

Report
Thematic meeting on
Assessing Drought and Water Resources Conservation using Earth
Observation

UN-SPIDER Technical Advisory Support (TAS) to Afghanistan
in collaboration with Delta State University and International Water
Management Institute (IWMI)
Under auspices of ANDMA



Kabul, Afghanistan
26 May 2021, 10:00 AM -13:00

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Executive Summary

The Office of the State Ministry for Disaster Management and Humanitarian Affairs of the Islamic Republic of Afghanistan/ (ANDMA) and the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) conducted a virtual thematic meeting on ‘Assessing Drought and Water Resources conservation using Earth observation’, in collaboration with Delta State University and Intentional Water Management Institute. All key stakeholders involved in disaster risk reduction, especially dealing with drought, attended the meeting which was chaired by His Excellency Deputy Minister Mohammad Qasim Haidari. This meeting is part of the UN-SPIDER Technical Advisory Support to Afghanistan.

The meeting discussed the role of the key stakeholders in developing tools to support drought assessment, early warning, response and mitigation. The experts from World Bank, IWMI and Delta State University presented innovative solutions and approaches for drought assessment and water resources conservation focussing on the use of space-based and geospatial information. The discussion session focused on the current capacity, status and challenges in the effective use of such information in drought and water resources management and suggested improved institutional coordination to facilitate data sharing and dissemination. The meeting identified the following way forward for the engagement of UN-SPIDER with the disaster management and geospatial community to plan the activities of mutual interest:

1. Organization of quarterly coordination meeting of disaster risk management authorities, donors & partners for informing others on each other projects & activities and to avoid overlaps and enhance coordination;
2. Support of international stakeholders to ANDMA in developing clear, concise and agreed-upon SOP for drought early warning, assessment and monitoring
3. Organize specific meetings to discuss policy framework on drought management
4. Facilitate ANDMA in developing GIS/Remote Sensing/Earth observation Capacity building strategy or plan, to be supported by donors
5. Promote officials in Afghanistan to participate in the [MOOC “Geospatial Applications for Disaster Risk Management”](https://un-spider.org/news-and-events/news/launch-phase-ii-mooc-%E2%80%9Cgeospatial-applications-disaster-risk-management%E2%80%9D) launched by UN-SPIDER
<https://un-spider.org/news-and-events/news/launch-phase-ii-mooc-%E2%80%9Cgeospatial-applications-disaster-risk-management%E2%80%9D>
6. Improving regional cooperation by involving organisations like APDM of ESCAP SAARC Disaster Management Centre and WFP PRISM programme etc.
7. Linking Afghanistan drought management efforts to UN Food Systems Summit

1. Introduction

The mission of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), the programme administered by the United Nations Office for Outer Space Affairs, is to "ensure that all countries and international and regional organizations have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle". This includes the provision of technical advisory support provided to enhance the nation's capacity of using space-based systems and information for disaster management. The Office of the State Minister for Disaster Management and Humanitarian Affairs of the Islamic Republic of Afghanistan (ANDMA) serves as the lead national agency for the aforementioned process.

The initial virtual introductory meeting on carried out on 26 January 2021 under the auspices of ANDMA. This meeting proposed to develop an understanding of policy development, procedures, institutional coordination, capacity, supportive legislation and all such similar matters which relate to the use of geospatial data for disaster preparedness, planning, response, and recovery. The information captured during the needs assessment process will be used by the expert team to craft prioritized recommendations and capacity building activities for the host nation. These items will be shared with both the host nation and United Nations Development Programs for implementation, and if needed, funding support. This meeting recommended conducting periodical thematic meetings focussing on specific disasters.

2. Objective

The thematic meeting conducted on 26 May 2021 focussed on 'Assessing Drought and Water Resources conservation using Earth observation'. This meeting was a timely intervention as the summer is setting up and provided timely interventions on the monitoring drought condition, state of water resources and information on tools to deal with climate extremes.

The meeting provided a platform to exchange views on the specific challenges related to open data access including knowledge products and tools information sharing and dissemination and catalyze institutional coordination. It also contributed to the overall aim of strengthening the institutional capacity of ANDMA and its stakeholders in using space-based information in disaster management and emergency response.

3. Key points

The following table summarizes the outcomes from the virtual thematic meeting on assessing drought and water resources conservation.

i. Information sharing on drought assessment

The meeting was very useful to update various stakeholders on what they are doing and what are their visions, informing projects & activities that are critical to avoid overlaps and enhance coordination for institutionally complex issues such as drought mitigation.

