainability establishes that development is sustainable when it meets present needs without compromising the capacity of ecosystems to meet future needs. It further clarifies that the rational use of natural resources and the protection of the environment are an integral part of environmental sustainability and contribute to disaster risk management.

Financing risk management

The legislation calls for the creation of a Fund for risk management in all provinces, districts and municipalities, to invest and finance risk reduction measures as well as preparedness, response and recovery. The sub-national funds created follow the framework of the National Fund for Disaster Risk Management, which was created in 1984 and subsequently updated in 1989.

The governance framework for disaster risk management

The Government of Colombia embarked on an ambitious reform process to establish a robust governance framework on risk management. Below are examples of this governance framework.

- The establishment of the National Unit for Disaster Risk Management (UNGRD) in 2011 under the Administrative Department of the Presidency. As the holder of the highest leadership role in the central government on risk management, the UNGRD formulates the strategic vision, steers the national agenda, designs national policies, coordinates, provides oversight, strategic guidance and technical assistance.
- The formulation of a National Plan on Disaster Risk Management (2015-2025) which identifies the objectives and priorities to be achieved over the 10-year timeframe in Colombia.
- The creation of the National Committee for Risk Knowledge, which is responsible for improving the country's understanding of risk. Numerous technical studies have generated a broad body of knowledge on the hazards and risks facing the country. It is led by the UNGRD and includes the National Planning Department, National Department of Statistics, Geographic Institute Agustín Codazzi, Colombian Institute of Geology and Mining, the National Federation of Departments, the Colombian Federation of Municipalities, among other bodies.
- Provincial and municipal councils for Risk Management established to plan, coordinate and monitor risk management processes within their jurisdiction.
- The National Fund for Disaster Risk Management adopts a broad purpose in line with the new legislation (Ley 1523) to support the implementation of the country's wider disaster risk management agenda. The Fund is divided into five accounts: risk knowledge, risk reduction, disaster management, recovery and financial protection.

Key highlights of success

The following are some of the key elements supporting Colombia's robust governance framework on risk management:

- Mandated by law through the introduction of legislation on risk management;
- Makes a direct link with and is supported by the constitution;
- Establishes a comprehensive national system on risk management;
- Defines the institutional mechanisms and coordination arrangements at all levels of government;
- Supports a multilevel decentralized coordination and planning process;
- Shifts from focusing on disaster and its phases to the more holistic risk management approach;
- Advocates for the mainstreaming of risk management into planning instruments, across sectors and geographic territories;
- Supports the participation of civil society, community associations and private sector;
- Expands the scope of financing to support the country's new risk management agenda.

Relevance to the practice of recovery

The institutionalization of disaster risk management is a challenge in many countries, and examples such as Colombia on how it has been achieved effectively provide valuable lessons for informing future processes. To be effective institutionalization requires more than programmes and initiatives, it needs a legal and policy framework as well as the functional organization of government to execute these. Risk management can succeed when the mission and functions are clear (what should be done) as well as the organizational mechanisms (who is responsible) and the instruments (how it will be achieved). Lessons learned and good practices in risk management also highlight the critical importance of core principles such as participation, environmental sustainability, decentralization, and mainstreaming into planning instruments.

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Costa Rica

New Cinchona:

Rebuilding Development

Category of the practice:

Organizational, Technical, Managerial

Summary

Following the 2009 earthquake in Costa Rica, the government led a process of rebuilding the rural community of Cinchona which was completely destroyed by tremors and mudslides. In partnership with civil society, local communities, academia and the private sector, "New Cinchona" was relocated to a safe geographic location and rebuilt in line with the appropriate building codes. An integrated and multi-sectoral plan was adopted that included infrastructure, housing, public services and economic re-activation, while also taking into consideration the environment and the socio-cultural identity of the community. The plan was designed with wide consultation and the direct participation of the affected population, including in decision-making and the resolution of problems.

Description

The 6.1 magnitude earthquake that struck Costa Rica in January of 2009 had its epicentre 30 km north of the capital city of San Jose, producing tremors and triggering landslides and mud flows that destroyed homes and infrastructure. The rural community of Cinchona was completely destroyed, and the conditions of high risk left behind made impossible reconstruction in the same location. Relocation of the community was necessary but required a careful and strategic planning process without precedent.

The government activated a coordination mechanism to support the National Emergency Commission (CNE) and developed a plan for relocating and rebuilding "New Cinchona" that was participatory, multi-sectoral and sustainable. New Cinchona was rebuilt within 24 months on a 600-hectare plot of land roughly six kilometres from the original town, for a total of 93 families who lost their homes to the earthquake.

Key elements of success

The approach followed in Costa Rica for relocating and rebuilding New Cinchona was integrative and sustainable, based on the adoption of the following main elements of success.

1) The existence in Costa Rica of Law No. 8488 was critical in that it called for a National Plan for Risk Management (NPRM), which was updated in October 2009 through a wide consultative process led by the National Forum for Risk Management. The plan reinforced the strategic and leadership role of the CNE and outlined the roles and responsibilities of all relevant institutions, both public and private, and civil society in relation to emergency response and risk management.

2) An integrated and multi-sectoral approach was adopted in the design and implementation of the recovery plan, focusing on three main pillars: infrastructure, economic reactivation and recovery of the social fabric. Environmental considerations were mainstreamed across all three pillars.

3) The adoption of agreed principles at the start of the process helped to guide the recovery process. These included the following principles:

   - To avoid rebuilding risk
   - Focus on the most vulnerable
   - Support and empower the affected population
   - Inter-institutional collaboration
   - Restore capacities and strengthen institutions
   - Support the role of local actors
   - Monitor, evaluate and learn
   - Financial transparency

4) The government's commitment to risk reduction ensured that a safe geographic area was identified for the relocation and rebuilding of the New Cinchona community.

5) Technical studies were conducted to select a safe location for New Cinchona, led by the Costa Rican Electricity Institute. Subsequently, several field studies undertaken by specialists in urban planning, public services and risk analysis served to identify the land that was technically sound for rebuilding.

6) Social and economic considerations were also taken into account. The land selected for relocation was six kilometres from the previous location

of the community, which helped to preserve social cohesion, the cultural and community identify of the affected population, and their local employment and livelihoods.

7) Community participation, through workshops led by the Ministry of Housing and Human Settlement (MIVAH), served to understand the history and socio-cultural dynamics of the community prior to the earthquake, and to use the results to inform the design and final validation of the relocation plan, reflecting as much as possible the model of community they previously had.

8) Building back better was a strategic priority that was integrated also in the architectural design of the houses in New Cinchona. Engineers and architects designed the blueprints for the new relocated community in compliance with Costa Rica's seismic code.

9) The participation of civil society, academia, the public and private sectors ensured inter-institutional collaboration throughout the process and benefited from broad support and expertise. The Federal School of Engineers and Architects (CFIA), for instance, donated the urban design of New Cinchona, building on the feedback from the community that was collected by the MIVAH. Public-private collaboration was effective in supporting the economic reactivation of New Cinchona.

10) The integration of environmental considerations ensured that the recovery process contributed to the conservation and protection of local natural resources, promoted the sustainable use of local ecosystem services and sustainable economic activities such as ecotourism.

11) The mobilization of financial resources for rebuilding New Cinchona came from a combination of public funds and the private sector, based on the successful national funding campaign "I was Born in this Country".

The recovery planning process

Planning the relocation and recovery of New Cinchona followed four key stages as outlined below.

1) Needs analysis
   - Identifying the main needs of the affected population
   - Identifying the institutional offer
   - Prioritization
   - Mapping other actors and sectors

2) Organization
   - Formation of working groups by component (infrastructure, economic, the environment)
   - Identifying focal points by institution
   - Establishing Ad hoc Commission under the Ministry of Public Health and defining its responsibilities
   - Identifying lead institutions for each main area of intervention
   - Defining the work plan

3) Design of proposals by area of intervention
   - Design of specific projects
   - Establishing alliances
   - Identifying financial resources needed

4) Financing
   - Resource mobilization

Lessons learned

In addition to the key elements of success, the recovery of New Cinchona left the following important lessons that can serve future relocation processes:

1) A pre-defined and agreed recovery framework that clearly establishes a vision, principles, responsible institutions and their roles and responsibilities, coordination mechanisms, approaches to ensure community participation, and resource mobilization strategy including public-private alliances.

2) Post disaster recovery should be a horizontal process that includes consultations with the affected population, ensuring that the decisions and solutions adopted respond effectively to their real needs and expectations, and that communities are empowered by the recovery process and the results.

3) The focus on the relocation and recovery of Cinchona made invisible the needs of other communities affected and provoked some conflict with nearby communities. To avoid such conflicts, it is necessary to establish equity and proportionality as core principles of recovery.

4) The framework for recovery and the tools for implementing recovery need to be planned or developed in normal times to avoid improvisation during times of disasters.

5) Public-private alliances are fundamental in supporting economic recovery, to identify innovative and creative options and to ensure sustainability

Relevance to the practice of recovery

Post-disaster recovery processes are challenging yet international experience and practice has produced lessons and examples of excellence, which, when applied to new recovery interventions can yield successful and sustainable results. The relocation and reconstruction of New Cinchona is an example of a recovery process that integrated a number of best practice principles into its design and implementation, including the well-documented importance of community participation, inter-institutional collaboration including with the private sector and civil society, of multi-sectoral approaches that combine hard and soft sectors such as infrastructure and culture, the protection of natural resources and building-back-better.

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Additonal resources

UNDP Video on the recovery of Cinchona https://www.youtube.com/watch?v=Q3cJB36H5OI

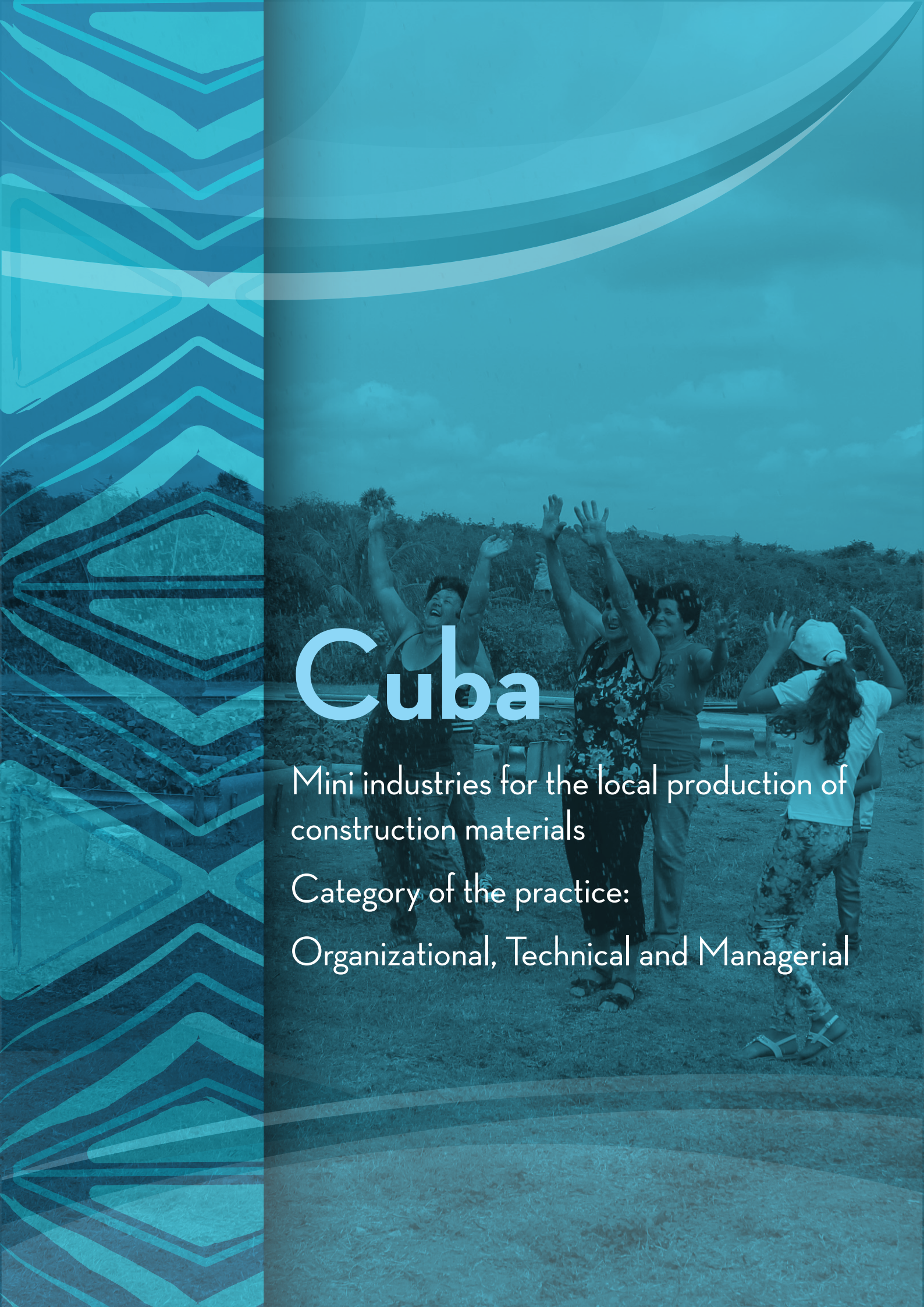
Government Video on the Inauguration of New Cinchona https://www.youtube.com/watch?v=Gna4lQ-xlRo

Building design of New Cinchona https://www.cne.go.cr/cinchona/presentaciones/nuevacinchona.pdf

Campaign Yo Nací en este país

https://www.youtube.com/watch?v=yleOhxhzl74

Economic reactivation in New Cinchona https://www.tec.ac.cr/hoyeneltec/2017/08/23/invernaderos-comunales-nueva-cinchona-impulsan-desarrollo-economico-video



Cuba

Mini industries for the local production of construction materials

Category of the practice:

Organizational, Technical and Managerial

Summary

Since 2008 UNDP in Cuba has been supporting local mini industries to produce construction materials needed to repair or rebuild houses destroyed by hurricanes. This post-disaster recovery initiative has been implemented, in partnership with the government, in response to Hurricane Sandy in 2012, Hurricane Matthew in 2016, and Hurricane Irma in 2017. To date, a total of 60 mini industries have been created or strengthened in eight provinces across the country.

By supporting local industries, this initiative promotes enterprise development and generates employment and income opportunities. Disasters such as hurricanes cause heavy damage and destruction to housing and other infrastructure, and reconstruction demands a high volume of construction materials. In this context, the mini industries in Cuba help to meet this high demand, while also supporting local enterprises, often with a positive ripple effect on the value chain and local economy. UNDP in Cuba has developed a programme package, based on lessons learned and good practices in the country, that can be used to facilitate the implementation of similar initiatives in other countries affected by disasters.

Description

Mini industries in guantanamo in response to hurricanes sandy, matthew, irma

Following Hurricanes Sandy (2012), Matthew (2016) and Irma (2017), UNDP implemented a recovery program to support housing reconstruction and local economic development in partnership with the Government, the Russian Federation, COSUDE, the European Union, and the Government of Rumania. The housing sector was the most affected by all three hurricanes, damaging or destroying a total of 262,703 homes in Santiago de Cuba; 42,338 homes in Guantanamo and 145,974 homes in the central provinces. UNDP led the recovery of the housing sector, providing technical assistance, capacity-building training and supporting local mini-industries to produce the much needed construction materials while also supporting the local economy. The main achievements are summarized in the table below.

