

Innovative communities: leveraging technology and innovation to build sustainable and resilient societies

2018 ECOSOC Integration Segment (1-3 May 2018)

Asia-Pacific regional context

The Asia-Pacific region¹ is undergoing rapid and transformative changes across economic, social and environmental dimensions of development. One facet of these transformative changes is the increasing severity of more diverse risks faced by its people. For example, a report from the Economic and Social Commission for Asia and the Pacific² shows how climate change is magnifying the risks associated with disasters, while increasing the costs of protecting people against them – highlighting that many risks are interlinked and reinforce each other.

These interactions are also affecting the scale of risks. Challenges that were once localised can now become a global crisis, due to the increasingly integrated nature of human systems, such as trade networks and global value chains. In 2007-08 extreme weather and weather-related disasters in the Russian Federation and South Asia led to reduced wheat yields, which in turn contributed to higher global prices for various food commodities. This created unstable economic conditions, exacerbated social fault lines and heightened social exclusion –creating fertile ground for conflict through self-perpetuating negative cycles within and between communities.

The most significant implication of this increasingly complex risk landscape is the likelihood of disproportionate impacts on marginalised groups and communities. For instance, within countries, the impacts of disasters are disproportionately greater in poorer communities, where disasters have complex and deeply disruptive effects on livelihoods given their lower socio-economic coping capacities and resilience.³ This makes the central aspiration of the 2030 Agenda for Sustainable Development – “leave no one behind” – ever more challenging.

To this extend ESCAP has put together a number of initiatives to promote science, technology and innovation as means to improve the resilience of communities in the Asia-Pacific region. A short description of these activities together with some facts on the regional context of each specific issue that are addressing is provided in the cases below.

ESCAP’s Regional Drought Mechanism

Drought as a multi-dimensional challenge affects many countries in the region on multiple levels, which, over time, can weaken resilience within and across communities if timely and appropriate mitigation measures are not taken. Space technology applications and other hydro-meteorological

¹ The Asia-Pacific region refers to the 49 regional members and nine associate members of ESCAP, see full list here : <http://www.unescap.org/about/member-states>

² ESCAP (2017), Asia Pacific Disaster report - Leave No One Behind, <http://www.unescap.org/resources/artificial-intelligence-asia-and-pacific>

³ *Ibid.*

tools can help increase community resilience by building the coping capacity of households through water, land and crop management information forecasting and early warning. This is supported by ESCAP's Regional Space Applications Programme for Sustainable Development in Asia-Pacific (RESAP), which provides innovative space applications to low-capacity countries with at high-risk communities.

For example, in Mongolia in June 2015, through the Regional Drought Mechanism, ESCAP developed early warning forecasts for drought in collaboration with its national counterparts and relevant institutions. Additional analysis revealed that drought was forecast for grassland (pasture lands), which could have had multi-dimensional impacts on traditional nomadic communities in the region. In Mongolia, around eighty per cent of the land is centred on livestock production, the backbone of people's livelihoods. By identifying the geographic distribution of poverty and livestock headcount, through geospatial information and mapping products, an integrative approach was used to strengthen resilience. By delivering the right information to the right people at the right time, within the context of drought monitoring, early warning and poverty alleviation, these practical uses of innovative technology applications are helping to achieve sustainable societies by strengthening the resilience of the most vulnerable communities.

ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness (Trust Fund)

Since its establishment in 2005, the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness (Trust Fund) has contributed significantly to building resilience in communities through regional and national early warning systems for coastal hazards. In 2011, a key milestone was reached with the operationalization of the Indian Ocean Tsunami Warning and Mitigation System (IOTWMS), which was established through the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO).

The Fund also supported the establishment of the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), which is closely linked to the IOTWMS. It has worked with individual member States to address capacity gaps with respect to early warning, for example through the following initiatives:

The project "CAP on a MAP - Improving Institutional Responsiveness to Coastal Hazards through Multi-Agency Situational Awareness", was implemented with the Asian Institute of Technology (AIT) and the Sahana Software Foundation. The project assisted communities in the Maldives, Myanmar and the Philippines to implement the Common Alerting Protocol (CAP), using an alerting and messaging broker system. CAP is a global standard digital format for exchanging emergency alerts for multiple hazards, which allows a consistent alert message to be disseminated simultaneously over many different communication systems and channels (e.g. SMS, email templates, RSS web feed) so that they can effectively reach individuals and households. The Sahana Alerting and Messaging Broker (SAMBRO) system is currently operational in all the three beneficiary countries, and it is in use in Myanmar and the Philippines.

In partnership with the RIMES, the ESCAP Trust Fund supported the development of a web-based interface for access to an analysis of climate data and scenario products, to generate downscaled projections in Myanmar, Pakistan and Sri Lanka. RIMES worked with the National Hydrological and Meteorological Services (NHMS) of the three countries, to provide access to the Climate Data Access

and Analysis System (CDAAS). CDAAS is a user interface capable of extracting smaller subsets of data from large climate model datasets. These datasets enable telescopic downscaling of climate baseline and projections, that have greater relevance for communities. Country-specific landing pages for CDAAS were created linked to NHMS websites, providing direct access to 81 key organizations. As a result, the community stakeholders were able to discuss potential impacts from future climate, as well as policy options to respond to the threats at a finer scale.