ANDMA clarified the role of a newly established **Afghanistan-National Drought Management Center (A-NDMC)**. The Centre will contribute to the efforts of ANDMA in all phases of disaster management, especially by coordinating all aspects of drought management. The functions are to

- coordinate efforts of key stakeholders together for collaborative efforts on drought management.
- research, studies, education and application of technologies on drought management
- coordinate high level decision making processes on drought in coordination with the National Disaster Management Commission.
- coordinate the response plan with NEOC, to ensure the quality of response.
- facilitate the drought declaration through the National Disaster Management Commission.
- facilitate and coordinate the drought early warning messages and improve the communication channel.

ANDMA will work with partner agencies on the institutionalization of NDMC in the coming months, and we are expecting to get the support of World Bank colleagues in the formulation of a few documents for A-NDMC.

ii. Policy framework for drought management

A key to ensuring effective drought management calls for reliable and effective drought mitigation policy. Several stakeholders insisted on the need for such a policy which would improve

- Coordination among stakeholders
- Sharing of data and information
- The specific role of each stakeholder to support drought management
- Capacity building needs
- Fund allocation and sharing of resources

enhancing drought management. Given the complexity of this task, which requires coordination at both governmental and stakeholder level, it has been agreed to strengthen coordination by organizing a specific discussion on the policy framework and national/international coordination.

iii. Awareness on use of earth observation for drought preparedness and assessment and water conservation

Expert Delta State University, IWMI and World Bank presented the space-based tools for drought assessment and provided in-depth knowledge on how the advanced satellite data is used to monitor water resources.

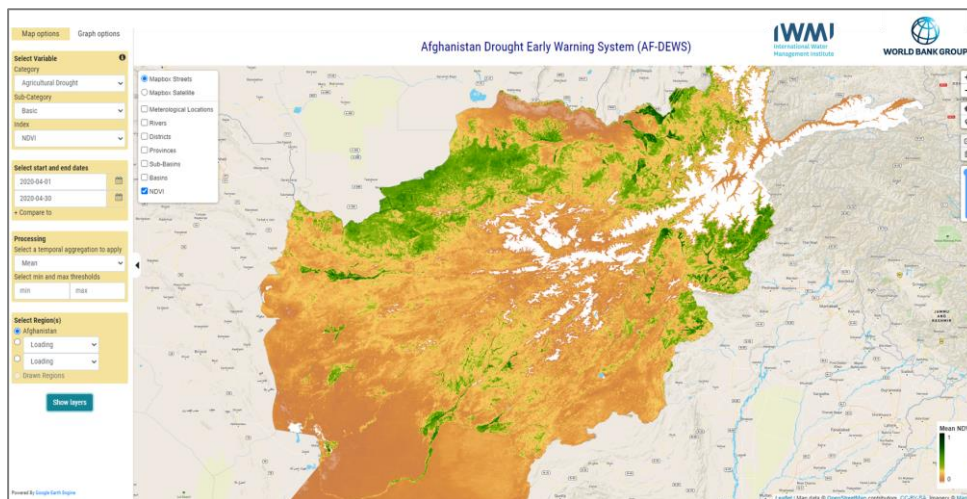
Remote sensing techniques are used to monitor crop health. Remote sensing, through measures such as normalized difference vegetation index (NDVI), relative greenness, and similar indices can monitor crop health. Failing crop health coupled with weather station data is an effective means for early detection of drought. Early detection of drought is important because it enables an early response.

However, the emphasis is on preparedness through risk reduction activities to reduce the risk of negative impacts. Use remote sensing to improve water use efficiency has a great impact on risk reduction. For example, low cost and free thermal remote sensing data are accessible and easy to use and may be used to improve the efficiency of the water delivery system.

iv. International support to drought monitoring in Afghanistan

World Bank and few other stakeholders mentioned their projects to support drought assessment and management. The World Bank support is coming through the Drought Early Warning, Early Finance, and Early Action Project (ENETAWF) project. The project will complement regular humanitarian relief efforts and provide unconditional cash support and cash-for-work benefits to about 2.2 million Afghans in the 78 districts most affected by food insecurity and drought. The project will provide regular targeted financial assistance to households to build resilience and scale-up support across the country before and during droughts. ENETAWF support for drought management will be comprehensive in terms of activities, agencies involvement and coordination with other stakeholders such as ANDMA, IOM, UN-SPIDER, IWMI, , NSIA, MAIL, AMD, WRD, etc).

IWMI promotes drought management efforts globally in areas of monitoring and early warning, vulnerability and impact assessment and lastly the mitigation and response plans in addressing short and long term action plans as well as the risk transfer instruments using index insurance to mitigate drought risk. With the assistance of the World Bank, IWMI developed a cloud-based online tool i.e. Afghanistan Drought Early Decision Support (AF-DEWS) which uses near-real-time satellite data to computer various drought indices across meteorological, hydrological and agricultural droughts as well as the weekly updates on the sub-seasonal forecast of daily precipitation and temperatures to provide timely early warning across various agencies for early action. The beta-tool is being used by various stakeholders to evaluate the usefulness of drought knowledge products in improving drought preparedness and can minimize drought risks.



v. UNOOSA/UN-SPIDER support to capacity building activities.