Mini-industry Cabacú 2, in Baracoa municipality

Mini-industry Lindero, in Maisí municipality

Summary of Achievements in Housing Reconstruction Following Hurricanes Sandy, Matthew and Irma

Context	No of Mini-industries (created / strengthened)	No of People Trained (professionals, technicians, construction workers)	Employment Generated	No of Beneficiary Houses / Households (with at least 1 element)	Production Capacity Established (annually)
Hurricane Sandy in 2012: Recovery Plan for Santiago de Cuba, the second largest city in the country	13	1,234	300	3,785	Capacity to produce: 9,680 m^3 sand and gravel; 1,742,400 blocks; 798,600 mosaics
Hurricane Matthew in 2016: Recovery Plan for 4 municipalities in Guantánamo, the province with the lowest HDI in the country	29	200	200	3,200	Capacity to produce: 12,760 m^3 sand and gravel ; 492,800 blocks; 88,000 mosaics
Hurricane Irma in 2017: Recovery Plan for 14 municipalities in the provinces of Villa Clara, Sancti Spíritus, Ciego de Ávila y Camagüey	20	305	220	10,000	Capacity to produce: 121,000 m^3 sand and gravel; 4,356,000 blocks; 1,306,800 mosaics; 15,488,000 ceramic pieces (bricks y roof tiles)
Total	62	1,739	720	16,985	Capacity to produce: 143,440 m^3 sand and gravel ; 6,591,200 blocks; 2,193,400 mosaics; 15,448,000 ceramic pieces (bricks y roof tiles)

The case of mini industries in guantanamo in response to hurricane matthew

Following the 2016 landfall of Hurricane Matthew in Cuba's Guantanamo province, which damaged or destroyed a total of 42,338 homes, UNDP in partnership with the Government and the Russian Federation, supported housing reconstruction and local economic development. The programme supported mini industries with production facilities that were closest to the hurricane-affected communities, using the local labor force and community resources, and reducing transportation costs, in line with the national policy to

foster the local production of construction materials. The conditions of existing mini-industries were improved, and new industries were created where there was demand, to introduce new production lines and increase production volumes.

Some of the project's main achievements include:

1) Strengthened the production capacity of 29 mini-industries:

- Transferred 64 machines and equipment for the production of cement blocks, floor tiles and roof slabs; also transferred other equipment for transport and carpentry, and tools to support quality control;
- Organized four technical training sessions, and trained 144 operators on the use and maintenance of new equipment;
- Trained 37 partners in business management and production processes;
- Generated 200 new local jobs (operators, assistants, drivers, mechanics, and supporting staff) contributing to a 30% increase in their personal income;
- Benefited 3,200 households;
- Achieved the following production capacities:
- The production of 448,000 cement blocks per month, 28 times higher than at the start;
- The production of 8,000 floor tiles per month, 16 times higher; and
- The production of 520 roof slabs per month.

Final equipment arriving for mini industries, to support the recovery programme following Hurricane Matthew in 2016: ball mills (left) and conveyor belts (right).

2) Strengthened local governments

- Improved business management capacities, such as through the computerized preparation and control of production plans;
- Increased their capacity to advice, control and monitoring mini-industries;
- Enhanced their capacity to transport raw materials, by transferring 9 tractors to ensure an adequate and sustainable supply;
- Trained 9 operators, 1 mechanic and 2 specialists from the Various Local Industries Company such as on loading operations for raw materials;
- Supported with in situ quality control measures for the production of cement.

The key elements to strengthen mini industries for housing recovery

Several manuals and guidelines have been developed by UNDP in Cuba on strengthening mini industries in

Final equipment arriving for mini industries, to support the recovery programme following Hurricane Matthew in 2016: ball mills (left) and conveyor belts (right).

Production of blocks, Carbonera mini-industry, Imías municipality

Production of tiles, Mabujabo mini-industry, Baracoa municipality

post-disaster recovery processes. Based on lessons learned, below are some of the main elements that ensure a successful programme.

Needs assessment: conduct an assessment including field visits, surveys, meetings and discussions with local actors and authorities, to identify the needs in each disaster-affected municipality, to identify the small industries or enterprises that need to be created or strengthened, the business owners and community leaders, to select the most appropriate technologies than can be transferred, and identify the financial and material investments needed to create or re-activate the identified industries; and develop fact sheets on each production center/facility to record its production flows, installed equipment and new equipment needed under the project, the needs to condition or expand operations, investment requirements such as construction, electricity, water supply and transfer of new technologies.

Investment plan: develop a plan to strengthen local mini industries based on the assessment results and tailored to the particular local context.

Technical assistance: provide in situ technical support and follow up, for quality assurance, such as on the refurbishment process, the utilization of space, and on ongoing improvements in the production flow. Monitoring support as well to ensure performance, for example to assess the impact of new equipment on production levels or the demand for local materials.

Partnerships: collaboration with government authorities, the private sector and local producers makes a significant contribution to success. For the recovery of Guantanamo after Hurricane Matthew, for example, the government guaranteed the transport of equipment and supplies from national stocks, such as cement and steel; the provincial delegation of the Ministry of Construction supported implementation in one municipality; the OBE electricity company made the investment needed to provide a power supply to mini industries; the connections to ensure the water supply was made by the Water Supply and Sewerage Company; and the Mechanical Industry (VALBO) manufactured 28 block-making machines, block molds and jaw crushers, which significantly reduced project costs.

UNDP Procurement and Logistics: establish an effective procurement and logistics process to support the recovery of mini industries, based on the capacity and expertise of the UNDP Country Office. In Cuba, UNDP was able to ensure that import shipments of equipment were on time, that merchandise imported to Cuba was nationalized, and to secure transport from the arrival port to the affected municipalities.

Knowledge Exchange and Training: support the exchange of experiences, such as visits to successful production centers to transfer know-how on production processes, and provide training to business owners and employees, for example on the use and maintenance of new technology transferred, on operational procedures, raw material processing, production flows, quality controls, among other.

Key achievements and replication potential

The mini industry programme introduced in 2008 by UNDP in Cuba has developed since into a robust

methodology that has been successfully replicated in Cuba following Hurricanes Sandy, Matthew and Irma across eight provinces. Some of the key achievements and features of the mini industry programme include:

- A production capacity that can respond to the high demand for construction materials in post disaster situations, reaching one to two houses daily;
- The capacity to generate employment, on average 5 to 10 jobs per mini industry;
- A lower production cost, about 50% less, and lower prices for construction materials to consumers;
- An established capacity to provide technical support at the national and international levels;
- Trained technical experts who have participated in the implementation of these programmes and that can be mobilized in the future when required;
- The production of some equipment in the country, thereby contributing to technological innovation and to the development of a national industry;
- Manuals and guidelines that are available and can be used to replicate the practice, for example guidance on the steps in the production process of mini industries, on the production of each construction material, and on the use of machinery;
- An established knowledge network, with professionals in business management, technical experts on specific aspects of production, and machine operators who can provide technical assistance and participate in knowledge exchange, thereby facilitating the transfer and replication of good practices;
- A capacity-building programme established in technical vocational schools in Cuba to train young students.

Relevance to the practice of recovery

The housing sector is among the most affected by hurricanes as well as by earthquakes and other frequent weather-related disasters. They damage or fully destroy the most important asset owned by urban and rural populations in developing countries. The recovery and reconstruction of housing and other vital infrastructure such as schools and health clinics, demands high volumes of construction materials, but these are often not available immediately, take time to produce and some materials may need to be imported. These conditions can seriously limit or delay the recovery process, increasing significantly the amount of time, often years, that affected households remain living in vulnerable makeshift homes.

In this context, the mini industry programme developed by UNDP in Cuba presents a proven and effective model that can be used in post-disaster situations to create or revitalize the production of construction materials at the local level in affected areas, providing a rapid solution to meet the demand for housing reconstruction while also seizing the economic opportunity. The co-benefits are many, including the direct benefits to local businesses, the faster recovery of livelihoods, the generation of employment and income, and the cascading effect along the value chain and local economy.

With this local capacity well established today in Cuba, these mini industries represent a preparedness measure that can be mobilized to immediately support early housing and economic recovery in the face of future disasters. Moreover, the programme package developed by UNDP in Cuba is available to be used in other countries when required.

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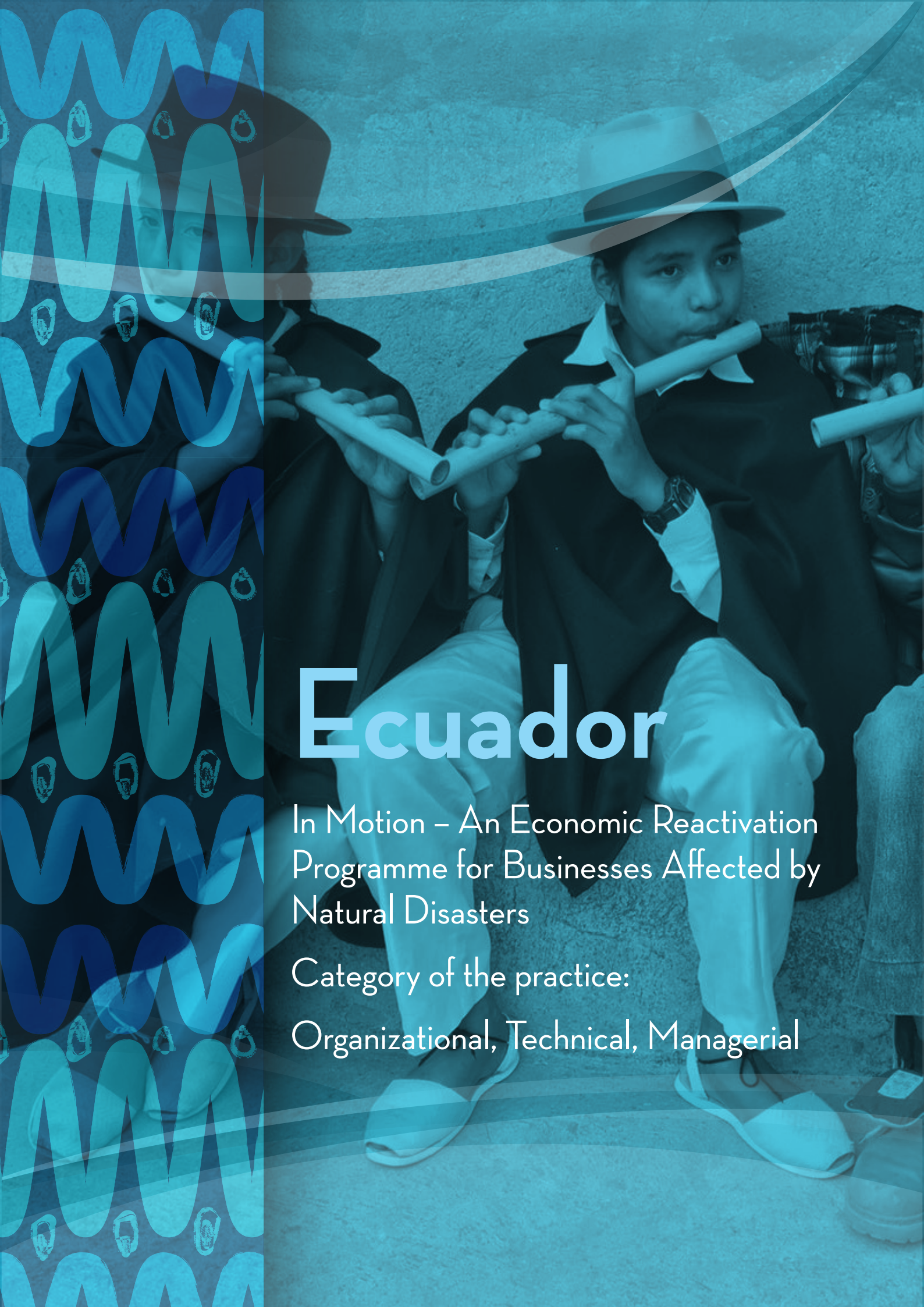


Ecuador

In Motion – An Economic Reactivation Programme for Businesses Affected by Natural Disasters

Category of the practice:

Organizational, Technical, Managerial

Summary

The ***In Motion Programme*** was developed by UNDP in Ecuador to promote the economic re-activation of businesses affected by natural disasters. It was first introduced during the recovery process that followed the 2016 earthquake in Ecuador. Since then, UNDP has developed a ready-to-use methodology and toolkit that can be deployed and implemented in post-disaster situations, with practical guidelines, communication materials, administrative and management tools that support design, planning and implementation. As such all the necessary tools are available for implementing a successful In Motion Programme, to quickly re-establish the livelihoods of disaster-affected business owners in the shortest possible time. Since its development, the ***In Motion*** programme has been used to fast-track local economic recovery in Haiti and Mexico.

Description

The development of the in motion programme in ecuador

The ***In Motion Programme*** was first introduced by UNDP during the recovery process that followed the 2016 earthquake in Ecuador, which affected the provinces of Manabi, Esmeraldas, Santa Elena, Guayas, Santo Domingo, and Los Rios. An estimated 35,000 houses were destroyed or damaged, leaving more than 100,000 people in need of shelter. There were USD$ 92 million in economic losses, including USD$ 4.7 million in the informal sector. Small and micro-enterprises were among the most affected.

UNDP implemented the ***In Motion Programme*** to support the recovery of the productive sector in the cities of Manta and Portoviejo in Manabi, supporting small and micro enterprises such as small shops, restaurants, shoe repair shops among other. The programme design included as a first step a survey to understand the socio-economic conditions of affected businesses, and an in-depth study of each business such as its operations, market, finances and legal arrangements.

The programme involved the participation of municipal authorities in cities, public businesses, the private sector and academic institutions, as well as the affected communities and small enterprises.

One example of collaboration with the private sector was the partnership with the Alliance for Entrepreneurship and Innovation (Alianza para el Emprendimiento e Innovacion), which created a USD$ 10 million Fund to provide credit to small and micro-enterprises affected by the earthquake. Forty percent of the funds were given in the form of grants while the remaining 60% was credit.

Beneficiaries received support to replenish the equipment they lost during the earthquake, enabling them to recover their businesses, and while much of the support was in the form of grants, beneficiaries also contributed 30% of the investment. In addition, they received on-site technical assistance and capacity-building training in accounting, marketing, and business management.

The programme benefitted 252 businesses and 551 owners and employees. A total of 2,686 hours of training was provided, as well as 3,106 hours of technical assistance. The results showed that beneficiary enterprises adopted new practices that improved their business performance. For example, average monthly sales increased on average by over USD $212. Also, 60% of businesses adopted accounting practices for the first time.

Main criteria for success

Some of the key lessons learned from the In Motion programme in Ecuador include the following:

- The training workshops on good business practices and the personalized technical assistance given to improve competitiveness were particularly effective in increasing productivity and sales, especially among women and vulnerable groups.
- Partnerships with academia, and the public and private sectors increased the impact of the programme, including stronger resilience to future shocks among beneficiaries.
- Few beneficiaries qualified for credit under

the programme, which gave a valuable lesson in terms of ensuring that future In Motion programmes design a scheme for loan guarantees that is tailored to the needs of vulnerable micro enterprises to promote greater access to loans.

- The community approach is an important strategy to motivate people facing a traumatic event such as an earthquake or other crises. The opportunity to work collectively stimulated beneficiaries, helping them overcome hardship and to work towards the common goal of recovering their livelihoods.

