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The ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries

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I represent the Regional Integrated Multi-Hazard Early Warning System (RIMES), an international and inter-governmental organization, established in 2009 through projects supported by the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries. Currently, 48 countries are collaborating within the RIMES framework, a substantial increase from the 5 countries in 2009. RIMES Member States commit to build capacity in the generation and application of early warning/ risk information to reduce disaster risks, optimize management of resources, and build resilience for sustainable development.

The ESCAP Trust Fund was founded in 2005 with seed fund of USD 10 million from the Royal Thai Government, to support the establishment of a tsunami early warning system in the Indian Ocean and Southeast Asian region, in response to the call of the Special ASEAN Leaders' Meeting on the Aftermath of the Earthquake and Tsunami. In 2010, the scope of the Fund was expanded to include disaster and climate preparedness for multiple coastal hazards. The Fund aims to narrow early warning capacity gaps in the region, noting the important role of early warning in disaster prevention and resilience building. To date, about USD 16 million has been invested in 28 projects, of which 26 have been completed and 2 are ongoing.

In the 13 years that the Fund has been operating, the following points are keys to its success:

Developing countries has emerged as donors. Countries that are still beneficiaries of development assistance, such as Bangladesh, Nepal, and the Philippines, have emerged as donors. This is a significant shift from the traditional donor-beneficiary paradigm.

Stakeholders drive the capacity development process. From 2011, the Fund has supported the institutionalization and scaling of the Monsoon Forum, a twice-a-year dialogue between early warning information generators and users to promote the use of forecast-based risk information in strategic planning ahead of the monsoon season, and in tactical planning and decision-making within the season. The Forum is also a platform for users to articulate their requirements and needs, understand current limitations in forecast products and early warning services, provide recommendations, agree on a work plan to implement priority actions, and monitor their implementation. Forum participation is multi-sectoral and multidisciplinary, and across levels (national, sub-national, and local). Scope is multi-hazard. The Trust Fund has supported Monsoon Forums in 9 countries in Asia and the Pacific region.

Development of innovative products and tools that use emerging and frontier technologies to address early warning gaps and unmet needs. The Trust Fund has also supported the customization of forecast models for generation of downscaled products at 3 days, 10 days, 1 month, and 3 months lead times, for climate information to be relevant to users' planning and decision-making contexts. In 2014, the Trust Fund also supported the generation of downscaled climate change projections for Myanmar, Pakistan, and Sri Lanka. Thus, in these countries, a full range of climate information is available to users. These are also countries with robust Monsoon Forums.

The Fund also supported the development and scaling of impact forecasting and advisory generation and dissemination systems that use multi-timescale numerical weather prediction products, in-situ and remotely sensed observation data, dynamic databases, and machine-learning algorithm for automatically evaluating sensitivities to the predicted weather and identifying advisories. All these are integrated in a user-friendly web-based platform. The systems are scalable and are built using open-source software to facilitate further system development. Dissemination of weather and impact forecasts and corresponding advisories use information and communication technologies that include email, SMS, social media, and mobile application. A user feedback module is integrated in the systems and in the mobile application to guide product and system refinements. The systems are tested, piloted, and transferred to relevant institutions in the countries, with system operation and maintenance training provided, and end users' training facilitated to enable them to use information products from these systems. Such systems have been developed for agriculture, public health, livestock, and energy sectors.

Use of participatory approaches to facilitate country ownership. Tool development used participatory approaches, from tool customization until users' training. Officers from relevant government agencies were deputed to RIMES to develop the tools alongside RIMES experts, to ensure that they have the necessary skills to scale the systems and further develop them. On tool transfer, training is conducted at four levels: a). Training of system administrators on system operation and maintenance, system customization, and training of users; b) Training of sector-specific experts for interacting with the core machine learning and pattern-matching subsystems to provide data inputs, and check, improve, and authorize the dissemination of system-generated advisories; c) Training of intermediary users – sector-specific officers who interact with end users, for understanding and guiding the application of information products; and d) Training of end users on application of information products.

Demonstration of economic benefits. In Sri Lanka, the Monsoon Forum process has demonstrated economic benefits in various sectors, and has resulted to better coordination among government agencies. In the agriculture sector, application of climate information during the first cropping season in 2014 resulted to very high yields and high profits for paddy, despite the lack of rainfall from the previous northeast monsoon season and during the southwest monsoon season. This was due to decisive actions undertaken by the Departments of Agriculture and Irrigation to advance the planting of paddy and strictly control water allocation, in response to outlooks of delayed onset of and below normal rainfall during the southwest monsoon. Farmers, including those who protested against the strict water allocation, celebrated their good harvest through a harvest festival at the end of the season, graced by national and district politicians.

In the water resources sector, application of climate information during the latter part of 2015 until early 2016 avoided flood damage to irrigation systems that would have cost billions of rupees. The Department of Irrigation issued a circular to maintain water levels in reservoirs at 1 meter below full capacity, in response to above normal rainfall outlooks for the 2015 second inter-monsoon season (October-November) and northeast monsoon season (December-February). The Department was able to manage reservoir floods, with minimum damage downstream of the reservoirs. This was the first time that the Irrigation Department used climate information in issuing standing orders for reservoir operation.

In Myanmar, farmers have found value in the products from the agro-advisory expert system, from experiences of harvest for sun-drying being saved, higher profits from produce due to early planting, savings of cost for irrigation, and avoidance of crop damage.

Mobilization of resources from government and other development actors for scaling. Demonstration of economic benefits facilitate mobilization of resources from government and other development actors. In Myanmar, UN-Habitat (under the BRACED Program) and DFID (through Christian Aid) have funded the scaling of the Monsoon Forum at regional and sub-regional levels, finding value in this innovative mechanism for informing seasonal preparedness. In 2017 alone, 15 Forums were convened in 6 states and regions and 2 townships. In India, scaling of the agro-advisory system beyond Tamil Nadu State is being funded by the national government, with national coverage. FAO and Environment Canada (through WMO) have supported the scaling of the agro-advisory system in Fiji and Bangladesh, respectively.

An intermediary institution that supports capacity building of countries beyond project timeframes. Trust Fund projects have 18 months timeframes. Capacity development in low capacity countries, however, requires more time due to various issues, such as skill level of personnel and aversion to risks by key decision-makers. RIMES is an institution that continues to provide capacity building support to countries even after project end, until new systems, tools, and practices are fully integrated into beneficiary institutions' operations. RIMES' organic relationship with countries, owing to its institutional architecture, makes this possible.