Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Canada

Global Connections
International Drought Initiatives

Bob Turnock
Agriculture and Agri-Food Canada (AAFC)
International Engagement Division

North American Drought Monitor Forum - May 3, 2018

Our Vision

Driving innovation and ingenuity
to build a world leading agricultural and food economy
for the benefit of all Canadians.

Our Mission

Agriculture and Agri-Food Canada provides leadership
in the growth and development of a competitive, innovative
and sustainable Canadian agriculture and agri-food sector.

A Global Issue

Of growing importance in international discussions:

- In 2016, more than 20 countries and regions declared a state of emergency (Africa, Asia Pacific, North, South and Central America).
- In 2017, Sri Lanka was hit with its worst drought in decades. About 900,000 people affected by drought.
- Drought is the world's costliest natural disaster. Water scarcity is estimated to cost some regions 6 per cent of their GDP.
- Droughts reduce agricultural incomes, accelerate migration pressures and can trigger resource conflict with significant secondary impacts in the energy, transportation, health, and other sectors.

A Global Issue

- Drought has been seen as a cross-cutting issue, often discussed as a contributor to other issues:
  - climate change adaptation and resilience, food security, land degradation, biodiversity loss and others.
- Recent highly visible, large scale droughts have prompted renewed interest from:
  - UNCCD
  - UNFCCC
  - UNCBD
  - FAO
  - WMO

Canada

- Commitments related to drought in AAFC Minister's Mandate Letter:
  - *Work with provinces, territories, and other willing partners, to help the sector adjust to climate change and better address water and soil conservation and development issues*; and,
  - *Invest in agricultural research to support discovery science and innovation in the sector* (e.g., more resilient crop varieties).

- Producers have always integrated weather as a key factor into their daily and longer-term management decisions. Climate change is making this harder. Governments (FPT) recognize the importance of helping producers avoid – or quickly recover from – extreme weather events such as droughts:
  - the *AgriRecovery* program can help producers cope with the related unforeseen, extraordinary costs.
  - AAFC is working to better understand the impacts of a changing climate and develop innovative technologies to enable adaptation.
  - Cost-shared programs and activities developed during bilateral negotiations with the provinces and territories, tailored to meet regional needs and will include supporting the resiliency and sustainability of the sector.

United Nations
Convention to Combat Desertification

UNCCD

- Goal is to maintain and restore land and soil productivity, and mitigate the effects of drought …
- Canada has currently exploring ways to engage/support the UNCCD, building on our existing efforts to address desertification, land degradation and drought.
- Drought was important agenda item at UNCCD COP13:
  - New results framework with drought Strategic Objective
  - Introduction of the Drought Initiative

UNCCD results framework for 2018–2021

UNCCD strategic objectives	*2018–2021 main outcomes*	*Outcome indicators*	*2018–2019 main outputs*
3. **To mitigate, adapt to, and manage the effects of drought in order to enhance resilience** of vulnerable populations and ecosystems	3.1 The **effects of drought are better mitigated and managed**, building on the support and information deriving from the UNCCD	3.1 Affected country Parties use the UNCCD guidance and **technical advice concerning drought** and sand and dust storms	- Support to the SPI in preparing its **guidance on land-based interventions for drought management and mitigation**
	3.2 **Early warning concerning drought** and/or sand and dust storms is increasingly applied, building on the support and information deriving from the UNCCD	3.2 **Partnerships and collaboration are established** on early warning concerning drought and/or sand and dust storms	- Technical advice, policy guidance and partnerships on: • **Early warning systems for drought** and sand and dust storms • **Drought risk reduction** • Sand and dust storm source mitigation

United Nations
Convention to Combat Desertification

UNCCD

Drought Initiative:

- Provides technical guidance to support the adoption and implementation of land-based interventions for drought management and mitigation.
  - In 2018–2019, planned 30 pilot projects according to the number of countries declaring drought emergencies.
  - Over 50 countries have signed in to date.