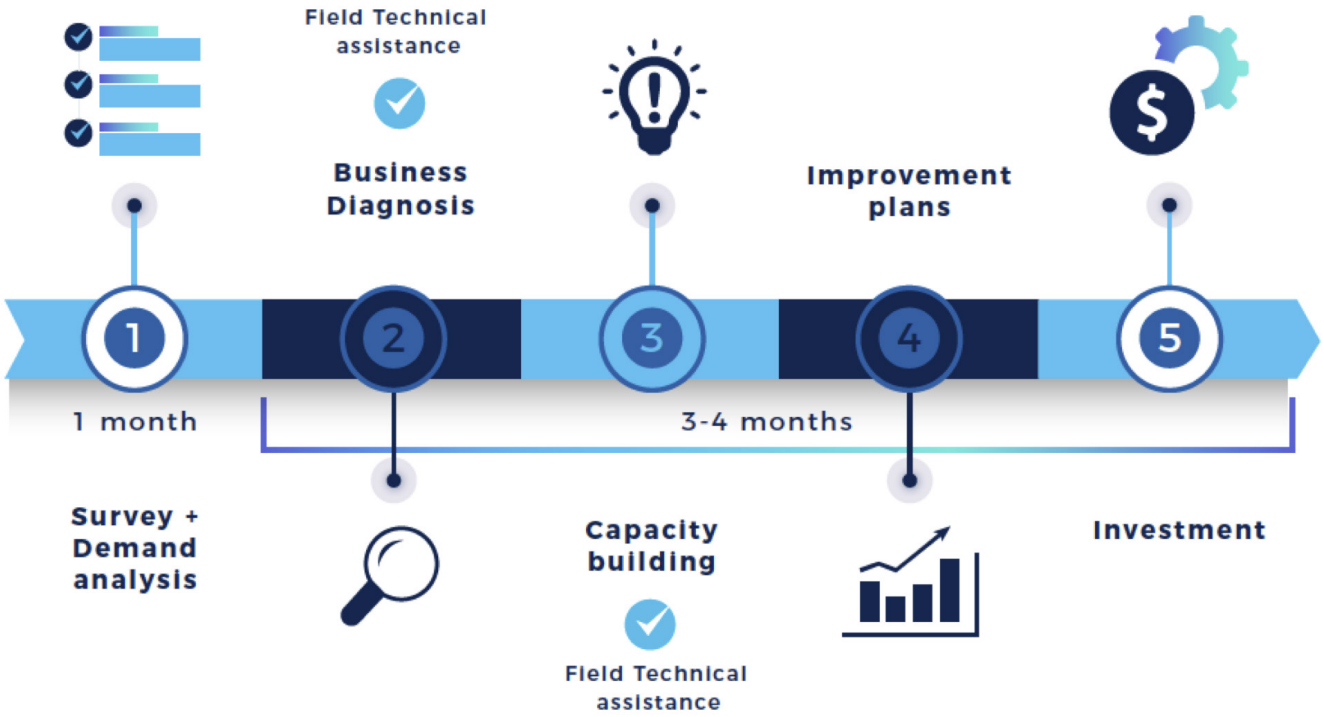
The "In-Motion" methodology

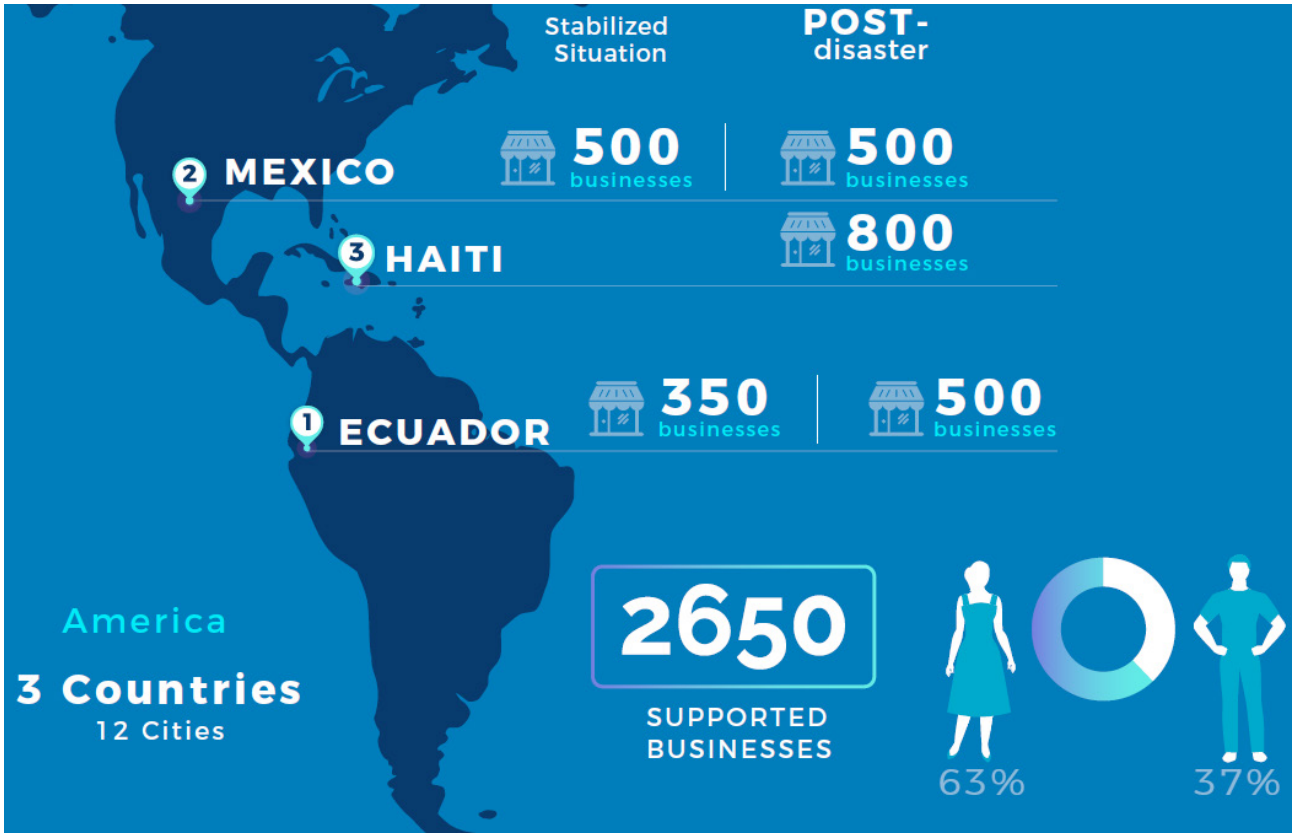
Since its introduction in Ecuador, UNDP has developed a methodology to plan and implement an effective *In Motion* Programme in post-disaster situations. The methodology involves the following four steps:

1. Conducting a Survey and Market Analysis

a) Survey: undertake a survey of the socio-economic conditions in disaster-affected areas, to identify the number of businesses that were damaged or destroyed and the potential number of beneficiaries. The survey can be undertaken with support from local universities, for example to recruit organize and train students or interns. Survey questionnaires and datasheets are available for conducting the survey in a digital format, and the information can be collected on tablets. Using the application ODK COLLECT, which is an open-source data management software, it is possible to process a large variety of data (photos, GPS points, texts, numbers, etc.) and to visualize the results immediately.

b) Market analysis: undertaken to understand supply and demand in local markets arising from the post-disaster situation, and that can become a business opportunity. It includes identifying the types of businesses operating in the area, the needs or gaps as well as the potential business opportunities. In addition, businesses that can meet the local demand for production and sales are identified, including the resources available locally to promote or support enterprises and services along the value chain (capital investment/ equipment). This activity is done in parallel to the survey.





c) Business baseline: to understand the post-disaster situation of local business affected, in relation to their operations, market, finances, legal arrangements, family and gender concerns. The business baseline helps to identify the obstacles and challenges faced, and to determine the most urgent actions needed to stabilize and recovery operations in the shortest time possible.

The results help to inform the design of an action plan, typically for the first three months intended for implementing low-cost, high-impact actions.

2. Capacity-building: to train business owners and provide them with the skills necessary to meet market demands. The *In Motion* Programme has developed a business training package based on the 'learn by doing' approach, with sessions that cover the following practical skills sets:

- Renewal of the business model
- Quality workplace organization
- Sales and marketing
- Customer service
- Finance and basic administration
- Subject matters that are specific to each business

3. Improvement plans: personalized technical assistance is provided in the workplace to business owners, to assist them to implement a customized improvement plan that addresses the main obstacles and challenges, reinforces the skills acquired during trainings, and includes branding and advertising. The programme's technical assistance empowers business owners because improvements are visible within a short timeframe and turn into quick wins such as increased sales.

4.Investments: providing basic infrastructure, equipment and other assets damaged by the disaster in order to re-start operations or supporting business owners to develop a financing plan to help purchase the necessary resources.

Replicating the In Motion programme

Since its development, the ***In Motion*** programme has been used to support recovery in Haiti and Mexico. UNDP has developed a ready-to-use Toolkit with practical guides and tools that can be deployed and implemented in other post-disaster recovery programmes. As such it can be used to re-establish the livelihoods of disaster-affected micro-enterprises in the shortest possible time.

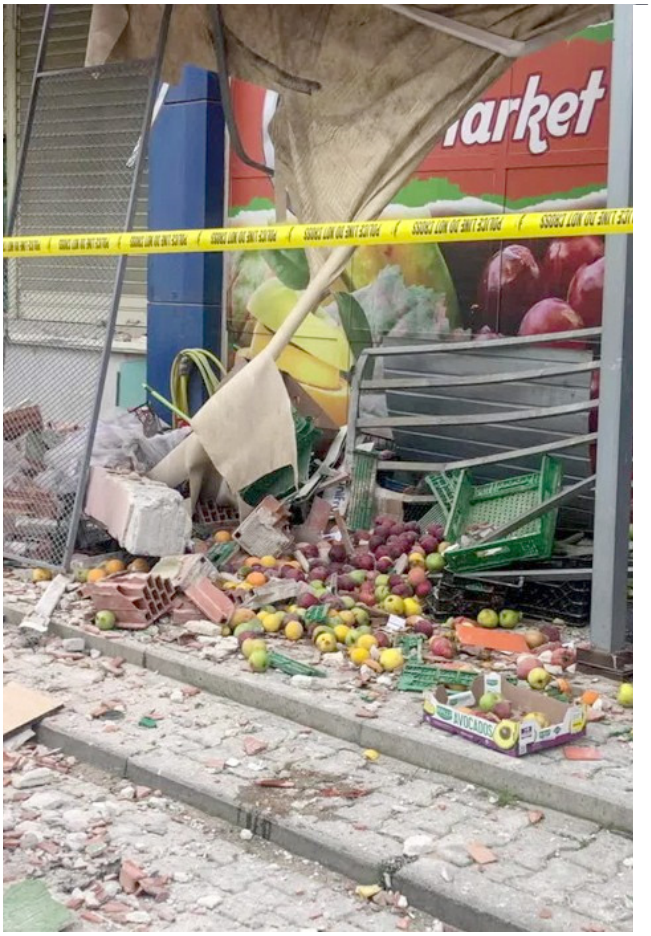
1. The Management Requirements

The program is designed to be implemented in partnership with a local partner, usually a municipality or prefecture concerned with the economic reactivation of businesses within their jurisdiction. The following is recommended to implement the In Motion programme:

UNDP Officer: A UNDP technical expert responsible for coordinating and implementing the programme along with the selected local partner (the implementing organization).

Partner Coordinator: A professional appointed by the implementing partner responsible for direct coordination. This is usually a government agency at the central or local level working directly on socioeconomic development projects in the disaster-affected area.

Business Consultants and Designers**:** professionals who will be responsible for executing the program in the target area, who has successfully completed the UNDP training and accreditation process.



2. The In Motion Toolkit

The In Motion Toolkit consists of guides, templates, videos and other useful resources that are already available and can be used in future post-disaster scenarios to promote livelihood recovery. These are divided into the following three sets of tools:

Administrative and Programme Management Documents: includes documents that support program administration and management, such as terms of reference for specific jobs, sample of contracts, and templates for end of project reports, among other.

Methodology Tools: includes the In Motion methodology and guidelines, capacity-building training modules,

Communication Tools: contains tools relating to program identity, such as program brand handbook, videos on the In Motion experience in Ecuador, a brochure with infographics and success stories.

Relevance to the practice of recovery

People's livelihoods are often directly affected by disasters, including the large number of micro and small enterprises that work in the informal sector. Disasters destroy their infrastructure, equipment and other productive assets. They also disrupt local economic activity, including supply and demand, markets, and the value chain.

One of the first critical recovery measures needed is to restore people's own income-generating capacity and enable them once again to support their families. Yet, designing a livelihoods recovery strategy takes time in a context where urgent measures are needed. Like all projects, they have to follow burdensome administrative and management procedures. The In Motion Programme offers a ready-to-use methodology and toolkit that is available to fast-track local economic recovery. In addition, UNDP can help mobilize the technical expertise needed to design, plan and implement an In Motion Programme, with consultants that have been trained and accredited.

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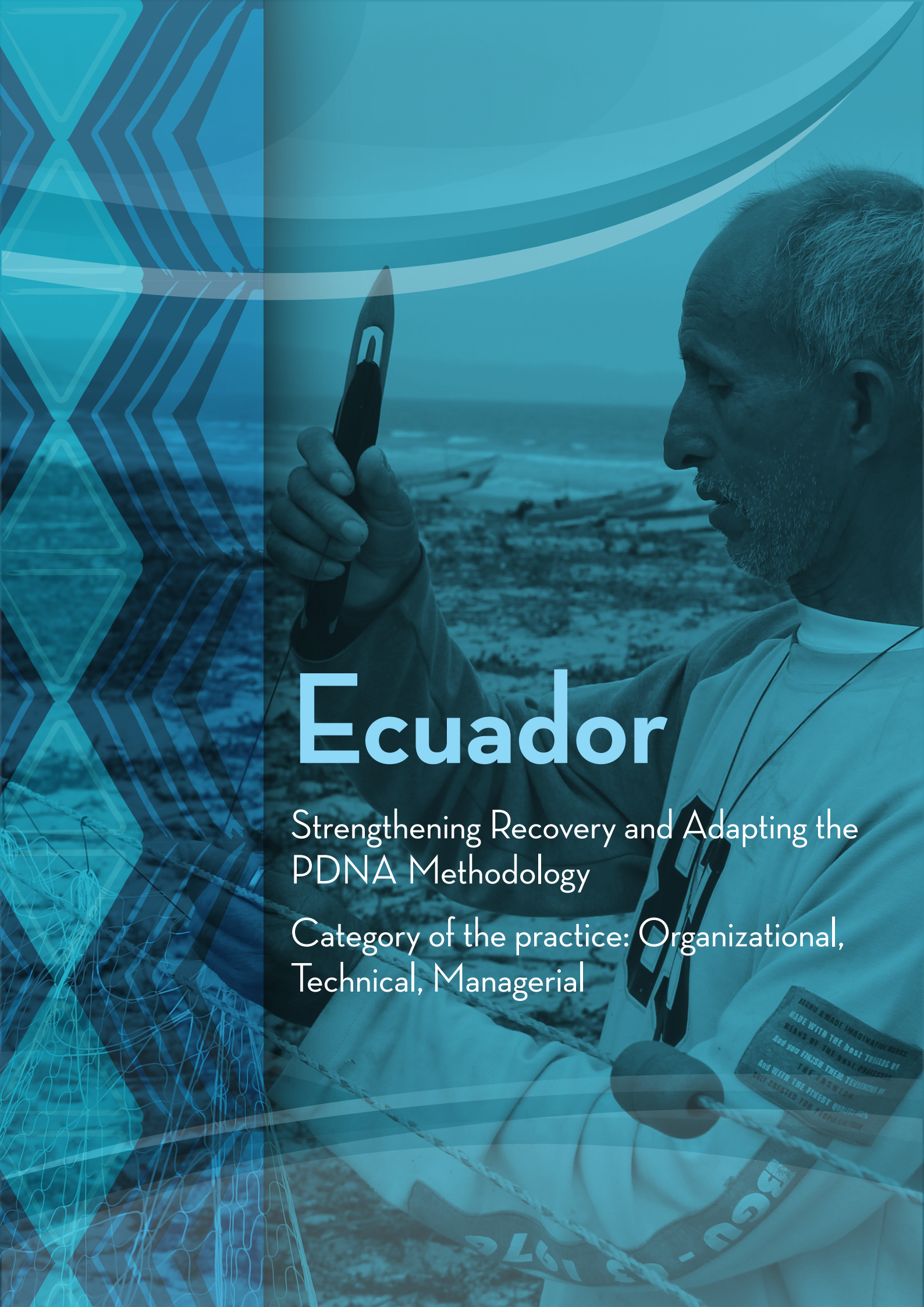

Ecuador

Strengthening Recovery and Adapting the PDNA Methodology

Category of the practice: Organizational, Technical, Managerial

Summary

Ecuador embarked in 2018-19 on a process of strengthening the country's national capacity in post-disaster recovery, including the adaptation of the PDNA methodology, under the leadership of the National Risk Management and Emergency Service (SNGRE)[173] with UNDP support. Its priorities focused on 1) establishing a Directorate for Recovery within the SNGRE with the necessary strategic plan and provisions to carry out its new mandate, 2) officially adopting the PDNA methodology through a government resolution, and 3) adapting the methodology to the particular context and needs of the country. The steps taken and the products achieved were strategic in ensuring a successful institutionalization process.

