Summary report

VULNERABILITY TO FLOODS AND DROUGHTS

of communities in Vu Gia-Thu Bon River Basin Area in Quang Nam and Da Nang

This report was prepared as part of the project River basin cross-border flood resilience support platform in Vietnam, a project managed and implemented by the Institute of Social and Environment Transition (ISET) in collaboration with CARE International in Vietnam.
The Project supports relevant thematic analyses and promotes dialogues among relevant stakeholders, using an integrated river basin approach to reducing damages caused by flooding and water shortage in the area. This approach is selected given that the community's role and voice remains weak in dialogues and decision making processes. The purpose of this report is to share about flooding risks and impacts on vulnerable communities and to present communities' petitions to the inter-regional basin Coordinating Committee and relevant authorities.

OVERVIEW

The assessment survey was conducted in five communes and wards at risk of floods and droughts, namely: Dien Trung commune in Dien Ban district; Dai Hong in Dai Loc district; Cam Kim in Hoi An city, Quang Nam province; and Hoa Khuong and Hoa Tien in Hoa Vang district, Da Nang city. In these areas, flooding and drought or water shortage are two major hazards impacting local residents. Flooding and drought trend has also changed dramatically in the past 10 years, and local people made various comparisons on the changes before and after the construction of Vu Gia–Thu Bon watershed hydropower plants and expressways.

In recent years, flood waters rise quickly and are more unpredictable, which becomes a growing concern of local people about increasing flood risks in flooding season and lack of irrigation water in dry season. Flood flow is stronger; water level is higher; water recedes very slowly, and at times, recession lasts dozens of days. Previously, floods had risen slowly and receded quickly; local people had been able to forecast the intensity, hit time, and duration, which helped them prepare for the event. Floods in the past also brought more shrimps, fish and alluvium than nowadays.

Floods cause huge losses of properties and human lives. During a flood, men and boys may lose their lives when visiting rice fields or rescuing others; while women and girls may risk their lives with a slip when moving furniture to higher places in their houses or gathering animals and poultries into their stables or cages. Women and girls often worry about the fact that a majority of them can neither swim at all nor swim as well as men can.

Floods sweep away households' properties such as TV sets, radios, cookers, poultries or reserved food. Women are also under high pressure as they, rather than men, are expected to prepare meals for family members and securing properties and children's lives. Agricultural production suffers heavy damages. For example, hundreds of hectares of rice in each commune were affected; cash crops such as maize and bean were completely lost in December 2016. Other income sources such as aquaculture and fish catching also suffer losses. Non-agriculture livelihood like traditional craft and tourism in Cam Kim, Hoi An was affected. Travelling and daily activities see the same consequences. Today floods no longer carry sediments like before: due to strong water flows, floods cause both deposition and landslide,

Men and boys may lose their lives when doing things outside their houses in flood time such as visiting the rice fields or rescuing others; while women and girls risk their lives when moving furniture to higher places in their houses, gathering animals and poultries into their stables or cages.

loss of garden land and production land. Roads, houses, irrigation works, electric lines and poles are damaged or destroyed. Floods lead to polluted water resources and polluted environment. With women being the main cleaners, it means they endure added health risks. Students and pupils cannot go to school during flood time. In short, it is insecure, especially for the elderly, children, women who cannot swim, and people with disabilities who have to depend on others for movement and other activities.

CAUSES

According to local people, communal and district officials, recent flooding in the area resulted from erratic weather and climate, which no longer followed previous laws: late rain, high rainfall level, high flow speed and prolonged inundation.

> Children and women are more affected in terms of hygiene and health care. Hot and sunny weather increases epidemics, especially for the elderly, children, and women.

In addition, various factors are identified to contribute to flooding with unusually severe consequences and damages:

- Local people are not informed clearly on the time, quantity of water released and the duration of the release. Water releases during heavy rain lead to more severe inundation (most typically the flood in 2016).
- The construction of inter-communal roads and expressways blocks the flow, and the culverts cannot fulfill their function of flood discharge.
- Primeval forests have disappeared. Forests are exhaustedly exploited and destroyed to serve the resettlement for hydroelectric plant construction.
- Fast but unsynchronised development: Residential works, tourism areas, hotels, sand exploitation on rivers, gold mining/extraction discharge poisonous chemicals directly into water source.

Droughts happen from April through September annually, which particularly affects agricultural production such as rice and vegetables. River level goes down and, at times, rivers are even dry, leading to insufficient water for irrigation. This in turn damages to rice sowed/planted, reduces crop productivity or delays crops. Lack of water due to prolonged droughts also makes other crops such as bean or maize contract diseases. As a result, in some communes, there is lots of exhausted and uncultivated land. Droughts also lead to feed shortage for cattle and poultry. Therefore, some households have shifted from aquaculture/fisheries to other livelihoods. Increased expenditure (on production water, domestic water, and medical services) in dry season makes poor households poorer. Children and women are more impacted in terms of hygiene and health care. Hot and sunny weather increases epidemics, especially for the elderly, children, and women who are physically weak.