UNOOSA and its UN-SPIDER programme can play important role in providing short and long-term training programmes to officials in Afghanistan in the areas of remote sensing, GIS, satellite meteorology, satellite communication, satellite navigation and small satellite (<http://unoosa.org/oosa/en/ourwork/psa/regional-centres/index.html>). The long-term training programmes, such as post-graduate diploma and master degrees, are offered through UNOOSA’s Regional Centres for Space, Science and Technology Education in Asia and the Pacific based in India (www.cssteap.org) and China (<http://rcssteap.buaa.edu.cn>). These training courses are fully supported with scholarship.

UN-SPIDER, with support of its regional support offices (such as Delta State University and IWMI), can offer tailor-made short training programmes on remote sensing applications on the flood, droughts, landslides and any other specific themes related to disaster risk reduction, climate change and sustainable development.

It was proposed that the training strategy or plan may be prepared by ANDMA to take benefit of the support offered by UN-SPIDER and other partners. This training strategy could be then streamlined also through the WBG financed ENETAWF project.

Massive Open Online Course (MOOC) on the “Geospatial Applications for Disaster Risk Management”

<https://isat.iirs.gov.in/mooc.php>

The MOOC, free and flexible online training, was launched on 1 June 2021 by the United Nations Office for Outer Space Affairs (through its UN-SPIDER programme) and the Centre for Space Science and Technology Education for Asia and the Pacific (affiliated to the United Nations). this MOOC aims to strengthen the knowledge of disaster management professionals, experts, and students in understanding the role of Earth observation and geospatial information in order to achieve the targets of the Sendai Framework for Disaster Risk Reduction 2015-2030, the 2030 Agenda for Sustainable Development and the Paris Agreement, stemming from the 21st Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC).

vi. Access to earth observation data during emergency:

Collaboration with International Charter Space and Major Disasters, Sentinel Asia, Copernicus and UN-SPIDER during an emergency is suggested so that ANDMA gets access to earth observation data and map products needed for emergency response and such access can be enhanced if Afghanistan becomes an authorized user of the International Charter Space and Major Disasters (<https://disasterscharter.org>). UN-SPIDER can facilitate this process.

The registration to become an authorized user of the International Charter can be accessed from the below link:

<https://disasterscharter.org/web/guest/how-to-register-as-a-user>

4. Suggested way forward

- 8. Organization of quarterly coordination meeting of disaster risk management authorities, donors & partners for informing others on each other projects & activities and to avoid overlaps and enhance coordination;
- 9. Support of international stakeholders to ANDMA in developing clear, concise and agreed-upon SOP for drought early warning, assessment and monitoring
- 10. Organize specific meetings to discuss policy framework on drought management
- 11. Facilitate ANDMA in developing GIS/Remote Sensing/Earth observation Capacity building strategy or plan, to be supported by donors
- 12. Promote officials in Afghanistan to participate in the [MOOC “Geospatial Applications for Disaster Risk Management”](https://un-spider.org/news-and-events/news/launch-phase-ii-mooc-%E2%80%9Cgeospatial-applications-disaster-risk-management%E2%80%9D) launched by UN-SPIDER
<https://un-spider.org/news-and-events/news/launch-phase-ii-mooc-%E2%80%9Cgeospatial-applications-disaster-risk-management%E2%80%9D>
- 13. Improving regional cooperation by involving organisations like APDM of ESCAP SAARC Disaster Management Centre and WFP PRISM programme etc.
- 14. Linking Afghanistan drought management efforts to UN Food Systems Summit
- 15. The next meeting may be planned to discuss how to identify and declare a drought and reflect on the policy-related issues.

5. Thematic Meeting Schedule

26 May 2021 (10:00 AM - 13:00 PM)

Topic	Discussion points
Opening remarks	H.E Mohammad Qaseem Haidari Deputy Minister – SMDM/ANDMA Shirish Ravan, UNOOSA/UN-SPIDER Mark Smith, IWMI Director General Talbot Brooks, Delta State University John Abo, ADPC

Briefing by the key government stakeholders on 'Drought management efforts in Afghanistan'	Efrem Ferrari, WBG & Alice Soares, WBG
Break	
Earth observation data for drought monitoring and early warning and highlight AF-DEWS tool	Giriraj Amarnath, International Water Management Institute
Water resources monitoring in the context of climate change – Earth observation techniques	Talbot Brooks, Delta State University
<p>Open discussion:</p> <ul style="list-style-type: none"> • Open data access, generation, sharing and dissemination • Institutional coordination • Capacity building • Other points 	<p>Moderated by Shirish Ravan</p> <p>Panellist</p> <ul style="list-style-type: none"> • Talbot Brooks • Giriraj Amarnath • Representative of key stakeholder agencies from Afghanistan
Conclusion	