Description

The national context

Ecuador is a country exposed to a wide range of natural hazards, with the most recurrent being floods, landslides, earthquakes, and volcanic activity. It is therefore essential to have procedures and clear institutional structures to assess the impact and define strategies that promote resilient post-disaster recovery. It is equally important to government officials trained to conduct post-disaster assessments and plan recovery. This good practice focuses on the institutionalization of the methodology for post-disaster needs assessments (PDNA) into Ecuador's national context.

In Ecuador, 2018 marked the 10-year anniversary of the heavy flooding that was triggered by the El Niño event in 2008, which caused nearly USD $2.9 billion in damage and losses. In addition, the country's northern coast was struck by a 7.8 magnitude earthquake in 2016. For these and other disaster events, the country conducted assessments and developed reconstruction plans, but largely in a responsive manner, with varying standards, and without clear procedures or an agreed methodology. The recent earthquake revealed limitations in some of its recovery policies and processes and called for a review of lessons learned.

The result was a set of initiatives that were identified as priorities to strengthen Ecuador's national capacity in post-disaster recovery, including the adaptation of the PDNA, to be implemented under the leadership of the National Risk Management and Emergency Service (SNGRE)[174] with support from UNDP. The SNGRE's National Committee is chaired by the Vice President, and the Ministers of Finance, Planning, Housing and National Defense. This Committee is in charge of approving all policies related to disaster risk management and recovery. They will be in charge of adopting the PDNA methodology.

The process for strengthening recovery and adapting the pdna methodology

The SNGRE led three important initiatives that helped to set the stage for improving recovery processes and institutionalizing the PDNA in the country:

1) Created a Directorate for Recovery within its structure in 2018, the first of its kind in the country and an important step in adopting a longer-term vision that goes beyond the humanitarian phase;

2) Designed the institutional structure of the Directorate for Recovery including its vision, mission, strategic objectives, attributes and main products. Also developed its first national strategy 2019-2030 to strengthen national capacities in post-disaster recovery;

3) Officially adopted the PDNA methodology through resolution, making obligatory its use by sector ministries, the private sector and all institutions that participate in the assessment process. The resolution is now undergoing a final revision and is expected to be approved in the coming months.

With the foundation set by these three strategic decisions, the SNGRE proceeded to adapt the PDNA

173 Created in 2018 to replace the former Secretaría Nacional de Gestión de Riesgos.

174 Created in 2018 to replace the former Secretaría Nacional de Gestión de Riesgos.

methodology that was originally developed in 2013 by the United Nations, the World Bank and the European Union, to establish a standard method for conducting needs assessments worldwide. After applying the methodology successfully in numerous countries to support governments in the aftermath of disasters, UNDP turned to supporting countries to adapt the PDNA methodology to the national context of countries interested in institutionalizing it for future use.

In Ecuador the adaptation of the PDNA methodology focused on four objectives:

1) Adaptation of the Volume A of the PDNA Guide developed at the international level, which in Ecuador outlined the common minimum standards and approach to be followed, including the guiding principles, the process and method to be followed;

2) The protocol for activating a PDNA in the country, under the leadership of the inter-institutional National Committee of the SNGRE. The protocol outlines, for example, the formation and responsibilities of a PDNA Technical Committee that is represented by the head of the SNGRE, the Minister of Economy and Finance, and the Technical Secretary of the Ministry of Planning;

3) The procedures to be followed by sector ministries once the PDNA is activated by the National Committee;

4) Adaptation of five sector guidelines: agriculture, health, housing, education and transport.

Having these four products will help to ensure that a standard and agreed set of protocols and procedures are followed in the aftermath of disasters, with clear roles and responsibilities for all participating institutions. It also ensures the use of a standard methodology for sector assessments which are comprehensive and follow international best practices, for example by including the calculation of both damage and losses and by guiding the use of assessment results to inform sector recovery plans.

Main criteria for success

The following were identified as the key decisions, processes and steps taken in Ecuador to ensure a successful institutionalization process:

- A government-led process that empowered the SNGRE to exercise its leadership;
- The adaptation of the PDNA was not an isolated or separate initiative, but rather it was part of a wider process in Ecuador to strengthen the SNGRE and particularly post-disaster recovery in the country;
- The commitment and participation of high level government officials, who had been involved in previous disaster responses and recovery processes and therefore understood the importance of having stronger national capacities and minimum standards;
- The adaptation of the PDNA was done in the context of an actual emergency that took place in 2018-19, as a result of heavy rains and flooding in the country. As such it was a real case scenario that made the exercise a realistic one, revealing the challenges that are typically faced in the activation and implementation of a PDNA, rather than based on a separate simulation exercise;
- The protocol for activating the PDNA was defined through a consultative process involving two workshops with the participation of a technical team from the SNGRE. In addition, the final protocol was drafted as a resolution, as needed for its approval by the SNGRE's National Committee;
- The participation of the relevant sector ministries in adapting the sector guidelines, including all the internal players that typically have to participate in a PDNA, for example technical government officials involved in sector planning, risk reduction and post-disaster recovery. The specific participants varied according to the structure and procedures of each ministry;
- The technical support of a senior consultant to support the SNGRE, guiding and coordinating the

overall process, as well as technical sector experts supporting line ministries to adapt the sector assessment guidelines.

Relevance to the practice of recovery

While disasters can be unexpected events that challenge governments to respond effectively, it is possible and necessary to establish protocols, minimum standards, procedures and methodologies to ensure that assessments and recovery processes are efficient and effective to meet the needs of the affected population and the country as a whole. International best practices can serve as a platform and provide examples of mechanisms and tools that can be applied. Yet these can be particularly useful when they are adapted to the specific context and needs of a country, when they are led by government authorities, and when they follow an approach that ensures participation and ownership.

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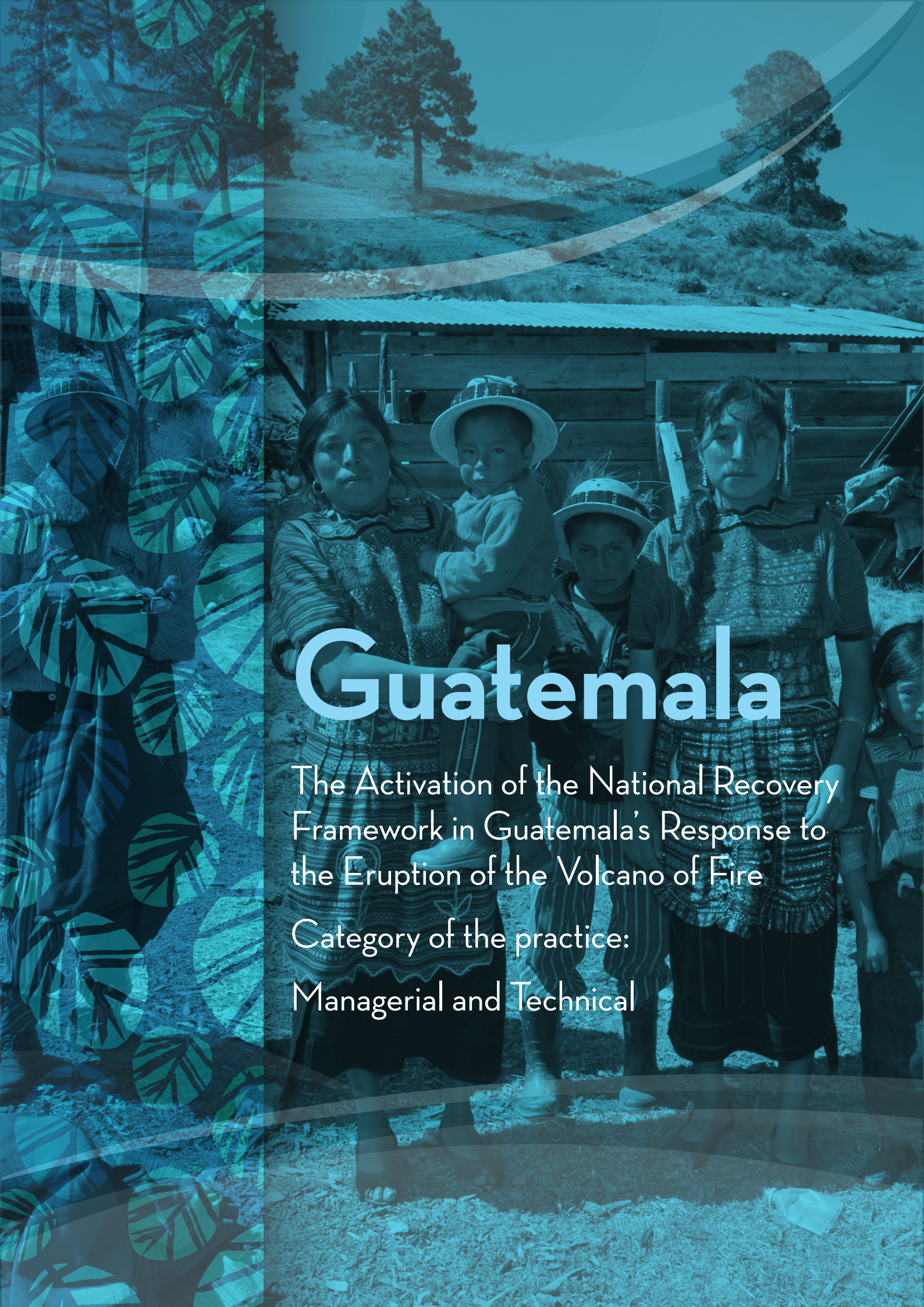


Guatemala

The Activation of the National Recovery Framework in Guatemala's Response to the Eruption of the Volcano of Fire

Category of the practice:

Managerial and Technical

Summary

The eruption of Guatemala's Volcano of Fire in June 2018 brought explosions, smoke and ashes, and hot lava to surrounding communities near the country's capital. The Government of Guatemala declared a state of emergency and activated its National Framework for Recovery, developed three years earlier in 2015. The framework was instrumental in guiding a coordinated recovery process under a common set of principles and arrangements. The existence of the framework prior to the eruption proved to be critical in addressing the disorder, tension and frustration that emerged initially, and to arrest the social and institutional crisis that began in the immediate aftermath of the volcanic eruption.

Description

The context and need for a recovery framework

Guatemala's Volcano of Fire (Volcan de Fuego) erupted on June 3rd, 2018 generating strong explosions, clouds of smoke and ashes, and a stream of hot lava. Located 40 kilometers from the country's capital, Guatemala City, the volcano's eruption affected several municipalities in the surrounding Departments of Escuintla, Chimaltenango (Yepocapa) and Sacatepéquez (Alotenango). The communities of San Miguel Los Lotes and El Rodeo in the municipality of Escuintla were covered by deep hot ash and pyroclastic flows. A total of 1.7 million people were affected as well as agricultural land, businesses and tourism, which are the mainstay of the local economy. On the same day the Government of Guatemala declared a state of emergency.

The volcano's sudden eruption and impact caused disorder, tension and frustration among the communities affected, and the capacity of national and international institutions was overwhelmed, causing a social and institutional crisis in the immediate aftermath.

Given the difficult context, the country's National Framework for Recovery (NFR) was activated by the recovery cluster led by the National Coordinator for Disaster Reduction (SECONRED) and UNDP, to re-establish confidence, foster synergies and coordination among government institutions, non-governmental organizations, civil society and the international community, and to guide the recovery process. In particular, the NFR provided much needed guidance in the following areas:

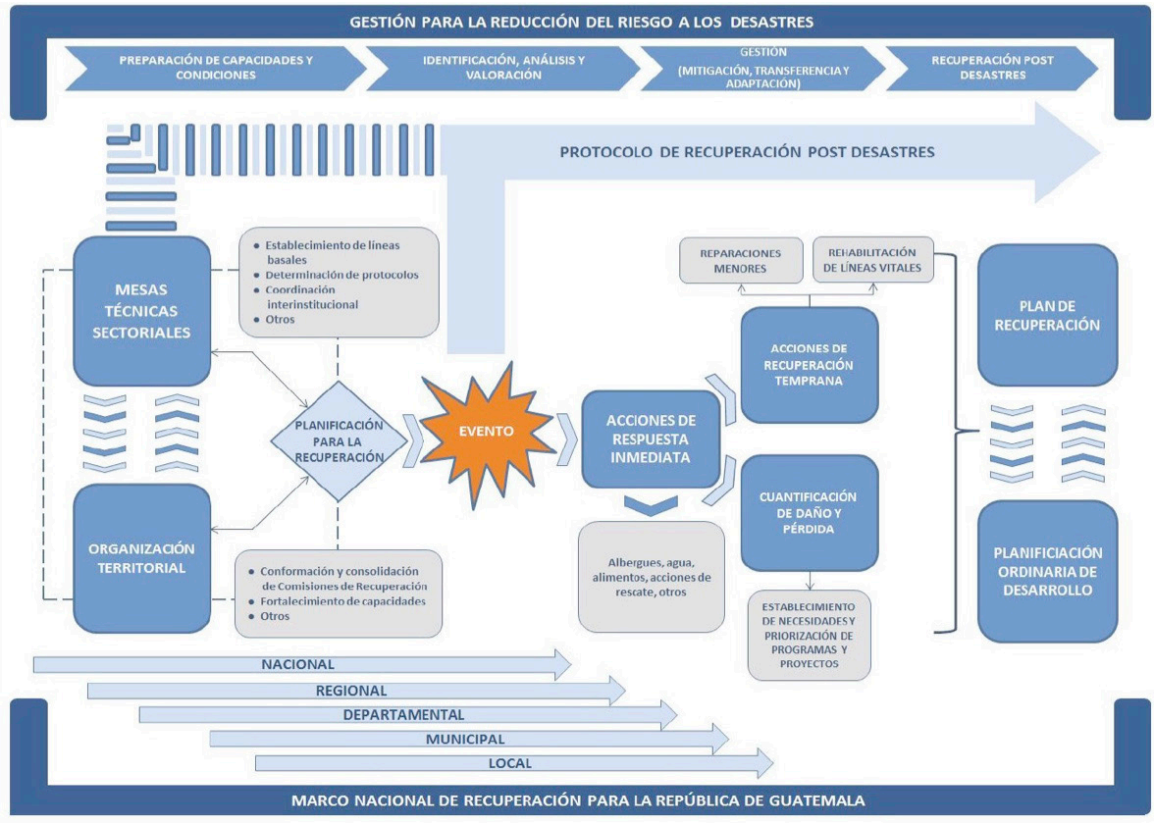
- The ownership of the recovery process by the central and local government
- Improvement in the mechanisms for information exchange
- Participatory planning
- An increase in the efficiency of operations
- The strengthening of local capacities
- The design of risk reduction measures and conflict prevention

Guatemala's national framework for recovery

In 2015, the SECONRED developed a National Framework for Recovery in line with Guatemala's legal and policy framework on disaster risk reduction. The NFR provides the general guidelines for planning, implementing and monitoring post-disaster recovery processes in the country. More specifically, it lays out the principles and standards on the following core elements:

1) The principles that should be adopted to guide recovery, including equality, equity, freedom, the right to development, decentralization, and priority to special population groups.
2) The legal and policy framework that sustains the NRF and that should guide all recovery processes, including national, regional and global legislation, policies and agreements.
3) The main government actors that have a role to play in recovery processes at local, municipal, departmental and national levels, as well as the role and responsibilities of all main government actors.
4) The inter-institutional mechanisms and platforms that should be activated or established at all levels

Summary of the National Recovery Framework



to ensure that recovery processes are coordinated and benefit from existing agreements and partnerships.

