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Success story #4

Disaster risk management

The problem

The weather seems to be getting wilder and fiercer. From devastating hurricanes in the Caribbean, to raging wildfires in Australia, catastrophic typhoons in the Philippines and ruinous floods in Myanmar, the human and economic toll of extreme weather events is enormous. The immediate links between many natural disasters and climate change are evident, as are the impacts they have on lives and communities. The great tragedy of climate change is that it is the poorest and most vulnerable who suffer the most. Each time an extreme weather event causes significant loss of property and loss of life, a natural disaster is recorded. Between 1990 and 2014, there were more than 8,000 weather related disasters globally, with floods, hurricanes and epidemics being among the most common. In 2019, more than 600 natural disasters were recorded and caused an estimated loss of 150 billion USD in countries and territories around the globe.

Vietnam is one of the countries most significantly affected by climate change. Besides extreme weather events such as typhoons making landfall at the central coast or draughts striking the central highland region, floods are among the major risks Vietnam's communities are confronted with at increasing intensity and frequency.

According to the World Bank, Vietnam loses around 1%-1.5% of its annual GDP to natural hazards. An estimated 70% of the population is at risk of typhoons and floods. In addition to seasonal flooding, extreme flood events in the years 1961, 1978, 1991, 2000, 2001, 2005 and 2009 had disastrous economic and civilian impacts. A historic flood in the Mekong-Delta in the year 2000 alone took 565 lives, among these the lives of 300 children. Of all natural hazards present in Vietnam, flooding is the most frequent, the most economically damaging and the deadliest.

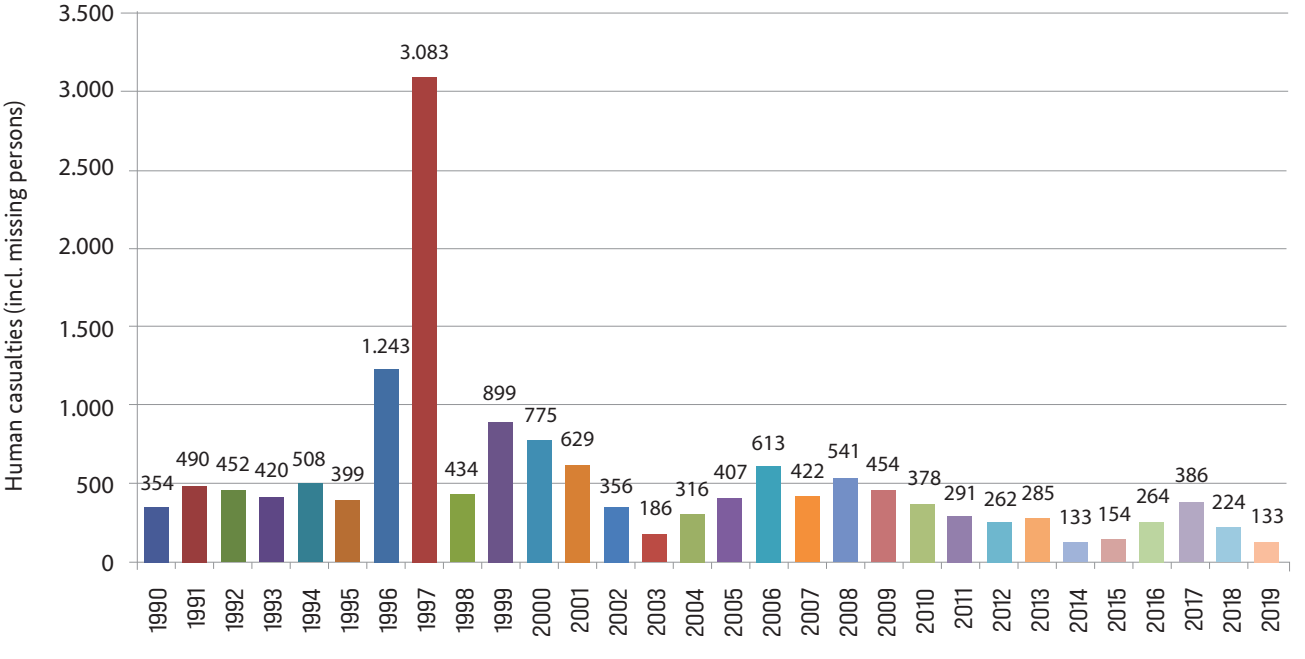

Figure 1: Human casualties (incl. missing persons) of disasters in Vietnam 1990-2019