- Three elements:
  - Drought preparedness systems
  - Regional efforts to reduce drought vulnerability and risk: assessment methodology to allow countries to identify drought impacts on vulnerable economic sectors and communities and then take proactive actions.
  - Toolbox to boost the resilience of people and ecosystems to drought

World Meteorological Organization (WMO)

- Commission for Agricultural Meteorology (CAgM), 17th Session April 18-20, 2018.

- Expert Team on Drought Report for 2014-2018, Key Recommendations:
  - Definition of drought needs to incorporate new terms for specific elements (onset, event, recovery), clearly separate drought from aridity
  - Socioeconomic metrics must go beyond dollar values for costs and should measure the degree of hardship endured by the people
  - Consistent weather monitoring needs to be in place in order to better understand exceptional circumstances (e.g. heat waves) surrounding drought
  - New evaporative demand indices offer improved resolution of drought and need to be evaluated for operational use.
  - Develop unique databases for drought footprints
  - Include systematic comprehensive record of all droughts (impacts, severity, duration, costs, & collateral effects)

World Meteorological Organization (WMO)

Expert Team on Drought, Key Priorities for 2018-2020:

- Guidance material on drought risk management measures in conjunction with the Integrated Drought Management Programme;
- Report on the status of drought monitoring systems, outlooks, impacts, assessment of possible agricultural losses and preparedness in the WMO regions;
- Guidance material on how to clearly communicate the existing definitions of drought, drought triggers, the various components of the lifecycle of drought;
- Provide summary of drought and its impacts on agriculture for the WMO Annual Statement on the Status of the Global Climate and the Global Seasonal Climate Update;
- Guidance material on incorporating national drought alerts and warnings into regional EWS, global alert systems and the Common Alerting Protocol; and
- Report on any expertise provided on the drought issues to WMO Members and projects in various countries.

Food and Agriculture Organization of the United Nations

FAO

- The overall goal of FAO's actions on drought is to develop the capacity of drought-prone countries to increase societal resilience and enhance their drought responses and recovery capabilities to reduce the impacts of future drought events.
- FAO's programme on proactive drought risk management involves strong partnerships with specialized organizations and research centres. Collaborating partners include:
  - WMO
  - UNCCD
  - UNCBD;
  - UN-Water;
  - National Drought Mitigation Center at the University of Lincoln-Nebraska.

GEOGLAM
Global Agricultural Monitoring

Geo Global Agricultural Monitoring (GEOGLAM)

- Launched in 2011 by the G20 Agriculture Ministers as a part of the G20 Action Plan on Food Price Volatility to "*strengthen global agricultural monitoring by improving the use of remote sensing tools for crop production projections and weather forecasting*".

- The main objective of GEOGLAM is to reinforce the international community's capacity to produce and disseminate relevant, timely and accurate projections of agricultural production at national, regional and global scales by using Earth Observation data.

- The current Director of GEOGLAM is seconded from AAFC

UNCCD, WMO, GWP and FAO meet to discuss The Drought Initiative

UNCCD News, 26/04/2018

25 April, 2018 – Rome, Italy – A meeting at the FAO headquarters brought together representatives of the UNCCD secretariat, FAO and WMO to explore opportunities for collaboration in the framework of the new UNCCD Drought Initiative, adopted at the COP 13 in Ordos, China. The meeting focused on various drought-related tools, programmes and projects implemented by WMO and FAO. The discussion went on to explore areas of potential cooperation by harnessing synergies, identifying joint steps and the way forward.

Present at the meeting were Mr. Robert Stefanski, Chief of the Agricultural Meteorology Division at WMO, Mr. Frederik Pischke, Senior Programme Officer at GWP, FAO experts Mr. Eduardo Mansur, Director of Land and Water Division and Dr. Mark Svoboda (through Skype), Director of National Drought Mitigation Center at the University of Nebraska, USA. UNCCD programme officer for drought Mr. Daniel Tsegai and the Global Mechanism programme coordinator Ms. Camilla Nordheim-Larsen represented the convention.

Summary

- There is growing global interest and demand for science, tools, knowledge and expertise related to drought monitoring, vulnerability assessment and mitigation.
- Also need to develop capabilities to effectively use this information to support the adoption and implementation of drought mitigation actions.
- International collaboration on drought is an opportunity to share the latest information, science and technology which helps all involved better manage the combined challenges of drought, climate change and food security.