5) The sectors of intervention and the institutional and coordination mechanisms that should be followed for each sector, including the responsibilities of each sector lead in relation to recovery.

6) The cross-cutting themes that should be mainstreamed into recovery plans, such as disaster risk reduction, culture, gender, children and youth, people with disabilities, the environment and climate variability.

Relevance to the practice of recovery

Given that the eruption of the Volcano of Fire produced disorder, tension and frustration, the activation and use of the National Framework for Recovery proved to be critical to re-align efforts under a common coordination platform, clarify the roles and responsibilities of all actors, and guide the planning process based on common principles and operational standards. The existence of the National Framework for Recovery prior to the volcanic eruption was an added advantage, without which the recovery process may not have had the same effectiveness.

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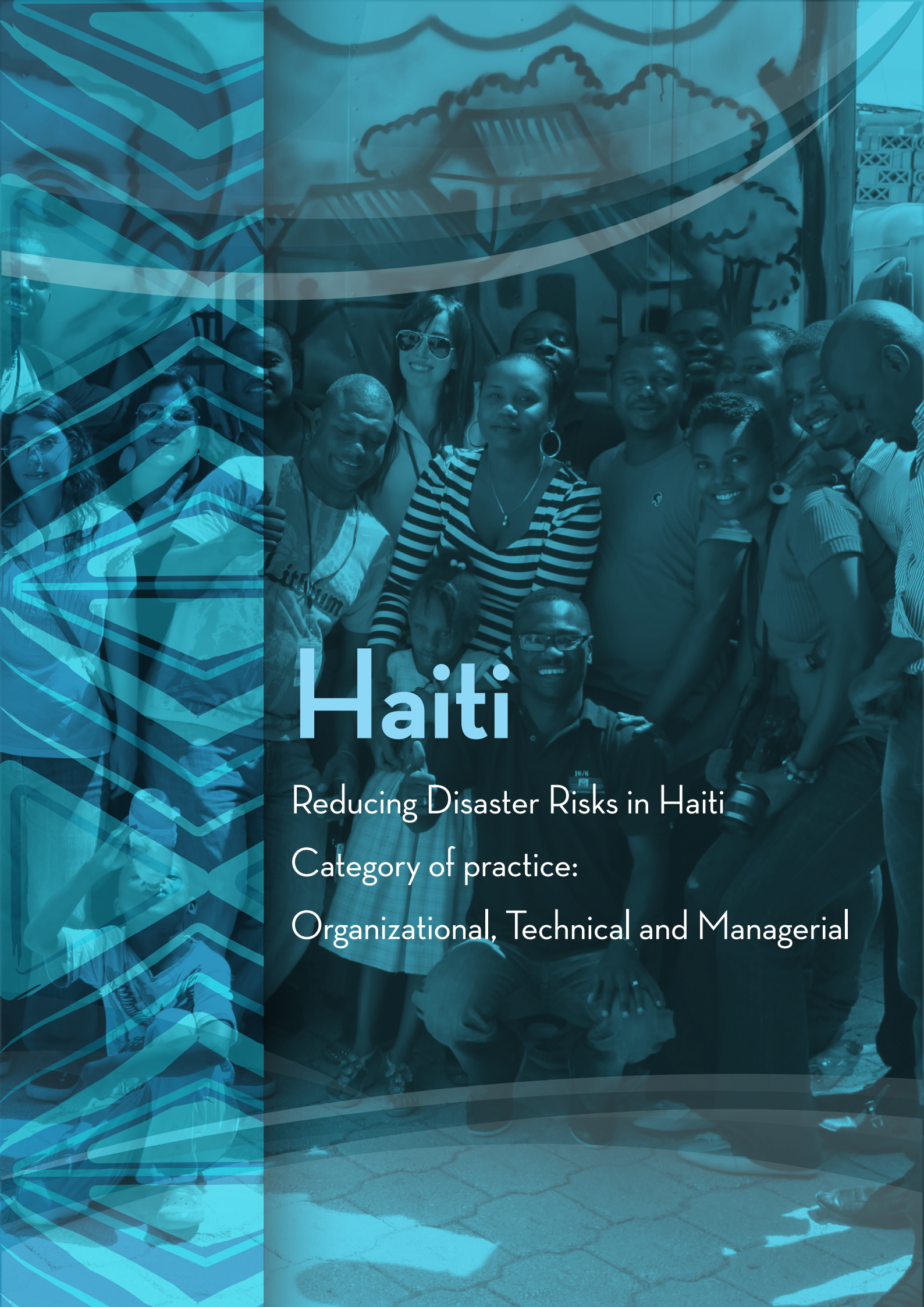
Resources

Guatemala's National Recovery Framework
https://conred.gob.gt/site/documentos/proyectonacion/herr/MARCONACIONALDERECUPERACION.pdf



Haiti

Reducing Disaster Risks in Haiti

Category of practice:

Organizational, Technical and Managerial

Summary

The earthquake that in 2010 destroyed large sections of Port au Prince, was subsequently followed by several other large-scale disasters over the following years. They served as a stark reminder of the country's high exposure to natural hazards and the significant need to invest in measures that help reduce risk and vulnerability in the country to reduce the human and material impact of future events. Since the earthquake UNDP has doubled its efforts to strengthen Haiti's capacity in disaster risk reduction, efforts that would later fall in line with the 2015 Sendai Framework for Disaster Risk Reduction and with the Sustainable Development Goals (SDGs), specifically Objective 11 which aims to ensure that cities and human settlements are safer and more resilient.

Description

Haiti is a country prone to multiple natural hazards. Since 1909 to the present day, the country was struck by 40 hurricanes and storms, 47 floods, 7 droughts and 2 earthquakes. More recently, Haiti has endured three large-scale disasters: Tropical Storm Jeanne in 2004 unleashed torrential rains on north-eastern Haiti, triggering devastating floods and mudslides in Gonaïves, the 7-magnitude earthquake nearly demolished its capital city in 2010, and category 4 Hurricane Matthew in 2016 struck the western department of Grand'Anse. Other disasters affected Haiti during the same period, and though their impact was not as large-scale they still left destruction

Examples of some of the major disasters in Haiti

behind, such as Hurricane Sandy and Tropical Storm Isaac in 2012.

These events highlight the country's exposure to risk, but vulnerability is part of the problem. Almost 96% of the population is vulnerable to at least two major hazards, regardless of their social background and geographic location. The Human Development Index in Haiti is the lowest in the western hemisphere, nearly 78% of the population lives below the absolute poverty line and 58% live in extreme poverty.

The particular challenges facing Haiti calls for concerted and strategic investments in reducing underlying risks and vulnerabilities. Over the past 10 years, the UNDP - with support from its partners - has worked with the Haitian government to develop strategic and operational tools based on improved scientific and technical knowledge.

A national seismic risk roadmap

Following the Haitian earthquake, which took the lives of over 220,000 people and caused $ 7.8 billion in damage and losses, UNDP supported the Government of Haiti to develop a Roadmap for Earthquake Risk Reduction which outlines a national strategy to reduce the human and material impact of future earthquakes, based on four main lines of action: monitoring and threat assessment, training/education/awareness-raising, reducing risk factors, and preparation.

Renowned scientific and technical advisers in the field of seismic risk were brought to Haiti to support the development of this roadmap and specific tools, such as seismic micro-zoning in Port au Prince and the 4 main cities of Greater North.

The seismic roadmap developed served as a backdrop for strengthening coordination in the country. A new institutional platform was established –The Scientific and Technical Coordination on Seismic and Tsunami Risks (CST-RST) to oversee and coordinate the implementation of the seismic roadmap including the technical studies, and to ensure quality control. It brought together the necessary institutions and specialists with technical and scientific expertise under a harmonized and multi-sectoral coordination body, responsible also for coordinating with foreign scientific and academic institutions.

In 2016, the UNDP in collaboration with other partners (EU, UNDRR and USAID) accompanied the Haitian government in the organization of a Caribbean forum on seismic risks in urban areas. Experts and technicians discussed seismic risks in the region and agreed to develop a regional roadmap for the Caribbean on seismic risk management.

Seismic micro-zoning

To reduce risks in Haiti, reconstruction and urban planning must be based on a quantitative assessment of the risks present in a given location, especially for seismic risk, which varies greatly depending on the type of soil and local topography. UNDP helped Haiti to develop its first seismic micro-zonation map, produced for the metropolitan region of Port au Prince. Seismic micro-zoning identifies zones that are exposed to tremors and assesses the response of the ground to these, based on a study of land movements and soil liquefaction to produce a risk classification by sector according to their risk level.

The zoning was done by a group of international scientists in collaboration with the Mines and Energy Office and the National Laboratory of Building and Public Works. Local geologists and geo-technicians were also trained to transfer skills and strengthen local technical capacities in the process. The results of the micro-zoning mapping exercise helped to determine the most appropriate methods for construction according to the conditions of the soil or terrain and their responses to seismic events.

A similar micro-zoning exercise was subsequently conducted in five other cities in the Grand North (Cap Haitien, Fort Liberté, Port de Pais, Ouanaminthe and Saint Louis du Nord) in an effort to reduce seismic risk in other regions of Haiti that are also prone to earthquakes. The findings indicated that the soils in these locations were likely to amplify damage if a major earthquake occurred, and that many buildings could not withstand a major earthquake in Cap Haitien and Fort Liberté. In its concluding report, the UNDP recommended that buildings be reinforced to meet the needed construction standards to minimize the impact of a potential future event.

Ejercicios de rescate, SIMEX les Cayes. © PNUD Haiti / Molière Solon

Improving haiti's capacity in seismic monitoring

Before 2010, Haiti did not have the infrastructure to process seismic data. Although seismic stations were installed with support from the U.S. Geological Survey, the Geological Survey of Canada and other partners, the country needed a seismic monitoring network. To this end, UNDP supported the Bureau of Mines and Energy and the State University of Haiti to establish the Technical Seismology Unit (UTS), a seismic monitoring laboratory in charge of operating the seismological network, acquiring data and carrying out research on seismology. The UTS also received support with training and technical assistance, to develop plans for its operation and maintenance, and to disseminate information bulletins for relevant authorities and the population.

The methodological guide for reducing risks in urban areas

Following the earthquake in 2010, UNDP supported the development of Risk Prevention Plans which identified the risks affecting 8 priority neighborhoods of Port au Prince and the recommended zoning in these, to be used in urban planning to prevent or reduce the human and economic consequences of future disasters, or avoid rebuilding vulnerability.

Subsequently UNDP helped the Haitian government to formulate a "Methodological Guide for Reducing Risks in Haiti's Urban Zones", establishing the national standards for risk reduction in urban planning. This Methodological Guide introduced the tools and methods used to characterize and manage natural risks. It contains guidance on Prevention, Protection, Preparedness, Information and Awareness and Training to guide each step in the implementation of this process.

The Guide identifies the natural hazards that have the most significant economic and social consequences in the country, namely earthquakes, floods and storm water runoff, landslides, tsunami and coastal submersion, hurricanes and storms.

Next the Guide assessed the vulnerabilities potentially subject to these hazards, such as residential and commercial buildings and infrastructure such as roads. These vulnerabilities were mapped and cross-referenced with the hazard maps defined previously. The results would serve to inform zoning and land-use regulations, and town planning in urban areas, including new construction projects, adapted to each urban area studied.

Multi-risk mapping

UNDP collaborated with the Haitian government to develop multi-risk maps, which provide a detailed scientific and technical analysis of the natural hazards

to which a given territory is exposed (hurricanes, storms, earthquakes, floods, tsunami and coastal submersion, among other). A total of 30 risk maps were produced: 5 departmental seismic maps, 5 local seismic maps, 5 tsunami hazard maps, and 5 maps of random ground movements in the departments of Grand'Anse, North -West, South, Nippes and Gros Morne arrondissement in Artibonite. In these same departments, and in relation to hydro meteorological risks, 5 maps were developed on flood hazards and 5 additional maps on marine flood hazards due to cyclones.

Volunteer brigades

Recognizing the importance of volunteers as first responders in an emergency, UNDP supported the Directorate of Civil Protection in Haiti to strengthen its national network as well as civil society at community level in prevention, risk management and disaster response, in collaboration with the Haitian and French Red Cross.

Since 2011, volunteer brigades for Civil Protection were established, 3,000 volunteers were trained in emergency rescue and first aid, and 300 first aid kits were distributed to all communes in Haiti. In addition, a total of 1,499 crossing guards obtained their first aid certificate from the Haitian Red Cross and 267 brigade leaders were trained to increase their leadership and management capacity. These volunteer brigades have become the decentralized and operational arm of Haiti's civil protection and community committees for risk and disaster management.

Relevance to the practice of recovery

In a country such as Haiti that is prone to multiple natural hazards and frequently confronts disasters, it is necessary to strengthen its capacity to reduce risks and vulnerabilities. There are numerous strategies, methodologies and technical tools that can be adopted for this purpose. In Haiti, the improvement of seismic micro-zoning, seismic risk monitoring, and the development of a guide to reduce urban risk and of multi-risk maps are practical examples of methods that can be developed to reduce a country's vulnerability to disasters. In addition, they are relatively low-cost investments that help to reduce the human and material impact of future hazards, particularly when compared to the high cost of humanitarian and recovery programmes. These efforts also support commitments to the 2015 Sendai Framework for Disaster Risk Reduction and with the Sustainable Development Goals (SDGs), specifically Objective 11, which aims to ensure that cities and human settlements are safer and more resilient.