6. List of participants:

No	Name	Organization	Email address
National and International stakeholders presence in Afghanistan			
1	HE.Mohammad Qaseem Haidari	ANDMA	qhaidari2007@gmail.com
2	Sana Dawari	UNDP	sana.dawari@undp.org
3	Efrem Ferrari	WB	eferrari@ifc.org
4	Alice Soares	WB	asoares@worldbank.org
5	Mohammad Shoib Saboory	National Statistic and Information Office	s.shoib@hotmail.com
6	Mr.Eng. Sharifi	Save the children	Abdullah.Sharifi@savethechildren.org
7	Mr.Nasim Muradi	Afghanistan Methodological Department	Basirabasi7@gmail.com
8	Mr. Vikas	IMAAP	vgoyal@immap.org
9	Ms.Meena	IMAAP	marjumand@immap.org
10	Mr.Hasubullah	IMAAP	hfakhri@immap.org
11	Ms. Saheba Yousufzai	Water Recourse Directorate	s.sabory@nsia.gov.af
12	Mr. Rohullah Bigi	Water Recourse Directorate	ruhullah.wrd@gmail.com
13	Ms.Basila Yaqoobi	Water Recourse Directorate	homayounkhoshnod14@gmail.com
14	Mr.Aziz Hashimpur	IOM	ahashimpur@iom.int
15	Mr.Fahim Safi	IOM	FSAFIE@iom.int
16	Ms Wahida	WFP	siddique.amin@wfp.org
17	Mr.khwaja momin	AKHA	khwaja.momin@akdn.org
18	Mr. Shiriaqa Samim	ADPC - based in ANDMA	shirinagha.samim@gmail.com
19	Mr.Qarizada	ANDMA	khalidmirzai2019@gmail.com
20	Mr. Hasibullah Shikhani	ANDMA	hasibullahshikhani.afg@gmail.com
21	Mr. Mujtaba Muradi	ANDMA	mujtabamurady.2016@gmail.com
22	Mr. Wahidullah Yousufi	MAIL	waheedullahyousafi@gmail.com
23	Mr. Najibullah Osmani	MAIL	najibullah.osmani10@gmail.com
24	Mr. Ahmad Faisal	ANDMA	-
25	Mr. Kalakani	ANDMA	-
26	Mr. Yousuf Hussainpur	ADPC - based in ANDMA	yusaf.hussainpor@gmail.com
27	Mr. Samiullah Osman	ANDMA	-
28	Mr. Moh Azim Mukhtar	ANDMA	-
29	Mr. Ainuddin Rahimi	ANDMA	-
30	Mr. Wasim	ANDMA	-
31	Mr. Ahmad Tamim Azimim	ANDMA	ahmadtamim.azimi@gmail.com
32	Mr. Rafee Badakhsh	ANDMA	rafeebadakhsh@gmail.com
33	Mr. Ali Reza	ANDMA	-
34	Ms. Fatema	ANDMA	Fatimahrezaie1993@Gmail.Com
35	Mr. Obaid	ANDMA	Obaidseidiq7861@Gmail.Com

No	Name	Organization	Email address
36	Mr. Mukhtar	ANDMA	Mukhtarshahab70@Gmail.Com
37	Mr. Aziz	ANDMA	Azizi.Ebr730.Af@Gmail.Com
38	Mr. Farhad	ANDMA	Roshangar.Farhad@Hotmail.Com
39	Mr Amjedullah	ANDMA	Amjad.Khan.Af@Gmail.Com
40	Mr. Khairullah	ANDMA	Khairullahhamidi1212@Gmail.Com
41	Mr. Faiza	ANDMA	Faiza199612@gmail.com
42	Mr. Amirkhan	ANDMA	Amirkhandurani3344@Gmail.Com
43	Ms. Latifa	ANDMA	Navisaqaisari572@Gmail.Com
44	Mr. Shabir	ANDMA	Saidshabir111@Gmail.Com
International stakeholders			
45	Mr Shirish Ravan	UNOOSA/UN-SPIDER	shirish.ravan@unoosa.org
46	Mr Talbot Brooks	Delta State University	brooks@deltastate.edu
47	Mr Giriraj Amarnath	IWMI, Sri Lanka	A.Giriraj@cgiar.org
48	Mr Venu Madhav Maraju	Continuum Planning and Development Trust, India	mvm@continuumworld.com