ESCAP's work on broadband connectivity and technology access

In 2016, less than 2 per cent of populations had fixed-broadband subscriptions, in 18 ESCAP member countries, leaving the Asia-Pacific region, as a whole, behind Latin America, Europe and North America.⁴ Especially low-income economies in the region appear to show a consistent lack of progress in expanding fixed-broadband access over the period 2000-2016 and while some countries have demonstrated growth in subscription numbers, the network speed may not have increased proportionately, thus still providing inadequate access. As broadband networks and technologies are the prerequisite for reaping the benefits of ICT, these limited growth rates in fixed broadband subscriptions pose a major challenge to the region. In order to fully capitalize on the opportunities of e-commerce, paperless trade, transport facilitation, e-health and e-learning, underlying broadband infrastructure should be available and resilient in urban as well as rural communities of developing countries.

In this context, ESCAP has been supporting the Asia-Pacific Information Superhighway (AP-IS) initiative which aims to develop seamless regional broadband networks to achieve inclusive sustainable development in Asia and the Pacific. ESCAP supports the AP-IS initiative through normative and analytical work, including on e-resilience and broadband for all, promoting resilient infrastructure in remote and rural communities and ensuring that the benefits of technology contribute to the achievement of SDGs.

In terms of access to innovative technologies, such as satellite imagery and geospatial information products, ESCAP's RESAP network and its strategic partnership with the Operational Satellite Applications Programme (UNOSAT) of the United Nations Institute for Training and Research (UNITAR), allows ESCAP to provide support to member States through the facilitation of near real-time satellite imagery and access to geospatial data. Subsequently, disaster-affected member States can receive support for effective community emergency responses, the post-disaster damages affecting communities and policy advice on recovery and rehabilitation. Such services are of particular benefit to countries and communities with special needs, which normally lack the necessary infrastructure and institutional arrangements required to access and maintain their own well integrated monitoring, early warning and response mechanisms.

On average, ESCAP provides around 300 satellite imagery and damage maps to ESCAP member States for early warning, response and damage assessment of earthquakes, floods, typhoons/cyclones and landslides. These space-based data, products and services are equivalent to approximately US\$640,000 (in data and products) and US\$350,000 (in services), all of which are provided free of charge by ESCAP member States, through the RESAP network and the partnership with other UN agencies and international/regional initiatives.

⁴ ESCAP (2017), Artificial Intelligence in Asia and the Pacific, <http://www.unescap.org/resources/artificial-intelligence-asia-and-pacific>

ESCAP's work on frontier technologies

Frontier technologies such as artificial intelligence can be disruptive⁵. Yet, digitalization has opened new opportunities for inclusive and sustainable development. Recent studies have demonstrated that e-commerce can be an important tool for promoting inclusive development,⁶ as it allows for more inclusive trade for local businesses, in particular SMEs, as well as individuals and specifically women. Furthermore, by offering consumers more options for and better information on goods and products, e-commerce creates higher productivity and heightened competition. Nevertheless, as adaptation to e-commerce can cause struggles for traditional retailers, further work is needed in both analysis and capacity-building.

ESCAP's work on Trade

With the increasing effects of globalization, global food and agricultural commodity trade networks represent one of the most critical factors for sustainable development. A research on their resilience has demonstrated that the majority (74 per cent) of critical food and agricultural networks have exhibited a positive trend in their network efficiency, but fall in overall resilience as countries become overly dependent on few number of efficient suppliers (a fall in redundancy of networks).⁷ A driver of this efficiency can be related to the decreasing tariffs due to trade liberalization at multilateral and regional levels. Therefore, further analytical work is necessary to understand what complementary policies can be taken to ensure that trade agreements and policies can improve resilience of trade systems of critical commodities. This work will be undertaken by utilizing ARTNeT knowledge community.

Furthermore, ESCAP can support its members to develop appropriate policies by supporting knowledge-sharing in the region. Several surveys conducted by ESCAP between 2012 and 2017⁸ demonstrate the importance of sharing best practices of capacity-building programmes and advisory services to support member States in the implementation of effective trade facilitation and paperless trade measure.⁹ Besides, ESCAP and ADB have jointly published guidelines¹⁰ on the establishment of a trade and transport facilitation monitoring mechanism to help countries achieve their objectives.

The facilitation of cross-border paperless trade and the support in the use of frontier technology in Asia and the Pacific is essential to providing the environment for a safe and inclusive e-commerce. ESCAP will continue to provide its member States with the tools necessary to build sustainable and resilient societies in a world of innovative trade.

⁵ ESCAP (2017), Artificial Intelligence in Asia and the Pacific, <http://www.unescap.org/resources/artificial-intelligence-asia-and-pacific>

⁶ Gupta, S. and Bijlani, T. (2012), "E-Commerce in Asia: Challenges and Opportunities", Asia Business Insights. Available from www.people.hbs.edu/sgupta/EcommerceinAsia.pdf.

⁷ Kharrazil, A. (2018) Examining the Resilience of Agricultural and Food Commodity Trade Networks in the Asia and Pacific Region, forthcoming.

⁸ See www.unescap.org/resources/asia-pacific-trade-facilitation-forum-aptff-surveytrade-facilitation-and-paperless-trade.

⁹ ESCAP (2017), Promoting trade facilitation, paperless trade and electronic commerce for achieving the Sustainable Development Goals

¹⁰ ESCAP, Towards a National Integrated and Sustainable Trade and Transport Facilitation Monitoring Mechanism: BPA+ (ST/ESCAP/2683). Available from www.unescap.org/resources/towards-national-integrated-and-sustainable-trade-andtransport-facilitation-monitoring, http://www.unescap.org/sites/default/files/pre-ods/CTI5_3E.pdf