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Mexico

Post-election Earthquake Recovery in Mexico City

Category of the practice:

Legal, Organizational and Managerial

Summary

Mexico was struck by two earthquakes in September 2017, coinciding with an electoral year. The recovery and reconstruction process therefore began with an outgoing administration and transitioned through to the incoming government. In Mexico City, the most affected area, the recovery process took on a new direction under the leadership of the newly elected government, with renewed legal, policy and programme objectives that strengthened the recovery and reconstruction of Mexico City.

Description

The earthquake and context

Two earthquakes struck Mexico on the 7th and 19th of September 2017, causing destruction across 8 states and particularly affecting Mexico City. Nearly 183,000 homes were affected, 10,470 schools, 265 health facilities, and 12,508 businesses.[175]

When the earthquakes occurred, Mexico was in the midst of an electoral campaign, and just over one year later the newly elected president took office on December 2018. In Mexico City, the new administration adopted a re-newed approach to reconstruction, taking several important steps to strengthen the recovery response.

Key steps in planning the reconstruction process

The new measures adopted by the government have proven to be particularly effective in improving the recovery process in Mexico City and supporting the affected population. Three key legal, policy and programmatic measures taken are presented below.

The Legal and Governance Framework

The new government administration in Mexico City set the stage for recovery and reconstruction by introducing a legal and governance framework with the following key elements:

1) Updated the Reconstruction Law to facilitate recovery and to better serve the population affected. The law provided the legal and policy framework needed to ensure an effective recovery response. It called for a new census or survey of the population affected, the development of a plan for reconstruction, an inter-institutional coordination mechanism to lead and implement reconstruction, the establishment of a one-stop government office to serve the population affected, among other measures.

2) Laid out the core principles to guide the recovery and reconstruction process in the new legislation, which included: respect for human dignity, efficiency and effectiveness, transparency, accountability, the participation of civil society, inclusion, impartiality, accessibility and gender equity.

3) Developed an Integrated Plan for the Reconstruction of Mexico City. The Plan approaches reconstruction as an integrated process that includes, in addition to the physical reconstruction of infrastructure, respect for the human rights of those affected, including their right to safe housing, addressing their psycho-social needs, and prioritizing vulnerable neighborhoods.

4) Established the governance framework and inter-institutional coordination mechanism to support the reconstruction process with clear roles and responsibilities. This included the establishment of the following governing bodies among other:

- A Reconstruction Commission to have oversight, coordinate, implement and monitor the city's plan for reconstruction;
- A Consultative Council represented by the government offices in Mexico City involved in the reconstruction process as well as by members of affected communities;
- A Technical Committee represented by chambers and schools to monitor reconstruction, participate in government decision-making and resolve problems and challenges that arise;

175 Sistema Nacional de Proteccion Civil, 2019, Impacto Socioeconomico de los Principales Desastres Ocurridos en la Republica Mexicana 2017.

- A Legal Committee to manage and resolve issues relating to property ownership, and represented by the Justice Tribunal, the Center for Justice, the School of Notaries, the Council for Legal Services, and the Public Registry of Property;
- A Committee on Transparency to ensure accountability;
- Sub-commissioners responsible for coordinating each of the five sectors of intervention, providing technical, legal and fiscal assistance and ensuring transparency;
- Collegiate of Support, linking with academic institutions such as the School of Architects to provide technical support.

Participation, Communication and Outreach

The following policies and measures were adopted to ensure the participation of earthquake-affected communities and civil society, as well as to establish communication channels and outreach throughout the recovery process.

1) Conducted a survey to identify the real number of housing units and families affected by the earthquake. The survey found that 17,770 people were affected, compared to the previous estimate of 7,000 reported by the former administration.
2) Organized the reconstruction of Mexico City into six zones and 195 blocks, with 30 government centers to facilitate the process, provide access points in the vicinity of neighborhoods affected, and ensure close monitoring.
3) Setup neighborhood offices in the main affected areas, designed as a one-stop government help center to serve the population affected and facilitate their access to all government services needed in relation to the reconstruction process. The offices brought together the services of the Ministries of Public Works and Services, Urban Development and Housing, Risk Management and Civil Protection, among other.
4) Established a one-stop digital platform to facilitate all transactions online related to reconstruction.
5) Setup a telephone line to provide information and orientation to the population affected.
6) Setup Citizen observatories represented by civil society organizations and the affected population to monitor and supervise the reconstruction process.
7) Organized public assemblies and weekly meetings to consult with and inform the affected population, and to follow up on local recovery activities.
8) Organized cultural and artistic events, 900 in total, to promote dialogue and community organization and development.
9) Called for annual monitoring surveys of satisfaction to assess the level of satisfaction with the recovery process among the affected population.

Financial Management, Transparency and Accountability

In order to facilitate fund-raising, financial management, transparency and accountability the government introduced the following measures:

1) Mexico City's Legislative Assembly created the Fund for Reconstruction, assigning its management to the Reconstruction Commission.
2) Setup a Trust Fund for Reconstruction to manage funding received from the federal government, the City of Mexico and the private sector.
3) Established a Committee on Transparency represented by academic institutions and civil society to ensure accountability.
4) Introduced an online platform to facilitate the public's access to information on project implementation, financial resources available and spending, as well as social media accounts on twitter and Facebook.
5) Published all new legislation, procedures, recovery programs or projects, and changes in the reconstruction plan in the Official Gazette of Mexico City to inform the public and ensure transparency.

Relevance to the practice of recovery

Post-disaster recovery efforts often face challenges when they occur in parallel to electoral processes and changes in government administration. They can cause confusion, misinformation, disruptions or delays in the delivery of recovery programmes. In Mexico city, the newly elected government quickly introduced new legislation, policies and measures that serve as an example of how government transitions can maintain continuity in the recovery process while also improving the mechanisms for service delivery to the affected population, including the adoption of principles and measures that reflect good practice such as strong coordination mechanisms, citizen participation and transparent financial management systems.

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Resources

Website on the reconstruction of Mexico City
https://reconstruccion.cdmx.gob.mx/

Website on transparency
https://nosotrxs.org/reconstruccion_transparente/

Facebook: https://www.facebook.com/ReconstruccionCDMX/

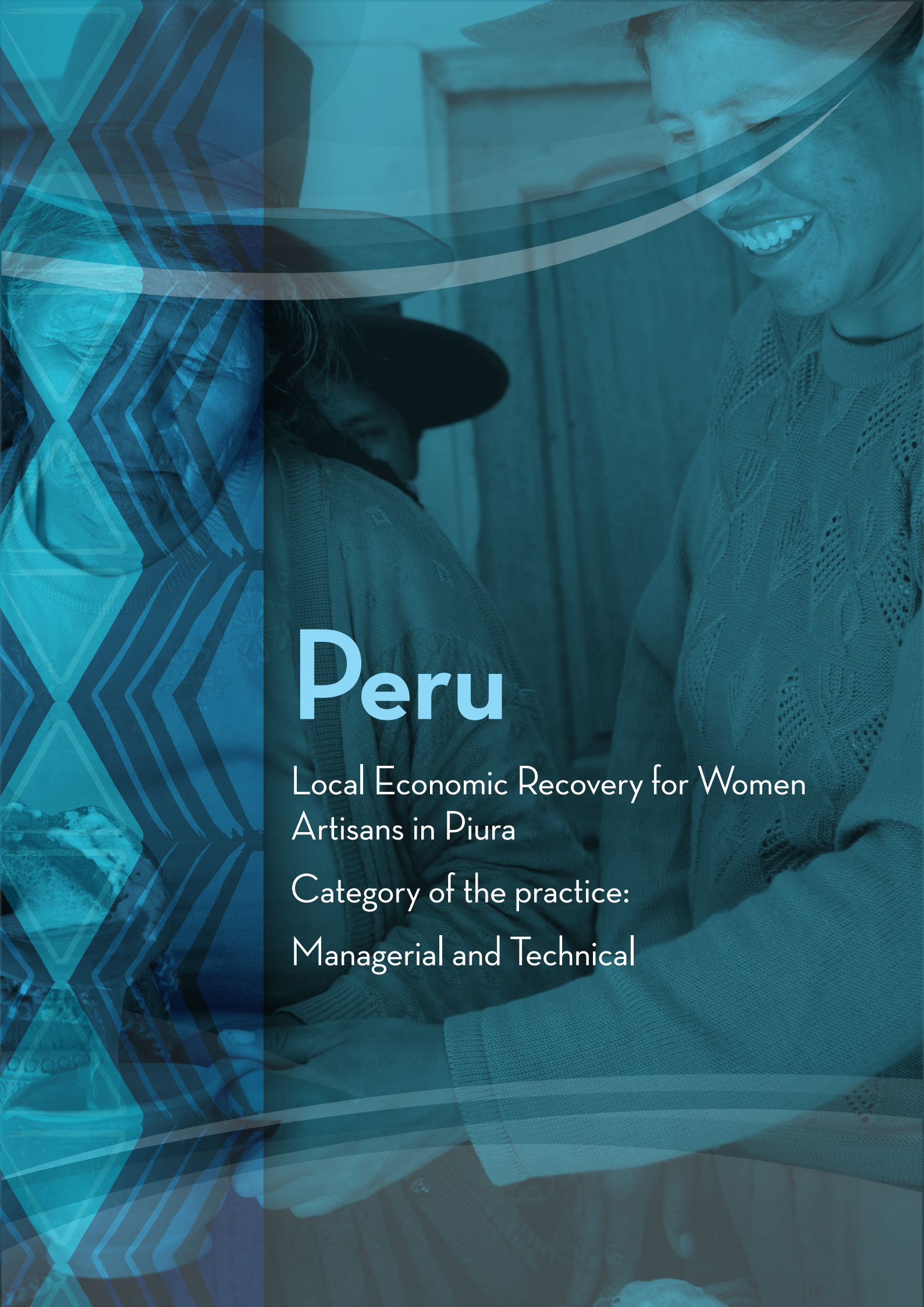
Twitter: https://twitter.com/Comision_CDMX

Bibliography

Ley Para La Reconstrucción Integral De La Ciudad De México. Ley publicada en la Gaceta Oficial de la Ciudad de México el 07 de diciembre de 2018.

Sistema Nacional de Protección Civil, 2019, *Impacto Socioeconómico de los Principales Desastres Ocurridos en la República Mexicana 2017*.

Secretaria de Desarrollo Agrario, Territorial Y Urbano. 26 de marzo 2019. "Acuerdo por el que se emiten los Lineamientos Generales del Programa Nacional de Reconstrucción para el ejercicio fiscal 2019".



Peru

Local Economic Recovery for Women Artisans in Piura

Category of the practice:

Managerial and Technical

Summary

In the aftermath of the 2017 floods in Peru, UNDP supported the reactivation of micro businesses owned by women artisans in Peru's northeastern Piura region. This pilot initiative "Tejiendo Futuro" (Sowing Future) was an early recovery effort that helped bridge immediate humanitarian support with longer-term recovery and sustainable development. In addition to reactivating livelihoods, the project built the capacity of these micro businesses, helped to find new markets for their handmade hats, to promote the branding of their crafts, and to reduce their exposure to future risk. This pilot initiative was subsequently replicated in other flood-affected communities to support local economic recovery based on lessons learned.

Description

The 2017 floods caused by the El Nino event in Peru affected over 427,000 people in Piura, a region in northeastern Peru. About 70% of local artisans who produce handmade hats in the District of Catacaos lost their income as a result of a 90% reduction in sales. Aiming to support local economic recovery, UNDP mobilized public and private support for these local artisans, to recover and strengthen their micro businesses.

Under the leadership of the government and in collaboration with UN Volunteers, the Energy Network of Peru and other private sector partners, UNDP supported 250 micro-businesses operated by women in five villages in Catacaos who were affected by the floods.

This pilot initiative "Tejiendo Futuro" (Sowing Future) was an early recovery effort that helped bridge immediate humanitarian support with longer-term recovery and sustainable development.

Key strategies to support local economic recovery

Among the several interventions implemented, this practice focuses in particular on four key strategic measures: 1) Early recovery measures of micro businesses, 2) capacity building, marketing

Foto: Mónica Suárez Galindo/ PNUD Perú

and branding artisans from Catacaos, 3) disaster preparedness and risk reduction, and 4) Replication and Up-scaling of the Project.

1. Early Recovery Measures of micro businesses

The following early and practical measures were introduced to support the early recovery of micro businesses.

a) Undertook a needs assessment, following the methodology of the Post Disaster Needs Assessment Guidelines, to assess the impact of the floods on local artisans and businesses and identify their recovery needs;

b) With the support from the corporate volunteers of the Energy Network of Peru, a training was developed with the participation of artisans affected by the damage caused by the floods. This workshop was prepared following the build-back-better approach to ensure it is resilient to future floods;

c) Provided initial seed funding to promote the rapid recovery of their businesses and reactivate the production of handmade hats among artisans.

2) Capacity building, Marketing and Branding Artisans from Catacaos

A broad value chain approach was adopted to strengthen the capacity of local artisans, forging partnerships with the private sector, providing training, identifying new markets and branding their handmade hats.

a) Organized capacity building training to develop the business skills of local artisans through the Ministry of Employment;

b) Promoted the participation of artisans in the Great Women initiative of Belcorp, which aims to strengthen the leadership role and capacities of vulnerable women through education and training;

c) Launched a communication campaign with the support of seven key public figures in Peru who participated as project ambassadors. The initiative promoted the artisans through social media and videos with human interest stories;

d) Launched a marketing campaign to promote the sale of handmade hats, in collaboration with the corporate volunteers of the Energy Network of Peru;

e) Forged links between the associations of artisans and six national markets including Peruvian shops such as Soil & Co and Qatakuy;

f) Organized three regional fairs to promote the artisans of Piura, in collaboration with the Regional Directorate of Foreign Trade and Tourism.

3) Disaster Preparedness and Risk Reduction

A Business Continuity Plan was developed to better prepare local artisans for future disasters and to reduce their exposure to risks. This was achieved through the following three main interventions:

a) Disaster preparedness: introduced a revolving fund to ensure that funds are available in the future if needed to recover from another disaster;

b) Mitigation: established arrangements with local authorities to ensure that the machinery and equipment of artisans are safeguarded from future disasters;

c) Risk reduction: linked local artisans with markets outside of Piura to avoid business interruption in the future.

4) Replication and Up-scaling of the Project

Based on the lessons and success of the pilot project in Catacaos, the initiative was introduced and implemented to support other local producers and artisans, namely 1) in the District of La Arena to support local artisans here who also produce handmade hats, and 2) in the Districts of Morropon and Buenos Aires to support local producers of organic bananas.

As with the pilot project, a needs assessment was conducted to assess the recovery needs of banana producers and artisans, to identify the most appropriate recovery interventions, and to forge alliances with local partners. Two business plans were developed and agreed, as well as protocols to support implementation.

The business plan for the recovery of livelihoods among producers of organic bananas was developed with the participation of local producers, banana cooperatives, the local Agrarian Agency and municipal

authorities. The business plan is focused on increasing production and marketing while also integrating risk reduction measures.

In addition, an evaluation was undertaken to assess the existing state of production and commercialization of organic bananas in the region, with the participation of eleven producer organizations, municipal authorities, and private sector businesses associated with the banana industry.

The project also supported synergies with the broader Provincial Network of Economic Development, which groups all businesses, organizations and government authorities in an alliance that promotes economic opportunities for all products produced locally.

Some lessons learned

While the initiative was largely successful in its pilot phase and subsequent replication to support the reactivation and recovery of economic activities of artisans and producers in flood-affected communities, the project also yielded important lessons for future consideration.

One of the main strengths of the initiative was its association with a host of partners from the private sector, government entities and communities on a range of recovery activities including capacity-building training and marketing.