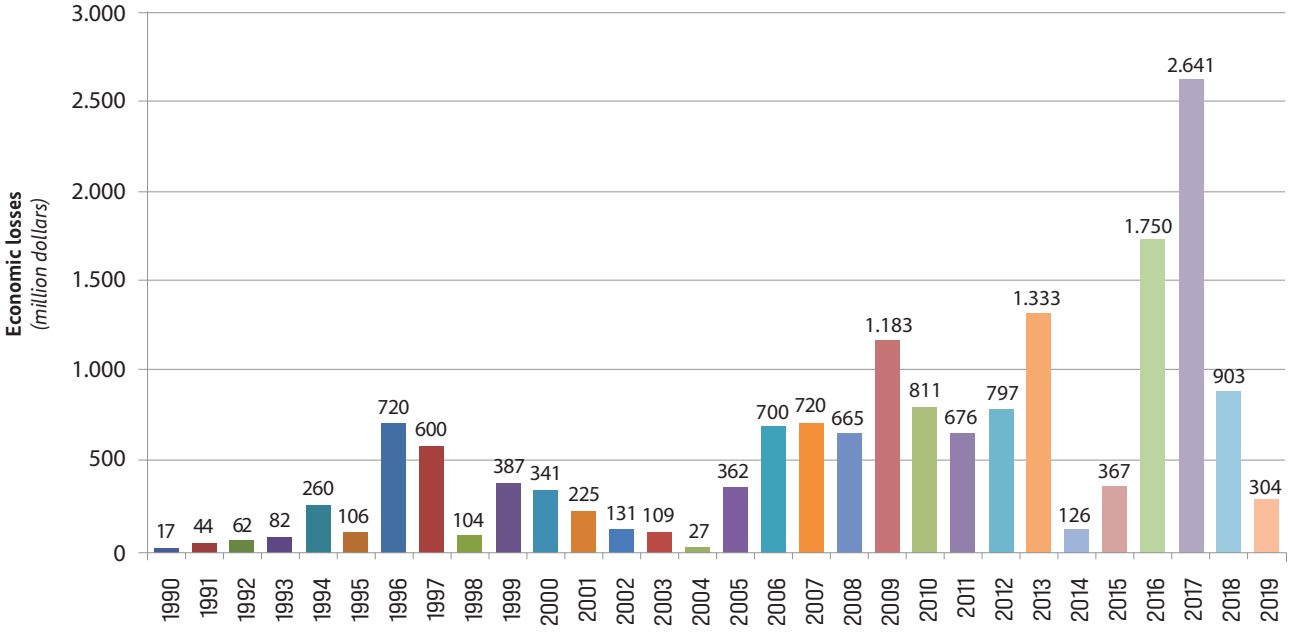

Figure 2: Economic losses due to natural disasters in Vietnam (million USD) 1990-2019

