Afghanistan Drought Early Warning Decision Support Tool

Efrem Ferrari

WORLD BANK GROUP

IWMI

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Objective

The Early Warning, Early Finance and Early Action Project (ENETAWF) seeks to support the Government of Afghanistan shifting from a **REACTIVE** response to drought to a **PROACTIVE** risk management of drought.

Reactive

- Focus on post-impact intervention;
- Most commonly through emergency relief (cash, feed, food or water, etc.)

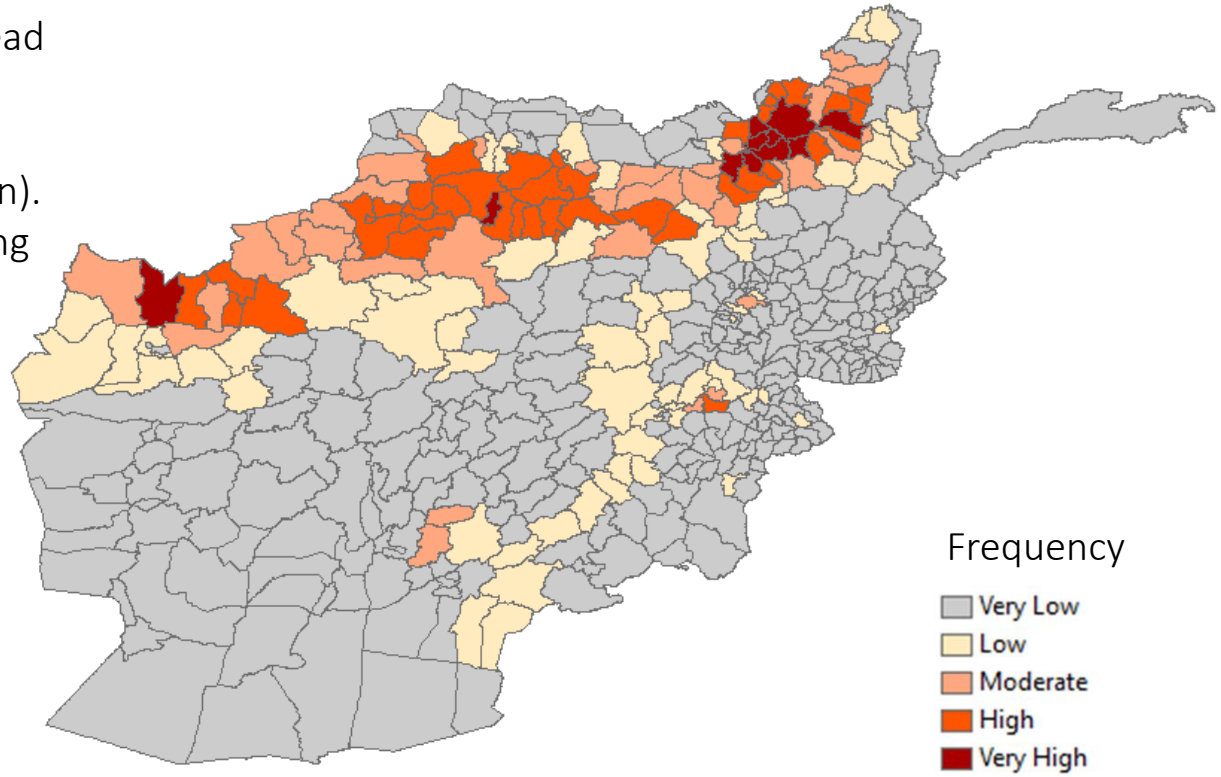
Proactive

- Focus on prevention;
- Requires:
  - Drought monitoring & early warning system;
  - Policies framework;
  - Institutional support;
  - Preparedness plans;
  - Emergency response programmes;

Drought in Afghanistan

Frequency of drought events in Afghanistan since early 2000s.

- Recurring phenomenon in the country, with two or three widespread droughts events occurred every ten years for the past half century
- The worst recent event was the 2018 drought, that affected more than 13.5 million people in the country (one third of the population).
- Lack of an objective early warning mechanism capable of generating and disseminating drought information to key stakeholder and farmers.



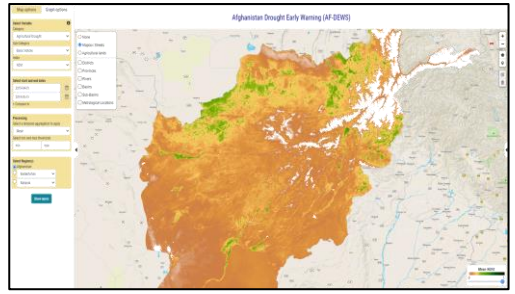
Approach

Preliminary Phase

Early Warning Support Tool

Develop and operationalize a Drought Early Warning Decision Support tool (AF-DEWS platform)