Yet a lesson learned is that the project would have benefitted from a broader network of alliances, particularly with the private sector and with academia. Ideally these alliances are forged by UNDP in 'normal' times prior to a disaster to count on established strong partnerships that can be rapidly and effectively mobilized to support recovery.

Harnessing support from other units and areas of expertise within UNDP would also benefit similar recovery projects, such as with UNDP's Innovation Hub to introduce other innovative and non-traditional measures.

Relevance to the practice of recovery

Post-disaster recovery processes can often focus on the reconstruction of damaged infrastructure such as houses, schools and roads, yet it is equally necessary to support the reactivation of local economic activities to enable affected communities to get back on their feet. This is particularly important for micro-enterprises that operate within the informal economy and whose livelihoods depend on the income these generate. Immediate and direct support to repair damaged business infrastructure and to restore lost equipment and inputs is a key first step, but projects should have a broad scope to address recovery needs along the value chain, including marketing and branding, as well as to include measures that strengthen the resilience of micro-enterprises and reduce the risk of business interruptions and losses in the face of future disasters.

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Resources

Communication material on the recovery project:
Website: www.tejiendofuturoperu.com

Videos on Facebook:

- Luciano Mazzeti: https://www.facebook.com/PNUDPe/videos/1424787880960631/
- Sofía Mulanovich: https://www.facebook.com/PNUDPe/videos/1388000867972666/
- Katia Condos: https://www.facebook.com/PNUDPe/videos/1401323183307101/
- Melania Urbina: https://www.facebook.com/PNUDPe/videos/1462870393819046/
- Magdyel Ugaz: https://www.facebook.com/UNVPERU/videos/1904019402942045/
- Emilia Drago: https://www.facebook.com/PNUDPe/videos/1481603465279072/
- Ramón García: https://www.facebook.com/PNUDPe/videos/1342509369188483/

Other

https://www.youtube.com/watch?v=DPIr2yj8ygA

https://stories.undp.org/tejiendo-futuro

https://pnudperu.exposure.co/manos-de-la-reconstruccion

Peru

Strengthening Peru's Preparedness to Recover from Disasters

Category of the practice:

Managerial and Technical

Summary

To build and strengthen the capacity of the Government of Peru, civil society and communities, UNDP implemented several preparedness initiatives in collaboration with partners: 1) developed national guidelines for post disaster needs assessment adapted to the national context and needs, 2) developed a pre-disaster baseline database for the Piura region, 3) organized an earthquake simulation exercise, and 4) delivered capacity building training on risk reduction for civil society organizations. These measures will enable government authorities to conduct a rapid, well-coordinated and efficient assessment and recovery process when the next disaster strikes.

Description

Developing Guidelines for Post-disaster Needs Assessments

In response to the intense floods produced by the El Nino event in Peru's northeastern region in 2017, UNDP supported the Government to conduct a j (PDNA) based on the guidelines and methodology developed jointly by the United Nations, the European Union and the World Bank in 2013. The PDNA methodology is today the gold standard for assessments, applied by governments and the international community in dozens of countries since the guidelines were developed.

The use of the PDNA methodology in Peru allowed for a more comprehensive assessment of the flood's impact and effects. Previously in Peru, two methodologies were typically used in post disaster situations, the first focusing on identifying reconstruction needs and led by the National Center for the Prevention and Reduction of Disaster Risk (CENEPRED), and the second on rehabilitation needs led by the National Institute of Civil Defense (INDECI).

In order to align these two approaches into one single comprehensive methodology, UNDP worked with CENEPRED and INDECI in 2018 to develop one national guide based on the PDNA methodology but adapted to the country's national context and particular needs. The guidelines integrate the methods for identifying both reconstruction and rehabilitation needs. The new guide encompasses the following main components:

- The collection and processing of both quantitative and qualitative data;
- The effects on livelihoods;
- Assessment of the damage to infrastructure and basic services;
- Assessment of the losses or financial flows;
- Existing mechanisms of participation in decision-making;
- The needs to repair or rebuild the physical damage to infrastructure, to re-establish public services, as well as to recover the economic, social and environmental conditions.

Developing a Baseline Database to Support Disaster Response and Recovery

To complement the assessment methodology developed, UNDP supported the Government of Peru to develop a pre-disaster baseline database for the Region of Piura, the most affected by the heavy flooding in 2017. The baseline focused on the collection of information on three sectors. In particular the database collected baseline information for the following sub-sectors:

- Social sector: population, health, education, culture, housing, and social assistance.
- Economic sector: agriculture, fisheries, mining, commerce, industry, tourism, public administration, banking and finance, water and sanitation, electricity, transport and telecommunications.
- Cross-cutting issues: gender and inclusion, governance, the environment and risk reduction

In collaboration with the National Institute of Statistics and the Centro de Promoción e Investigación del Campesinado (CIPCA) the following three key steps were taken to develop the baseline:

1) Planning and organization: a working group of professionals was created, including specialists in information collection and data analysis, and a training workshop was organized on the key concepts and criteria for geo-referencing the baseline information that would be collected. The training also introduced the minimum requirements, procedures and responsibilities for the collection of baseline data, as well as the design of the database.

2) Information collection: the collection of baseline information was organized into three phases with each one focusing on the collection of data on specific sectors and sub-sectors. The data was collected from public and private institutions at regional and national level, primarily from the databases available online and from CIPCA's projects.

3) Finalizing the baseline database: the data collected was reviewed and validated, and subsequently introduced and organized into the pre-established structure of the database which was georeferenced to facilitate geographic visualization. The final baseline database has been placed online for public access and future use.

As a complement to the baseline database, the initiative also involved the collection of satellite images of the Pira region, developed in partnership with the CONIDA, Peru's Spatial Agency. Various technical tests were made during the process to correct for topographic and atmospheric details to improve the resolution of images. The satellite images include the upper and lower basins of the rivers Chira and Piura. Further precisions were made by the National University of San Marcos to enable a detailed detection of geographic areas affected by future disasters.

Strengthening Civil Society Organizations in Risk Management

UNDP's efforts to strengthen preparedness for response and recovery in Peru also gave priority to building the capacity of civil society organisations (CSOs). In collaboration with the Government of Peru and several agencies of the United Nations, a training strategy was designed on disaster risk reduction for CSOs. Six training workshops were organized for 42 community and district-level organizations and 78 community leaders, including women, youth and people with disabilities.

A mapping exercise was undertaken to identify volunteer organizations that can support in post disaster situations. A total of 84 organizations were identified in Lima and Callao with a membership of 7,000 volunteers. In addition, 33 volunteers received leadership training and participated in subsequent training workshops.

A Toolbox with practical tools on disaster risk reduction was also developed for civil society organizations in Lima. The toolbox consists of a guide and 10 good practices involving the participation of civil society in risk management, including the methodologies used and the lessons learned. The toolbox was distributed during capacity-building trainings organized for CSOs and is made available on the websites of the Municipality of Lima, Civil Defence and UNDP.

An Earthquake Simulation Exercise

Given the high exposure of Peru to earthquake risk, UNDP supported the Government of Peru to undertake a simulation exercise for an earthquake scenario in central Peru. The exercise involved the participation of regional and district government authorities, sector ministries and the United Nations under the leadership of the National Institute of Civil Defence (INDECI). The simulation helped to clarify the role and responsibilities of all government authorities and organizations and protocols were developed for earthquake response.

Although unexpectedly, the agreed protocols were activated in response to the El Nino floods which devastated north-eastern Peru in 2017. This included the mobilization of the United Nations Disaster Assessment Teams, the activation of five sectoral working groups, a rapid assessment of humanitarian needs and launching of a flash appeal to mobilize financial resources. The coordinated response involved 38 organizations in 10 regions and reached 900,000 people affected by the floods.

Relevance to the practice of recovery

Efforts to strengthen the capacity of governments, civil society and communities to prepare for future disasters is an essential strategy to reduce risks and vulnerabilities and to ensure that the recovery process is more effective and sustainable. In Peru, the development of one single assessment methodology, a pre-disaster baseline database, and the simulation exercise will enable government authorities to conduct a rapid, well coordinated and efficient assessment and recovery process when the next disaster strikes.

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Resources

Pre-disaster baseline database for Piura

https://drive.google.com/drive/folders/1Lo8bj-P_yZfCvDYqET75K7xhfD2juA-C

ANNEX

Compendium of Case Studies on Post-disaster Recovery

Concept Note

1. Background

Based on the mandate given by the UNGA (A/RES/52/12B of December 97), UNDP has been providing leadership in the post disaster recovery field, contributing to social and economic recovery of affected communities while developing government capacities for recovery implementation. Based on this experience and drawing upon the lessons of implementing the recent projects on "building capacity for resilient recovery" and "PDNA roll out", UNDP has identified following key issues in post disaster recovery:

- **Disaster recovery is efficient if institutions, policies and financial mechanism for recovery are set up prior to the disaster**: Established institutions with dedicated personnel and resources clearly defined roles and policies for implementing recovery are critical for delivering recovery benefits to people in an effective and timely manner.
- **Disaster recovery is better planned if informed by strong data.** For more effective and efficient post-disaster needs assessment and consequently of well-informed recovery strategies, the existence of baseline data, the collection and analysis of data on the sectors that get most affected in the country and risk analysis to develop damage scenarios that could help anticipate the impact of a given disaster is key.
- **Disaster recovery must balance social needs with demands for reconstruction of infrastructure**: In a recovery program, there are competing priorities related to the reconstruction of infrastructure, housing, as well as restoration of livelihoods, social services, and markets.
- **Disaster recovery is a collective effort**: Given the complex and multi-sectoral nature of the recovery, it is not possible for one agency or institution to deliver recovery. While the government leads the recovery and reconstruction efforts, international agencies, civil society, the private sector and the affected community play a crucial role in supporting recovery efforts.
- **Disaster recovery must be participatory and inclusive:** Recovery programs must be based on the needs and priorities of people affected by the disaster; therefore, it is critical to engage the affected population in determining their needs, priorities and also in the implementation phase. The role of women, elderly, people with disabilities and the youth, should be particularly highlighted.
- **Recovery needs should be undertaken based on the analysis of the impacts and include DRR and BBB:** Recovery planning is based on comprehensive assessment of damage, loss and recovery needs. It requires careful planning, it is driven by data, and peoples' needs and promotes DRR and Build Back Better to bounce back to an improved situation.
- **Disaster recovery an opportunity for DRR and BBB**: The post-disaster recovery context presents a short window of opportunity for making the right development decisions through better reconstruction and recovery programs and build resilience against future disasters.
- **Financing for recovery must be sustained**: Aid for disaster is typically provided for humanitarian needs with few resources for longer–term recovery needs. It is essential that governments identify the funding sources (national and external) for supporting recovery.
- **Monitoring and maintaining transparency and accountability are important elements for management of recovery**: Setting up monitoring mechanisms for recovery interventions is critical to ensure that progress towards the intended objective is made and that a process to address gaps and take corrective action is established.

- **The private sector is important and can bring innovation**: The private sector can invest capital in new technologies, infrastructure and networks, deliver goods and services to affected communities, and apply innovation to solve sustainable development challenges.

The ***"Strengthening Capacities for Post Disaster Needs Assessment and Recovery Preparedness"*** or ***PDNA Rollout II Project*** is currently being implemented by UNDP in alliance with the EU and World Bank. Main objective of this initiative is to contribute to building resilience of countries by enhancing national and regional capabilities to assess plan, implement and monitor post disaster recovery processes. ***Result No. 4 of the project envisages that post disaster recovery processes are informed by international best practices and standard tools and guidelines.***

2. Purpose of the Compendium

The Compendium of Good Practice for Post Disaster Recovery expects to help understand the complexities of planning and implementing concrete post disaster recovery interventions while offering a number of solutions that can be replicated in similar environments at the national or local levels.

The Handbook is expected to: 1) outline the procedure to identify, validate, and document successful programs, projects, processes or activities that have proven to be effective for post disaster recovery, 2) promote the use of these practices in similar environments by raising the interest of local stakeholders and officials, and 3) consolidate the selected practices in an accessible data base for the benefit of those interested in recovery implementation through different means including through e-options.

3. Purpose of this Concept Note

The purpose of this Concept Note is to guide regional centers, country offices and consultants in the process of identifying and writing up good recovery practices. For this exercise, **Good Practice** is defined as any proven idea, program, technique, mechanism, method, practice or procedure for undertaking recovery interventions at the regional, national and local levels.

These good practices are intended to address at least one of the concerns identified in the post disaster recovery and reconstruction realm while at the same time being adaptable and replicable in similar environments. In this Compendium, good practices will be classified according to the issues they address and classified in the following typologies:

a. **Legal.-** those that incorporate rules, regulations, SOPs and other legal interventions.

b. **Organizational.-** encompass elements such as inter-institutional coordination for recovery, national and local government coordination.

c. **Educational.-** comprise awareness raising, communication, information management for recovery, training and capacity building initiatives.

d. **Technical.-** include data management, information technologies, hazard and/or sector specific interventions (Energy, Housing and the Cross-Cutting Issues such as Governance, DRR, Gender, Environment and Livelihoods), structural and nonstructural tools and methods, innovation, promotion of DRR and BBB in human and physical recovery.

e. **Managerial.**- looks into inclusive and participatory processes that promote wide stakeholder participation such as the private sector, the engagement of specific groups of the society for example, women, youth, the elderly, IDPs, disabled, among others.

f. **Financial.-** promotes the development of dedicated financial mechanisms for recovery with legally binding mechanisms, addresses cash transfer options.

g. **Behavioral.**- promotes changes in the way recovery is undertaking promoting transparency through monitoring and evaluation mechanism

A template for collecting the information will be prepared to help gain insights on the implementation

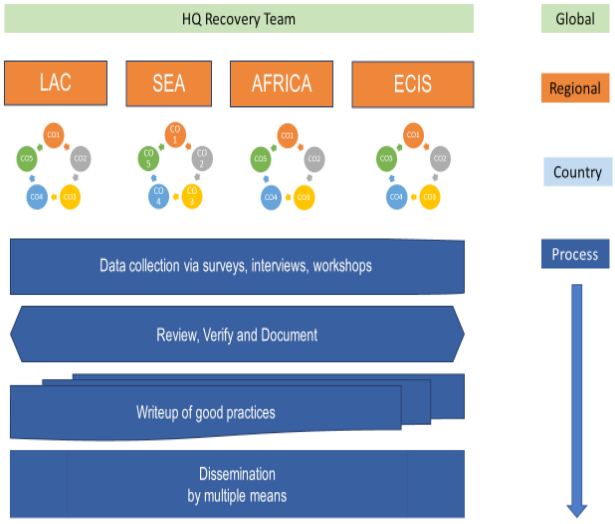
of the practice. It will include a Description of each activity, the problem that is addressed, the human and economic resources used any monitoring and evaluation procedures designed. **What** are the highlights of the practice, **Why** these particular sets of actions worked and **How** will they be maintained? **Who** were the actors involved? Can this practice be fully adopted or adapted by other communities? **What** are its cost-benefit parameters? and in fact, **Which** are the determinants for success?