People feel that droughts are more severe because of both subjective and objective reasons, as follows:

- Less rainfall in dry season (climate change reason).
- More importantly, the management and operation of hydroelectric plants focus on their prime task of electric power generation. Hydroelectric dams reserve water in dry season, meaning there is less water for pumping stations and worsening the effects of droughts for local people.
- In Dien Trung, people believe that Diem Son river is out of water in dry season because of the dam construction.
- There is a lack of assessment and comprehensive planning on effective water management in dry season at all levels.
- Lack of community and communal officials' involvement and inputs in planning on flood release in flood season and water release in dry season.
- Hydroelectric plants' information and warnings on flood release are not issued in a timely manner for people to prepare; and communication channels are neither timely nor effective. In particular, women have less access to information than men.
- The design of transportation and construction works does not fully involve the participation and discussions from those directly impacted by flooding.
- Plans on natural disaster management are made top-down without engaging vulnerable groups in communities, and the plans have not paid attention to gender issues and other vulnerable groups.
- Plans and reports on natural disaster prevention and control (NDPC) still focus more on floods than droughts and water shortage.
- Despite rich experience in living with floods and droughts, communities have not been proactive in responding to floods and droughts, especially in




Maps of river basins where hydro-electric plants are located

responding to abnormal flood and drought phenomena.

- Women and girls' swimming skills are not as good as men's. Women also have fewer chances to access to information about climate change and warnings provided via meetings and media channels.

RECOMMENDATIONS

Floods

Hydro power plants should make active and specific flood release plans with consideration to discharged flow, affected locations, inundation level. Install more "trạm đo mưa" or rain monitoring stations to provide more accurate data of rainwater and water levels. Flood release plans should be informed by affected community in downstream; and water release and storage should be suitable to seasonal calendar. Related agencies should avoid water releases when water reaches residential areas at night time as it puts local residents in great danger because they cannot react as quickly as during day time.

Timely warnings: There must be sufficient time for local people to prepare. It is best to have prior notice 2-3 days in advance, or at minimum 24 hours. Mobilise timely communication channels: phones, T.V., local radios/loud speakers. Also consider the access to information by marginalised groups such as children, the elderly, women, or people with disabilities.

Hydro-Meteorology agencies should make accurate and timely forecasts on rain and floods to provide for local people as well as dam management agencies so that they can decide on the best response plans timely.

Increase corporate social responsibilities to compensate the losses of downstream affected communities who suffer from agriculture land being covered with sand, land erosion, assets and job loss by flooding and water flow change.

Assess and reallocate the current floodometers and loudspeakers to the communities in need. Currently, loudspeakers are installed in the commune centres, far from the affected villages.

2-3 day prior notice

is enough for local people to prepare for response.

Recommendations for local authorities at provincial, district and commune levels :

- During the design and the implementation of huge infrastructure works that affect water discharge and residential environmental issues, local governments should have a public consultation mechanism and make adjustments after consultation.
- Review sewage system of such routes as 610B and 2 expressways of Da Nang and Quang Nam to expand and install more wastewater culverts.
- Install danger warning signs and flood meters to track water level in areas at risk, especially in underground areas or culverts across the river.
- Make plans on flood, drought and water shortage prevention and control with the involvement of residents, especially vulnerable groups with consideration for unexpected factors/capabilities.
- Take measures to treat water for domestic use in flood season.
- Provide high power water pumps to clear residual mud and soil, and other means to handle waste

after flood.

- Have measures to upgrade electric lines to ensure electric power during flood time or support with on-site electric generators.
- Strengthen trainings on natural disaster prevention and control (NDPC) for village and communal government agencies, NDPC and search & rescue teams and community members.
- Provide sufficient means for NDPC and search & rescue teams in villages.

Agriculture Extension: Agricultural livelihoods should be re-structured, taking into account varieties, plants and animals that are resilient to floods. Crop arrangement must take the weather and climate forecasts as well as flood release plans into careful consideration.

DROUGHTS

The Hydro Power Plants collaborate with irrigation agencies at all levels and representatives from downstream communes in making appropriate plans on water release in dry season and production water regulation to balance the benefits of hydroelectric power and irrigation.

Cash crop area in Dai Hong is covered by sand

- Have measure to prevent saltwater intrusion including: treating saltwater, building dams to prevent intrusion, ensuring upstream water supply to push away saline intrusion, improving irrigation system, constructing channel to direct water from the mainstreams of Thu Bon (Dai Hong), Duy Vinh and Duy Phuoc (Cam Kim) to serve irrigation, and waterway/ditch dredging.
- Improve irrigation capacity of pumping system in rainy and dry seasons. Provide three-phase electric power for irrigation facilities using pumps on rice fields in drought areas.
- Adapt agriculture plans by considering plants and animals that are suitable to drought and water shortage condition.
- Develop information and communication processes to make sure that agro-climate information is disseminated timely to farmers in areas at risk.
- Project sales plan of agricultural products in drought seasons.
- Urban construction schemes should carefully consider blocking water flow risks and flooding risks to address them properly.

There should be improvements in coordination work in planning on flood release in flood season and on water release in dry season.

Inter-province River Basin Coordinating Committee:

The Inter-province River Basin Coordinating Committee should play an important role in improving the coordination in planning on flood release and warnings, and water release in dry season. Specifically, it can:

- Strengthen coordination work in planning on flood release in flood season and water release in dry season with the participation of hydroelectric reservoir Management Board(s), local government at all levels, irrigation agencies at all levels, NDPC agencies at all levels and community representatives from surveyed/affected communes. Coordination can be about capabilities for participation, consulting and informing different parties, especially on community's role and plans on flood release and water release.
- Improve the effectiveness of flood release warnings with the engagement of the hydroelectric reservoir Management Board(s), local government at all levels, NDPC agencies at all levels and community representatives from surveyed/affected communes. This could be achieved by diversifying information channels, releasing prior notice earlier, improving the contents of the notices, and informing about annual flood release plans and roles of stakeholders.
- There should be collaboration between Quang Nam and Da Nang in managing dams in river basin (Vu Gia – Yen Nghia – Thu Bon rivers) to regulate water to harmonise water flows entering Thu Bon and Yen Nghia rivers.

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