Thank-you

Bob Turnock
International Engagement Division
Science and Technology Branch
Agriculture and Agri-Food Canada
bob.turnock@agr.gc.ca

Annexes

Annex I

Global Drought Information System

- *"The GDIS is an international effort to pull together the best non-prescriptive drought information from local providers and provide an "apples to apples" comparison of drought conditions around the world."*

North America • North American Drought Monitor • NIDIS US Drought Portal **Europe** • European Drought Observatory **Africa** • IGAD Climate Prediction and Applications Centre (ICPAC) • ICPAC Web Mapping • Princeton's Africa Flood and Drought Monitor	**Australia** • Australian Government Bureau of Meteorology **South America** • Western South America Regional Climate Center / Centro Internacional para la Investigación del Fenómeno de El Niño (CIIFEN) • Princeton's Latin American Flood and Drought Monitor **Asia** • South Asian Drought Monitoring System

UNCCD Drought Initiative

Annex III

I. Drought preparedness systems - Developed through a partnership with WMO to support the development of comprehensive drought preparedness systems.

A comprehensive system combines the monitoring of key indicators and indices relating to precipitation, temperature, soil moisture, vegetation condition, stream flow, snowpack and ground water with the development of an effective drought communication and information dissemination system. The system should also be able to develop and share reliable seasonal forecasts and monitor the direct and indirect consequences of drought, especially the impacts to vulnerable sectors such as agriculture.

II. Regional efforts to reduce drought vulnerability and risk - Assessment methodology to allow countries to identify drought impacts on vulnerable economic sectors and communities and then take proactive action to protect people and economic interests.

The methodology involves (i) assessing drought impacts and vulnerabilities for key sectors – such as the cropping and livestock, energy, tourism, and health sectors – and developing appropriate decision-support tools for the impacted sectors; (ii) assessing the physical, social, economic and environmental pressures on communities to identify who and what is at risk and why before, during and shortly after drought; (iii) assessing conditions or situations that increase the resistance or susceptibility to drought and the coping capacity of communities affected by drought; and (iv) assessing the extent of potential damage or loss in the event of a drought. It would propose a decision-making pathway to get countries moving quickly to protect key sectors and communities.

III. Toolbox to boost the resilience of people and ecosystems to drought - Develop, document and roll out a toolbox of interventions:

- Water supply options using water harvesting techniques, such as sand dams, run-off in a pit/reservoir with percolation, or dew/fog collection;
- Groundwater recharge;
-Targeted weather index insurance and safety nets for pastoralists and cropping;
- Best practices in water-use efficiency, drip/precision irrigation management and water valuation;
- Cultivation of drought-resistant species and varieties in drought prone areas to improve food yields during drought;
- Diversified herd composition;
- Sustainable land use and rehabilitation, including increased land cover in drought hotspots and drought-prone areas.

Annex IV

UNCCD Drought Initiative: Drought Resilience, Adaptation and Management Policy (DRAMP) framework

The objectives of the DRAMP framework are:

(a) Reduce exposure to drought: Reduce the potential loss of life, livelihoods, ecosystem services and resources, infrastructure and economic, social or cultural assets in places that could be adversely affected by drought

(b) Reduce vulnerability to drought: Reduce the propensity or predisposition to adverse drought effects.

(c) Increase resilience to drought risk: Strengthen the ability of communities, ecosystems and economies to anticipate, absorb, accommodate or recover from the effects of drought in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of natural capital.

(d) Transformation: Alter fundamental attributes of social, economic and ecological systems, including value systems; regulatory, legislative or bureaucratic regimes; financial institutions; and technological or biological systems.

(e) Prepare, respond and recover from drought: The backbone of management and planning approaches to reduce risk from drought, including the development of comprehensive drought monitoring and early warning systems.

(f) Transfer and share drought risks: Spread risks amongst a wider section of society to include all who benefit directly and indirectly from robust drought risk management. and national, regional and global risk pools. An example is weather index insurance and safety nets.