Monitor and know where and how intense drought conditions are



Drought Monitoring capabilities

Strengthen drought analytics & advisory and improve reporting (bulletins, reports)

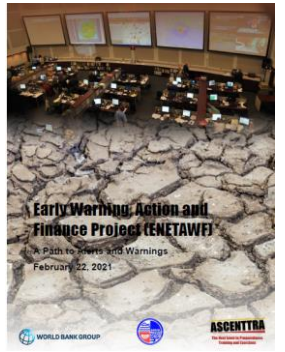
Strengthen infrastructure and capacities of hydromet and agromet service providers

Timely inform decision makers (DEWC): who shall do what, when

Institutional Support & Coordination

Strengthen the infrastructure and capacities of National and Provincial Emergency Op. Centers

- Exercises and simulations for different hazards at national and provincial level
- Streamline and align public alerting and early response;
  - ICT and digital tools (i.e. SMS, Apps, CAP)
  - Radio/TV and newspapers
  - CBDRMs, MAIL extensionists, CDCs and NGOs workers

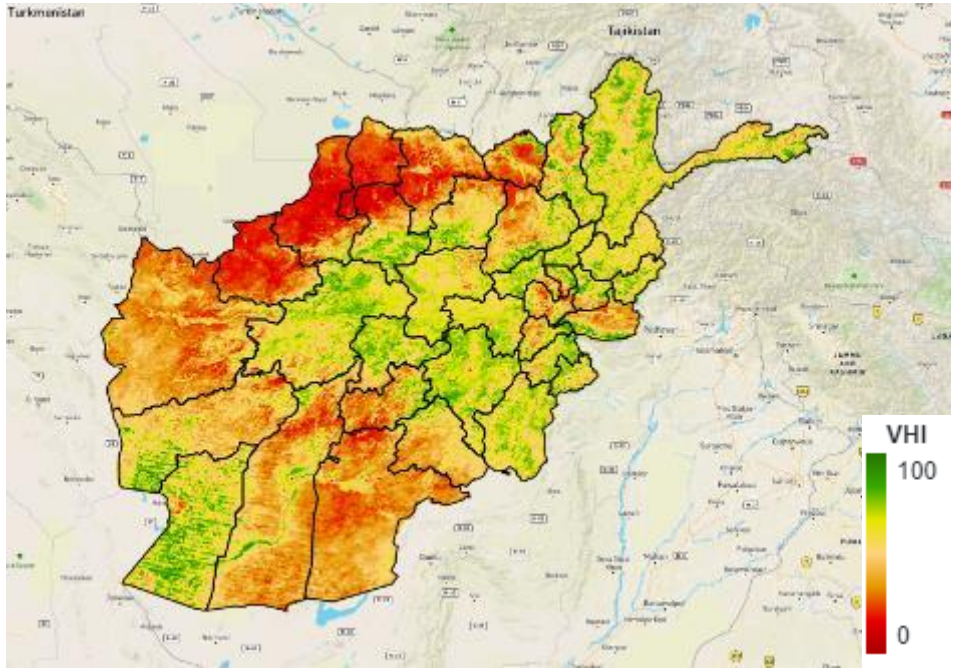


The AF-DEWS

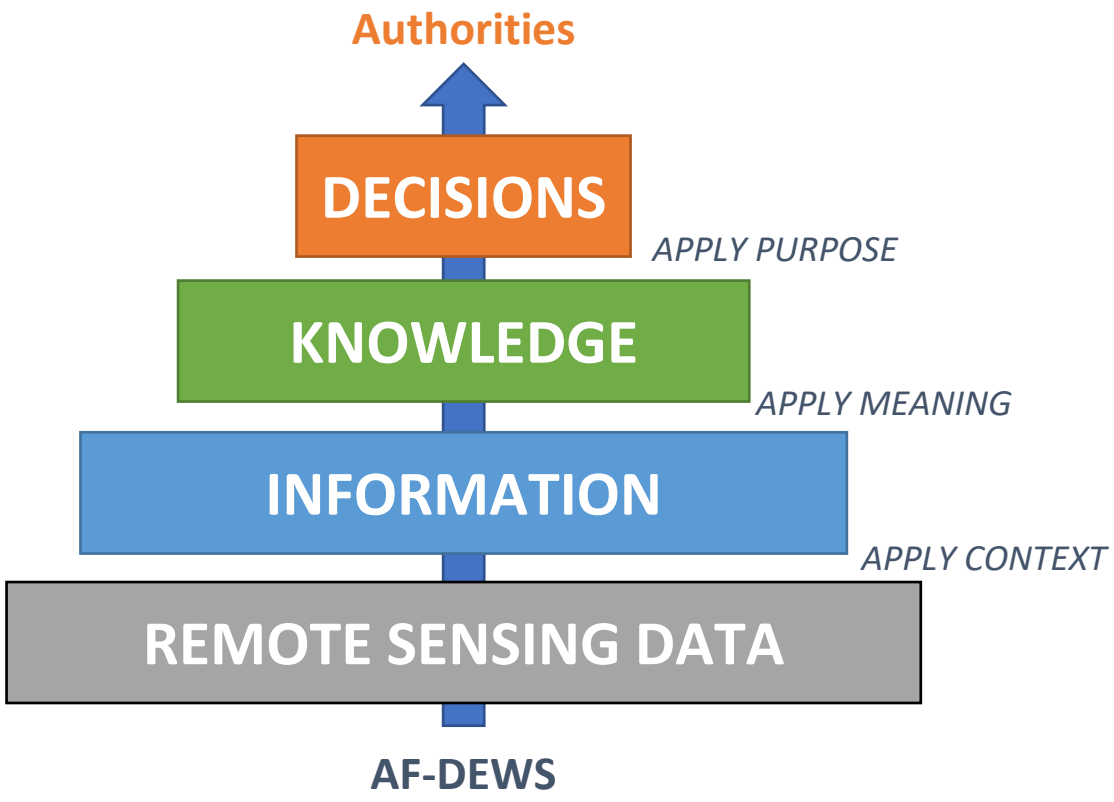
The **Afghanistan Drought Early Warning decision Support (AF-DEWS)** is an online platform aimed at building consensus, increase coordination and **support decision making** among GOIRA's agencies mandated to monitor drought and undertake response actions (i.e. dissemination of warning, emergency declaration, coordinate relief activities, etc.).

