UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Regional Cooperative Mechanism for Drought Monitoring and Early Warning in Asia and the Pacific (The Drought Mechanism)

The Drought Mechanism enhances the capacity of governments to use space-based data for effective drought monitoring and early warning. It applies science and technology to support the Asia-Pacific region in better addressing drought. Participating countries benefit from:

- Enhanced access to space-based data;
- Capacity building in preparedness and response;
- Strengthened institutional coordination and policies at the country level; and,
- Regional and South-South cooperation and support networks.

Why a regional drought mechanism?

Drought is a creeping disaster and a silent killer. It rolls back development gains and exacerbates poverty, especially in least developed countries. Due to climate change, the frequency, severity and duration of droughts will likely be more serious in the future.

The socio-economic and environmental impacts of droughts have increased significantly, particularly among the most vulnerable groups in Asia and the Pacific. Between 1985 and 2013, 110 drought events occurred in the region, affecting 1.2 billion people and costing US$52 billion. The tragic consequences of drought include:

- Reduced water and food security
- Increase in debt among farmers
- Deepening poverty with intergenerational consequences
- Loss of livelihoods
- Farmer suicides
- Potential for unrest and violence

While good progress has been made in drought mitigation in some countries, access to scientific information and knowledge remains a challenge for many. Providing timely, actionable and precise information on the potential for, duration and severity of drought fills a critical gap in efficient drought mitigation. Taking action once drought has occurred is more costly and less effective than acting preemptively before the fact.

UN Photo/Fardin Waezi – soil preparation, Afghanistan

In order to save lives and livelihoods, time is of the essence. Signs of drought can be observed from space long before they are visible to the human eye on the ground. Therefore, space-based data is a vital complement to ground-based information in combating drought. However, there is a lack of resources and capacity to perform such analysis in many drought-prone developing countries.

It is critical and urgent for the Asia-Pacific region to place a stronger emphasis on preparedness by applying innovative space technologies for effective drought monitoring and early warning, through a strengthened regional cooperative mechanism and South-South Cooperation.

The challenges of addressing drought

Effective monitoring and early actions for drought help save lives and livelihoods, for example when agencies at the national level, can inform farmers to switch to more drought-resistant crops. Such actions strengthen the long-term resilience of vulnerable communities. However, there are several obstacles to more proactive approaches, including limited national capacity for effective drought monitoring and warning.

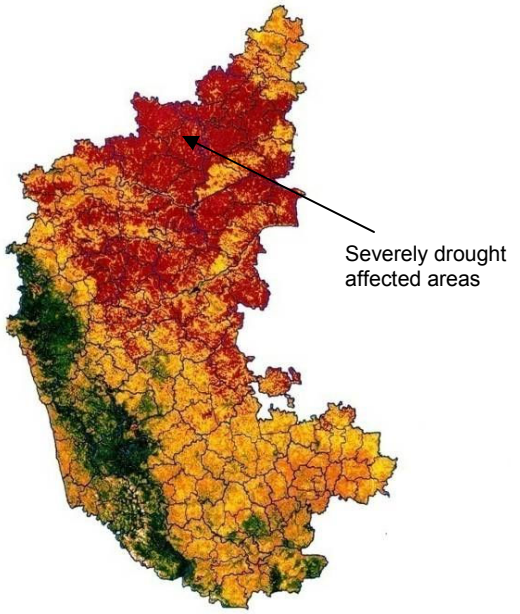
Institutional challenges include:

- Relatively low capacity to access and analyze critical space-based data and products.
- Lack of effective methodology to combine space-based data with in-season ground-based information for appropriate decision-making.
- Lack of coordination among agencies and institutions at the national level.
- Very few regional platforms for sharing knowledge and good practices for monitoring.

How it works

The Drought Mechanism enhances capacities for integrated analysis of space and in-season ground data and information. It has four main components:

- **Regional service nodes:** satellite imagery and services as well as capacity development are provided to pilot countries by national remote sensing centres from other countries in the region. At present, these services are provided by China and India.
- **Thematic and scientific communities**: diverse groups networked together under common thematic areas to advise on drought monitoring and early warning, preparedness and appropriate action.
- **Pilot countries:** drought-prone countries selected upon request to participate as beneficiaries of cutting-edge science and technology to better prepare for drought.
- **The agricultural community:** direct beneficiaries on the ground who can proactively reduce the impacts of drought based on sound knowledge and timely warning information from the government.



Satellite imagery of Karnataka State, India, 2012

The benefits

Timely and free access to space-based data/products and services will be provided to participating countries, who will also receive training and other capacity building. National coordination mechanisms and policies on drought will be strengthened. Furthermore, the Drought Mechanism will serve to enhance regional cooperation and strategic partnerships, as a flagship programme under ESCAP's long standing Regional Space Applications Programme for Sustainable Development (RESAP).

