Data Sources - VIET NAM'S CLIMATE RISK INDEX PLATFORM

1. DATA COLLECTION FOR SOCIO-ECONOMIC INDICATORS PARAMETERS

Socio-economic indicators are considered as essential factors in shaping vulnerability levels of water resources infrastructure. Thus, the following indicators were collected for every district of the 63 provinces: 'poverty ratio', 'percentage of ethnic minorities in the population', and 'labour force'. For this study, it was assumed that these indicators indicate the capacity of local communities to cope with climate-related hazards.

2. DATA COLLECTION FOR HAZARD MAPS

The research team has developed different maps for floods, droughts and superstorm surge, to conduct risk assessments of water resources infrastructure in Viet Nam.

Inundation due to superstorm surge, hazard maps

The flood maps for 18 coastal provinces in Viet Nam were produced according to different storm level scenarios mapped by the Viet Nam Disaster Authority Response Department, MARD in 2016.

Storm hazard maps

This dataset was provided by Unisys Weather Information System and covers storm tracks from 1956 to 2017. The data indicates that 345 typhoons, storms and hurricanes have affected Viet Nam between January 1956 and December 2017.

Drought maps

This dataset was calculated by IMHEN-MONRE (2019). The drought indices by districts in Viet Nam are calculated based on maximum temperature and precipitation from 150 meteorological stations. The Keetch–Byram Drought Index (KBDI) was calculated for four seasons, in the baseline period. The KBDI's changes in the 2030 and 2050 scenarios compared to the baseline period will be considered. Finally, simulating KBDI for all districts of Vietnam and develop the drought maps.

The framework used to downscale KBDI at district level in Viet Nam can be found in the library under the name "Undertaking specific downscaling of Drought Index in Viet Nam to district level to support NAP-Ag development" IMHEN report for UNDP (2019).

The platform presents the results of the projected KBDI drought indices for the summer season in all districts of 63 provinces, under different time frame and in two climate scenarios (RCP 4.5 and RCP 8.5).

3. DATA COLLECTION FOR CLIMATE CHANGE SCENARIO

The Institute of Meteorology, Hydrology and Environment (IHMEN) designed a methodology to standardise the climate scenario's information into indices for all districts in Viet Nam, building on the latest Climate Change Scenario methodology.

Temperature and rainfall - Methodology

- Collect and process observed data throughout the country for the assessment and verification of projected results of: annual mean temperature, minimum and maximum temperature by district, maximum rainfall in 1 day and in 5 days, and annual total rainfall, by district.
- Extract the basic climate variables such as mean temperature, minimum temperature and maximum temperature, total rainfall from the products of the high-resolution area models under the RCP4.5 and RCP8.5 scenarios.
- Determine and calculate extreme weather events such as: maximum temperature, minimum temperature, 1 day maximum rainfall (Rx1day), 5 days maximum rainfall (Rx5day) from the products of the regional high-resolution modules under the RCP4.5 and RCP8.5 scenarios;
- Compute the ensembles of these products from different simulation scenarios.
- Proceed to the bias correction for temperature and rainfall projections based on observed data (about 150/713 units at district level).

Sea Level Rise - Methodology

A similar methodology to the one used in the development of the Climate Change and Sea Level Rise scenarios for Viet Nam (2016) was used to standardise the results. The calculation of the percentage of inundated areas, by district, was done following the inundation maps for a 50cm and a 100cm sea level rise scenarios.

4. DATA COLLECTION FOR CONSTRUCTION PARAMETERS OF WATER RESOURCES INFRASTRUCTURE

The data collection to gather information about the construction specificities of water resources infrastructure was carried out in collaboration with the Directorate of Water Resources of the Ministry of Agriculture and Rural Development (MARD). The research team conducted an extensive data collection exercise, with the support of the Department of Irrigation Construction Management (DICM), and they worked directly with the irrigation management units of the 63 provinces to request the required data and proceed to data

compilation and synthesis. The analysis covers four types of water resources infrastructures: reservoirs, pumping stations, canals, weirs and sluices. All the data were updated in 2017.

5. DATA COLLECTION FOR CONSTRUCTION PARAMETERS OF AGRICULTURE SECTORS

(To be updated)

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