Floods occur frequently in Vietnam's cities. Two simultaneous developments exacerbate the negative impacts of floods on cities. The first is climate change. Urban flooding will increase due to rising sea levels and more frequent intense rainfall events. Both overflowing rivers and insufficient drainage capacity to deal with intense rainfall are responsible for flooding. The second development is rapid urbanization. The number of urban dwellers is expected to rise from 33% in 2014 to 45% or 44 Million people in 2020. In 2025 there will be 1000 urban centers that are home to 52 million people or 50% of the population. Yet, neither current nor future flood risks are effectively considered in urban planning. Rather, urban development increases risks of pluvial flooding as it reduces the natural drainage capacity and increases river flood risk as buildings are often constructed in flood plains. Vulnerability to floods thereby rests often on the poor. Despite remarkable progress, poverty reduction in Vietnam is not complete, and it has become more difficult. In 2016, 8.4% of the population in Vietnam lives below the national poverty line. Rural-urban migration and rapid urbanization has resulted in the poor in urban centers being harder to reach: they face difficult challenges of isolation, unstable jobs, poor housing, limited assets, low levels of education and poor health. With growing urbanization, poverty rates in general and in cities are expected to rise as many new urban dwellers settle from the country-side with little or no resources and capacities available to create income above the poverty line. Supporting the national and local government in reducing vulnerability to floods will help the poor and vulnerable groups living in marginalized areas improve their resilience to shocks and stresses.

FPP contribution

A disaster arises when an extreme natural event strikes a vulnerable society. Whether a natural event becomes a disaster depends mainly on the social, economic, ecological and political characteristics of the society in question. Present day Disaster Risk Management (DRM) seeks to reduce a society's vulnerability to extreme natural events so that even if such events occur they do not result in a disaster. Natural events can generally not be prevented – but their impact can be mitigated. It should be borne in mind that vulnerability arises from the susceptibility, coping capacity and adaptive capacity of individuals, households, communities and states. Reducing vulnerability therefore involves reducing the factors that contribute to it at all levels.

Disaster Risk Management (DRM) is the process of planning, implementing, evaluating and adapting strategies, procedures and measures relating to the analysis, reduction and transfer of disaster risks, with the aim of reducing hazards and vulnerability and strengthening the coping and adaptation capacities of individuals, households, communities and state structures. DRM is a continuous process that involves physical and non-physical measures and takes account of the underlying risk factors within a society. DRM actions can be categorized into three categories, as presented in Figure 3.

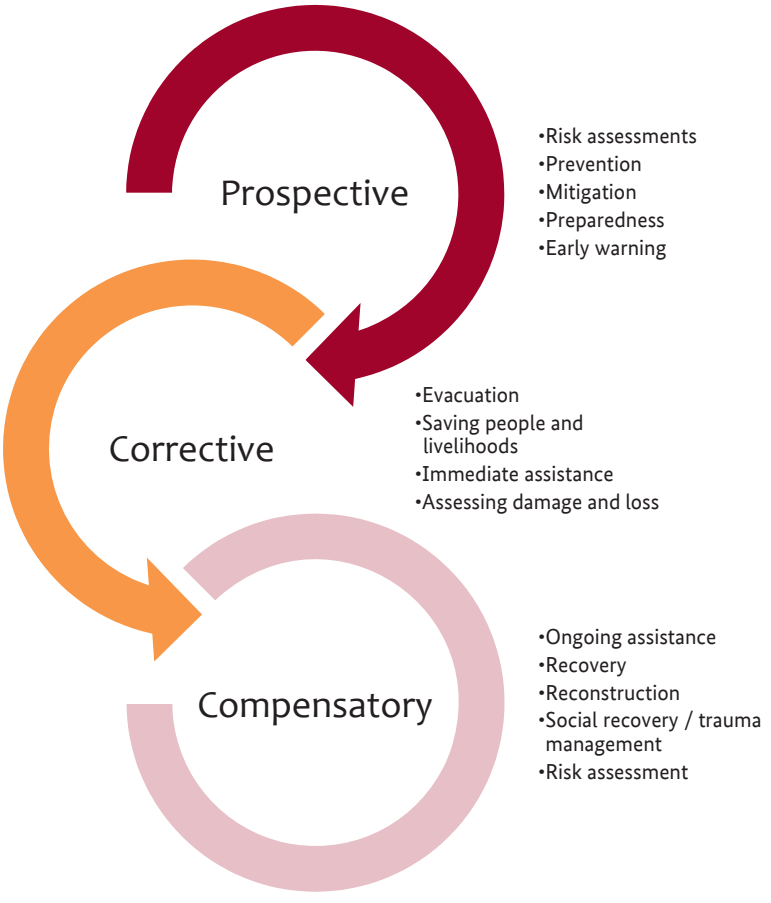

Figure 3: Categorization of DRM actions

Although Vietnam has always been one of the most hazard-prone countries in the East Asia and Pacific region, and DRM is not a new field of activity for the GoV, a 2017 Worldbank study identifies a number of challenges for the development of an effective institutional disaster response framework. The study concludes that:

- Vietnam's capacity to manage disaster risks with timely warnings linked to effective disaster preparedness, response, and recovery needs to be strengthened;
- Vietnam's DRM and climate change adaptation policies, plans, and investments are fragmented;
- DRM and climate change adaptation are not consistently or effectively integrated into socioeconomic development planning at national and subnational levels or within sectors
- It is difficult for the country to ensure that resilience measures are appropriately planned and implemented at local level.
- Fragmented sectoral approaches and institutional arrangements are limiting Vietnam's capacity to manage risks from disasters more broadly

Recognizing these challenges, the Government of Vietnam (GoV) has carried out significant changes in the national legal and policy framework for DRM and continuously carries out activities to improve disaster preparedness and response mechanisms at local levels. On behalf of the GoV, the Vietnam Disaster Management Authority (VNDMA) under the Ministry of Agriculture and Rural Development (MARD) is assigned as lead agency to manage and coordinate DRM. A few highlights of the 2019 activities conducted by VNDMA include:

- Amended or replaced existing outdated, or formulated new legal and policy framework documents;
- Organized national and regional conferences and workshop, such as for example the Conference to review DRM in 2018 and action planning for 2019 which was live streamed online with the participation of more than 70,000 people at all levels;
- Provided continuous technical support to provincial authorities, incl. training and capacity development measures, such as for example the training of the leaders of standing offices of 63 Commanding Committees for Natural Disaster Prevention and Control;

- Intensified communication on DRM aimed to increase awareness, preparedness and response skills for local authorities and communities at all levels;
- Reviewed disaster management and response plans and sets of control indicators;
- Upgraded databases, modernized tools to support real-time disaster management, multi-hazard warning system, information and data connection, online cameras to key disaster response locations;
- Developed and reinforced disaster response teams at commune level nationwide; as of 2019, 75% of communes nationwide have established their own disaster response teams;
- Developed safe communities in association with new rural development to ensure proactive response to disasters and adaptation to climate change;
- Intensified technology R&D and international cooperation;
- Mobilized 134,064 officials, soldiers, militia and self-defense forces and 3,714 military means to participate in disaster response and recovery efforts;
- Counted, requested and instructed 509,649 vehicles and 2,361,260 workers at sea to avoid and remain safe during storms and tropical depressions; provide disaster information so that they can proactively move to shelters or anchorage for safety;
- Evacuated 18,433 households living in riverine areas, coastal areas or areas prone to high risk of flooding, storms, landslides and flash floods to safe locations.

FPP contribution

Co-Financed by Switzerland and Germany and implemented by MOC and GIZ, the "Mekong Urban Flood Resilience" programme (FPP) in its phase two has targeted to tackle urban climate resilience via a holistic approach to flood prevention, early warning and disaster risk management. Urban flooding can be reduced, but not completely eliminated. A major focus of FPP activities was therefore to increase cities' capacity to decrease the human and economic costs of flood events. Under its Disaster Risk Management (DRM) area of work, FPP advisors together with local partners installed gauges and other equipment to expand existing flood early warning systems (EWS) in the Mekong-Delta, and worked with local authorities and the population in An Giang, Kien Giang and Ca Mau to improve disaster preparedness and response. Naturally, the review and adaptation of key sector legislation at national and local levels formed the third important cornerstone of activities that functions to scale-up and institutionalize the experience and results made on the ground. Over a span of three years, a number of outputs and outcomes could be achieved.