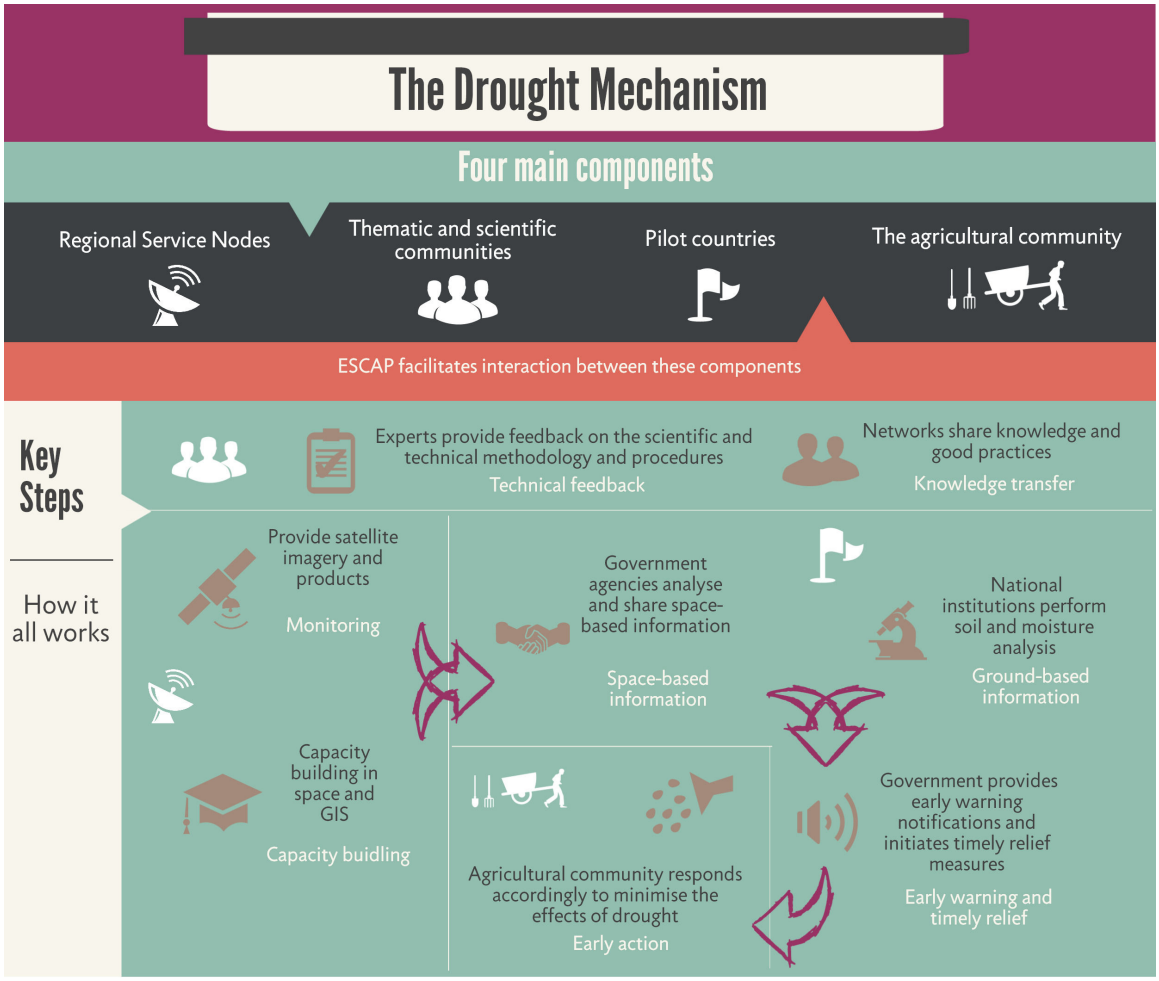
Government authorities and the agricultural community will make evidence-based decisions on how and when to prepare for drought. This can translate to strengthening water management, adjusting crop cycles, planting drought resistant seeds and initiating timely relief measures.

UN Photo/John Isaac – cultivating crops

Adding value

The Drought Mechanism seeks to apply cutting-edge science and technology, bringing together public, private and scientific entities, to enhance drought management and build resilience. Key features include:

- **Paradigm shift:** from reactive responses towards proactive prevention measures, enhancing the capacity of beneficiaries at national and community levels, who can take informed, appropriate action before drought occurs.
- **Innovative approaches:** integrating space-based data with seasonal ground information for effective agricultural drought monitoring and early warning.
- **Regional support:** networking regional space agencies to support the implementation; mobilizing training centers that provide capacity building; bringing together groups of experts under common thematic areas; and pooling global/regional resources for addressing drought challenges.



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Partners: In the spirit of 'One UN', ESCAP is working closely with FAO, UNCCD, UNOSAT, UN-SPIDER, WFP, UNISDR, as well as regional initiatives such as Regional Integrated Multi-Hazard Early Warning System (RIMES), APSCO, Sentinel Asia, Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) and AIT.

Pilot countries: Cambodia, Mongolia, Myanmar, Nepal and Sri Lanka.