3.1. Suggested Procedure

The process of identification, selection and publication of at least 20 good practices in post disaster recovery are expected to be undertaken in close consultation with selected country offices in each one of the regions and with the support of the UNDP regional centers from Latin America and the Caribbean (LAC) in Panama, South East Asia (SEA) in Bangkok, Africa in Addis Ababa and/or Nairobi, and East Europe (ECIS) in Istanbul. The Recovery Team at HQ will provide technical and financial support through the *Strengthening Capacities for Post Disaster Needs Assessment and Recovery Preparedness*, **PDNA Rollout II**. The identification and selection process could be undertaken through the following proposed interventions:

- Regional teams will identify 5 to 8 countries where recovery interventions, with potential good practices, have taken place in the period 2014 to 2019.
- A preliminary survey comprising no more than 10 key questions related to the proposed practice is filled up at the country level through the DRR/ Recovery focal point. See **Table 1 for the Criteria for Eligibility and Annex 1 for a short survey**. UNDP focal points, in coordination with the regional centers will select the wining proposals.
- When selecting the good practices at the country level, it is important to make sure that there is an appropriate diversification of the categories of practice identified. The Compendium would benefit if we are able to incorporate practices belonging to different categories, for example one under legal, another one under managerial, a third one under financial, etc. Same criteria should be applied at the regional level when selecting those recovery practices from the countries. Emphasis should be put in the selection of a varied portfolio.
- At least 5 practices per region, one per country, are selected for the next step which includes gathering all necessary information, hard data, interviews with end users or beneficiaries of the practice, collect graphic material for example videos or photos, and prepare a first draft based on a write up template. **See Annex 2 for a guide to the write up.**
- Each regional center will hire a consultant, who will work with the UNDP focal points to consolidate the findings and write the case study. A total of 4 regional consultants will be hired, each one will prepare 5 good practices with the overall support and supervision of the regional centers, national focal points will be engaged in the process and HQ will consolidate and publish the Compendium in 3 different languages: English, French and Spanish.

Identification and Dissemination of Good Practices for Post Disaster Recovery – Process



3.2. Criteria for eligibility

The following criteria is provided as a guide to identify good practices that can be replicated, expanded and further incorporated in the regular development or post disaster recovery processes.

Table 1. Criteria for eligibility

Criteria	Key Issue
1. Universality / Transferability	Can the identified practice be applied in another region/country?
2. Applicability	Is the application appropriate for the post disaster context?
3. Expandability	Can the small-scale activity/ies that typify the practice be expanded, or replicated, throughout the same sectors / areas?
4. Orientation / Focus	Is the practice focused on reducing the overall level of risk from the pre-disaster situation? Are the concepts of Building Back Better included in the practice?
5. Assimilation / Integrability	Can the practice identified be incorporated, or assimilated into, other development or risk reduction practices?
6. Impact / Effectiveness	What effect does the practice have on accelerating and/or efficiently implementing recovery activities?

Annex I

Survey to Identify Good Post Disaster Recovery Practices – Country Level

In order to understand relevance of the practice for recovery and looking for consistency, in the selection and documentation of these good practices. This collection of good practices should offer the opportunity to understand how the problem was formulated, how the interventions were carried out, how long did it take, the use of human and financial resources, its sustainability and transferability. It is thus suggested that prior to engaging in the full formulation of the case, it would be good to consider the following guiding questions that will help in the final selection:

Name of the practice	
Category of the practice	☐ Legal ☐ Organizational ☐ Educational ☐ Technical ☐ Managerial ☐ Financial ☐ Behavioral
What area of recovery is this practice addressing?	☐ Preparedness ☐ Assessment ☐ Planning ☐ Implementation
Type of Hazard being addressed?	
What is the specific problem being treated?	
Short Description of the practice.	
Who are the actors involved?	
How is the practice being implemented and sustained?	
Can this practice be replicated/ adapted elsewhere?	
What are the human and financial resources needed?	
What are the determinants for success?	
Any lessons learned from this practice.	
Who to contact?	Name Email WhatsApp

Good Practice is defined as any proven idea, program, technique, mechanism, method, practice or procedure for undertaking recovery interventions at the regional, national or local levels.

Annex II
Writeup Template

Once the practices have been identified and selected though the initial survey, the regional consultant and the national focal point will work together to agree on the specific elements of the good practice that will be highlighted and presented in the Global Compendium.

The teams are encouraged to find visual material to illustrate as much as possible how the practice was developed and maintained. The use of short video, pictures, brochures and other graphic material is encouraged.

Each practice is expected to be summarized in no more than 4 full pages. Using word normal margins, Calibri 11 font with single line spacing. The proposed outline for the Summary is as follows:

1. **Headings:** Name of the Practice, Category of the practice and area of recovery that the practice is addressing
2. **Summary:** Explain briefly what the problem was how the practice addressed it and the results that were accomplished. Focus on what was done. 300 words or one fourth of a page.
3. **Description:** How the practice was undertaken, who participated, what was the cost, would it be able to be replicated, is it sustainable. Add tables and graphs as needed. Use the remainder of page 1 and use up 2 additional pages to complete the Description.
4. **Relevance to the practice of recovery**: Discuss why this practice is relevant to strengthen recovery preparedness, assessments, planning and/or implementation in the country. How this practice could be linked to a broader recovery program/intervention. 1 page including Contact Information
5. **Contact Information:** 5 lines

Annex III
List of PDNAs conducted in the period 2014-2019

Annex 1 - List of PDNAs conducted between 2017 and 2019

Date	Disaster Event	Country	Region	Name of the Assessment
2014	Flood	Serbia	ECIS	TBC
2014	Flood	St. Vincent and the Grenadines	LAC	TBC
2014	Flood	Bosnia and Herzegovina	ECIS	TBC
2014	Typhoon	Philippines	SEA	TBC
2014	Cyclone	Burundi (in French)	SEA	TBC

2015	Flood and Landslides	Myanmar	SEA	TBC
2015	Flood	Georgia	ECIS	TBC
2015	Earthquake	Nepal	SEA	
2015	Cyclone Pam	Vanuatu	PACIFIC	TBC
2015	Flood	Malawi	Africa	TBC
2016	Flood	Saint Vincent and the Grenadines	LAC	TBC
2016	Cyclone Matthew	Haiti	LAC	TBC
2016	Flood	Vietnam	SEA	TBC
2016	Floods and Landslides	Sri Lanka	SEA	TBC
2016	Cyclone	Seychelles	PACIFIC	TBC
2016	Cyclone Winston	Fiji	PACIFIC	TBC
May-17	Floods and Landslides	Sri Lanka	SEA	Sri Lanka Rapid Post Disaster Needs Assessment 2017
Aug-17	Floods	Nepal	SEA	Post Flood Recovery Needs Assessment
Sep-17	Hurricane Maria	Dominica	LAC	Post Disaster Needs Assessment Hurricane Maria, A Report by the Government of the Commonwealth of Dominica
Sep-17	Hurricane Irma	Antigua and Barbuda	LAC	Hurricane Irma Recovery Needs Assessment, A Report by the Government of Antigua & Barbuda
Sep-17	DRF for the 2016 Floods	Sri Lanka	SEA	Post Floods Recovery Framework
Oct-17	DRF Angola for the 2012-2016 Droughts	Angola	Africa	Quadro de recuperacao da Seca 2012-2016
				Drought Recovery Framework 2012-2016
Nov-17	Droughts	Somalia	Arab States	Drought Impact and Needs Assessment - DINA

Jun-18	Fuego Volcanic Eruption	Guatemala	LAC	Evaluación de Daños y Pérdidas Volcán de Fuego
Jul-18	Floods	Laos	SEA	Post-Disaster Needs Assessment: 2018 Floods, Lao PDR
Aug-18	Floods	Kerala-India	SEA	Kerala Post Disaster Needs Assessment
Oct-18	Floods	Tunisia	Arab States	Tunisie - Analyse des Besoins suite aux Inondations au Cap Bon
Mar-18	Floods	Rwanda	Africa	Post Disaster Needs Assessment
Oct-18	Earthquake	Indonesia	SEA	Joint needs assessment
May-19	Cyclones IDA & KENNETH	Mozambique	Africa	Mozambique Cyclone IDAI Post Disaster Needs Assessment
Jun-19	Cyclone Fani	Odisha-India	SEA	Odisha Cyclone Fani Post Disaster Needs Assessment
Jul-19	Floods	Iran	SEA	Post Disaster Needs Assessment
Dec-14	Floods	Djibouti	Africa	Évaluation rapide des dommages, pertes e besoins post-inondation (méthodologie PDNA)

(Footnotes)

1 https://ec.europa.eu/fpi/sites/fpi/files/pdna/pdna_bih_2014_-_final_report_0.pdf

2 http://geoliss.mre.gov.rs/

3 For this Android application, BEWARE project team received "Annual award of Belgrade Chamber of Commerce for the best technical improvement in 2015.

List of acronyms

Acronym	Full Term
ADB	Asian Development Bank
ANCSB	Association Nigérienne De Construction Sans Bois
ANS	Awas Nirman Sathi
ASAL	Arid And Semi Arid Land
Bakornas PB	Badan Koordinasi Nasional Penanganan Bencana
Bakornas PBP	Badan Koordinasi Nasional Penanggulangan Bencana dan Penanganan Pengungsi
Bappenas	Badan Pembangunan Nasional
BIH	Bosnia and Herzegovina
BMU	Beach Management Unit
BNPB	Badan Nasional Penanggulangan Bencana
BPBD	Badan Penanggulangan Bencana Daerah
BRR	Badan Rehabilitasi dan Rekonstruksi
BSS	Beneficiary Status Survey
CCA	Climate Change Adaptation
CENEPRED	National center for the estimation, prevention and reduction of disaster risk
CF	Community Facilitators
CFIA	Federated College of Engineers and Architects
CIPCA	Center for Research and Promotion of Farmers
CMM	Crisis Modifier Mechanism
CNE	National Emergency Commission
CO	Country Office
CO2	Carbon dioxide
CONIDA	National Commission for Aerospace Research and Development
COSUDE	Swiss Agency for Development and Cooperation
CSOs	Civil Society Organizations
CST-RST	The Scientific and Technical Coordination on Seismic and Tsunami Risks
CTT	Core Technical Team
DDM	Department of Disaster Management
DIBI	Indonesian Disaster Information Database
DLPIU	District Level Project Implementation Unit
DM	Disaster Management
DNPGCA	Dispositif National De Prevention Et Gestion Des Crises Alimentaires
DPO	District Project Officer
DRF	Disaster Risk Framework
DRI	Disaster Recovery Index
DRM	Disaster Risk Management

DRR	Disaster Risk Reduction
ECHO	European Civil Protection and Humanitarian Aid Operations
EE	Energy Efficiency
ERL	Environmental Research Laboratory
ESRI	Environmental Systems Research Institute
EU	European Union
EUR	Euro
EWB-I	Engineers Without Borders-International
EWS	Early Warning System
FAO	Food And Agriculture Organization
GDP	Gross Domestic Product
GeoIISS	Geological Information System of Serbia
GEOTIFF	Geo Tagged Image File Format
GIS	Geographic Information System
GIZ	The Deutsche Gesellschaft für Internationale Zusammenarbeit
GLOFs	Glacial Lake Outburst Floods
GMALI	Grant Management and Local Infrastructure
GOI	Government of Indonesia
GoI	Government of India
GoN	Government of Nepal
GPS	Global Positioning System
HBDA	Household and Building Damage Assessment
HDI	Human Development Index
HEA	Household Economy Analysis
HFA	Hyogo Framework for Action
HQ	Head Quarter
HRP	Humanitarian Response Plan
ICS	Incident Command System
ICT	Information and communications technology
IDP	Internally Displaced Person
IEC	Information Education and Communication
IGA	Income-Generating Activities
ILO	International Labour Organization
IMDFF-DR	Indonesia Multi Donor Fund Facility for Disaster Recovery
INATEWS	Indonesia Tsunami Early Warning System
INDECI	National Institute of Civil Defense
IOM	International Organization for Migration
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency

JRDNA	Joint Rapid Damage and Needs Assessment
JSON	JavaScript Object Notation
JWP	Joint Work Plan
kg	Kilogram
KHDR	Kenya Demographic and Health Survey
KLDC	Kenya Leather Development Council
KRCS	Kenya Red Cross Society
KSDMA	Kerala State Disaster Management Authority
kWh	kilowatt-hour
M	Million
MDGs	Millennium Development Goals
MGNREGA	Mahatma Gandhi Employment Guarantee Act
MHEWS	Multi-Hazard Early Warning System
MIVAH	Ministry of housing and human settlements
MLAWRR	Ministry Of Lands, Agriculture, Water, And Rural Resettlement
MoDMR	Ministry of Disaster Management and Relief
MRR	Merapi Recovery Response
MSNA	Multi Sectoral Needs Assessment
MSWM	Municipal Solid Waste Management
MT	Metric Tons
MTC	Mobile Technology Clinic
Mts	Metical (Mozambique Currency)
NDMA	National Disaster Management Authority
NDMA	National Drought Management Authority
NDRF	National Disaster Response Framework
NDRF	National Disaster Recovery Framework
NFR	National Framework for Recovery
NGO	Non-Governmental Organization
NGOs	Non-Governmental Organizations
NHRP	Nepal Housing Reconstruction Project
NIDM	National Institute of Disaster Management
NPC	National Planning Commission
NPRM	National Plan for Risk Management
NRA	Nepal Reconstruction Authority
NSDRM	National System for Disaster Risk Management
NWOW	New Way Of Working
OCHA	Office For The Coordination Of Humanitarian Affairs
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
ODK	Open Data Kit

ODR	Owner Driven Reconstruction
ODRC	Owner Driven Reconstruction Collaborative
OECS	Organization of Eastern Caribbean States
PAs	Partnership Areas
PDNA	Post Disaster Needs Assessment
PDRF	Post Disaster Recovery Framework
PETRA	Programme for Earthquake and Tsunami Infrastructure Reconstruction Assistance
PfRR	Partnership For Recovery And Resilience
PMT	Project Management Team
PMU	Project Management Unit
PMU	Project Management Unit
PWD	People With Disabilities
R2R	Recovery to Resilience Programme
REACT	Rapid Emergency Assessment and Coordination Team
RIMS	Reconstruction Information Management System
RKDP	Rebuild Kerala Development Programme
RKI	Rebuild Kerala Initiative
SC	Steering Committee
SC-DRR	Safer Communities through Disaster Risk Reduction in Development
SDG	Sustainable Development Goal
SDGs	Sustainable Development Goals
SECONRED	Executive Secretariat of the National Coordination office for Disaster Reduction
SID	Village Information System for Disaster
SNGRE	National Risk Management and Emergency Service
SOPS	Standard Operating Procedures
SWM	Solid Waste Management
T	Tones
TKFRT	Toyota Kenya Foundation Registered Trustees
TPK	ArcGIS Tile Data Package
U.S.	United States
UAGRM	Autonomous University Gabriel Rene Moreno
UN	United Nations
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNDP CO	United Nations Development Programme Country Office
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund

UNGRD	National Unit for Disaster Risk Management
UNHCR	United Nations High Commissioner For Refugees
UNICEF	United Nations Children's Fund
UNDRR	United Nations Office for Disaster Risk Reduction
UNITAR	UN Institute for Training and Research
UNOPS	United Nations Office for Project Services
UNOSAT	UN Operational Satellite Applications Programme
UNWomen	United Nations Women Organization
USAID	United States Agency for International Development
USD	US Dollars
UTS	Technical Seismology Unit
VAT	Value Added Tax
VSLA	Community Savings And Loan Associations
W.I.	West Indies
WB	World Bank
WFP	World Food Programm
WHO	World Health Organization
XML	Extensible Markup Language
ZimVac	Zimbabwe Vulnerability Assessment Committee
ZRBF	Zimbabwe Resilience Building Fund
ZWL	Zimbabwe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