Outcomes at National Level

The FPP II advisory team delivered various technical inputs to the national sector policy documents relevant to on disaster risk management and flood control. The supported legislation includes:

- MPI Circular 05/2017/TT-BKHĐT that establishes the national SEDP indicator framework (Climate resilience and gender indicators are now to be included in all annual provincial SEDP)

Figure 4: Flood early warning system in Tra Su, An Giang

- Vietnam building codes QCVN 01/2018 and TCVN 7957 (Climate resilience and alternative flood management measures (SUDS) were integrated in new codes)
- MoNRE Circular 30/2018/TT-BTNMT on monitoring of hydro-meteorological (HydroMet) data and information transfer to local hydro-meteorological stations
- GoV Decree 160/2018/NĐ-CP regulating the implementation of the Law on Disaster Prevention and Response
- PM Decision 05/2020/QĐ-TTg regulating water level and flood warning stages
- GoV Decree 50/2020/NĐ-CP regulating receipt, management and use of international emergency aid funds in response to natural disasters

A national handbook on "Climate Change Response in Vietnam" was published in collaboration with the Committee for Science, Technology and Environment of the National Assembly and sent in 2000 print copies to all National Assembly delegates and leaders of all 63 provinces of Vietnam

In addition, a digital disaster risk assessment tool for the entire territory of Vietnam was developed by FPP experts. This so-called 'suitability map' is based on open source GIS software and offers usability for the entire territory of Vietnam. A suitability map helps urban planners, disaster response authorities, investors or insurers to determine specific risks from various types of natural disasters (floods, earth-quakes, storms, etc.) at any given location or land plot in a city or country. The suitability mapping concept was introduced to a number of stakeholders and potential users, including the national reinsurer VinaRe and VNMHA of MoNRE during two training workshops.

Outcomes as Local Level

Results with relevance to DRM achieved at local level include:

- Strengthened provincial institutional frameworks on DRM in three provinces, incl.
    - o established provincial orientation plans for flood management and drainage in urban centers
    - o established guidelines in three provinces on mainstreaming climate change resilience and DRM indicators into annual SEDP (approved and sent to all government stakeholders in each province)
    - o established provincial regulations on organization and operation of the provincial steering committee for disaster prevention and control and victim search and rescue
    - o reviewed and updated provincial flood management and disaster response plans
- Strengthened local flood early warning capacities through
    - o installed 27 gauges / sensors for measuring water levels, rain and wind in three provinces, adding to the existing sensors of the national early warning system
    - o installed 16 weather cameras in 13 Mekong Delta provinces to improve rain forecasting accuracy
    - o analyzed rain patterns and climate change forecasts for three cities
    - o developed up-to-date and accurate digital elevation models (DEM) and flood models for three cities and surrounding rural areas
    - o trained local administrators and users of new gauges, weather cameras and flood models
- Strengthened local disaster response capacities, via
    - o assessed capacity gaps among local authorities to develop tailored training materials on DRM
    - o surveyed awareness and effectiveness of local evacuation plans (600 households interviewed)
    - o trained local authorities of province and commune on early warning and disaster response communication chains, household disaster preparedness and rapid evacuation procedures (training incl. ToT for province-level participants in order to replicate trainings in all communes of each province)
    - o developed a provincial toolkit for rapid impact assessment and emergency response planning from natural disasters (incl. forms for household interviews and for data aggregation from communes to province-level)
    - o analysis and improvement of existing early warning and disaster response communication chains
- Developed ground subsidence models and projections for the Mekong-Delta based on remote sensing and on-the-ground data surveys
- Developed detailed multi-hazard risk assessment maps for the territories of three cities.

FPP approach

To ensure sustainability in the implementation of its activities, FPP II applied a uniquely integrated advisory approach that gathers concrete experiences on the ground and channels these from local to central government levels in order to provide practical evidence for central level policy formulation. FPP II successfully established close linkages between national and provincial levels. Provincial experiences and requirements for policy were presented to the central level and advocacy was carried out to support policy amendments and changes.

In addition the approach also emphasized cross-exchange of experiences and the sharing of lessons-learned on a horizontal level (province-to-province, city-to-city) leading to effective learning and high motivation through a healthy spirit of competition.

On provincial level, the FPP II way of working involved the establishment of inter-departmental work groups headed by each provinces PPC and managed by DOC. The work groups comprised leaders and technical officers of all relevant local government agencies, including the provincial line departments for construction, environment, agriculture, planning, health and finance as well as provincial statistical offices, provincial hydro-meteorological stations and city-level authorities. All programme activities were planned and steered by each provincial work group, ensuring a unified approach, common goals and an open exchange of information among involved stakeholders. Working meetings between each work group and FPP II advisors were held in regular intervals at high frequency, ensuring high efficiency in output creation and quick decision-making and approval procedures.

The work on province level commenced with the development of programme implementation plans with each work group and their approval by the PPC. Through these plans, roles and responsibilities were clarified, availability of budget for implementation and further operations of work groups and, for example, technical systems could be assured.

Policy dialogues at provincial level, but also between the provincial and the national levels ensure that all relevant stakeholders gain a sound understanding of the issues at hand, and that national policies are based on the experiences and capacities of the provincial governments. Specifically through the development of guidelines and supporting central-level authorities in the development of laws, decrees and regulations, the lessons learned on a provincial level gained sustainability through institutionalization in national laws, targets, codes and regulations. Through influencing urban planning and budgets on the provincial level, impacts went beyond the mere implementation of technical systems.

RESULTS IN FIGURES

- **200** local authority representatives trained on early warning and disaster response communication chains, household disaster preparedness and rapid evacuation procedures
- **834,000** people in three cities benefit from more accurate information on flood risks, improved urban drainage planning and detailed information on high-risk areas and land plots
- **5.55 million** people in three provinces benefit from improved disaster preparedness, communication chains, evacuation plans and rescue and response capacities
- **21.5 million** people in the entire Mekong-Delta benefit from improved flood early warning capacities
- **96 million** people in all of Vietnam benefit from a national multi-hazard risk assessment map
- **96 million** people in all of Vietnam benefit from improved policy framework on disaster response and risk management

The human impact

Mr. Le Van Hai, resident of Long Xuyen:

"I live with my mother, my wife and two kids in the rural outskirts of Long Xuyen city. We are farmers, so agriculture is our main source of income. In addition we also rent out some rooms on a monthly basis to local students. Generally, flooding is not so severe here, but I noticed it has become more frequent in the past years or so. Luckily, since that new dyke was built, our house is more or less protected. The water has so far never entered the house itself, but sometimes the nearby street gets flooded temporarily. The biggest flood in this area that I can remember was back in 1998, when almost the entire province was under water. I remember that many households got evacuated by the army, but we were able to remain in our house. At that time, the authorities provided constant updates via local TV stations during and after the flood. Otherwise, we do not regularly receive flood warnings. But whenever I do hear of flood warnings, the projections for the timing and the water levels are more or less precise. I am quite confident in our authorities' predictions."

Mr. Tran Nhat Tam, public servant in Rach Gia city:

"I've been a resident in Rach Gia since more than 10 years. I lived in Soc Trang before. In our household there are two elderly persons, my wife, me and two kids. Our house never gets flooded. Also I cannot remember any major flood event here in Rach Gia since I've been living here. Sometimes some streets get inundated for a few hours when there is heavy rain in combination with high tides. This always impacts our ability to get around town on the motorcycle. But otherwise there is not much noteworthy impact I have felt. Usually the announcements and warning we receive about imminent heavy rain storms and potential flooding sufficiently early to get home in advance. Mostly the projections I see on TV are quite accurate."

With improved disaster preparedness and risk management, floods like this occur less frequently and have lower impact to Mekong Delta cities.

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