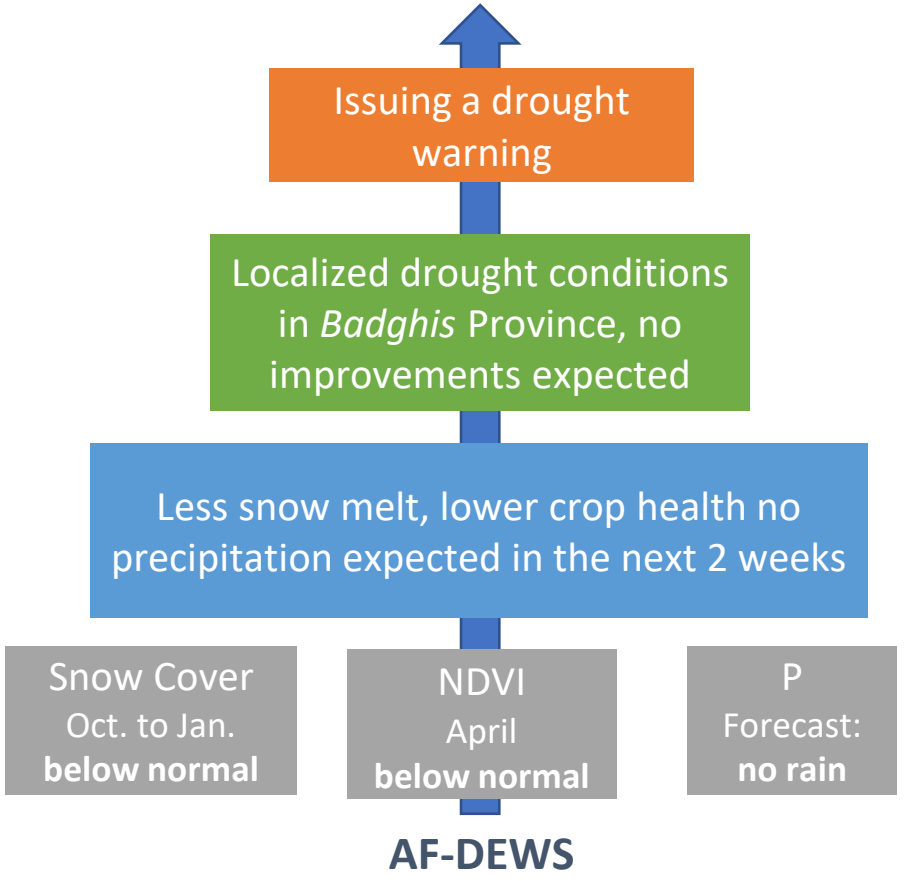
It does so through a **cloud-based platform** designed to provide key agencies:

- a **systematic approach** in accessing and utilizing near-real-time and ready to use satellite based remote sensing information;
- short-medium and seasonal **forecasts** to predict future' weather patterns;
- a **flexible and adaptable** pool from which to select the preferred drought indicator(s);



Design principles





Deep dive on the indices available in the AF-DEWS

Long Range Forecast

- Precipitation
- Temperature

obtained from IMD

Meteorological Drought

- Precipitation & Anomaly
- Temperature & Anomaly
- Dry Spells
- SPI
- PCI
- TCI

SPI Index – deviation of observed precipitation from the norm

Agricultural Drought

- NDVI & Anomaly
- NDWI
- VCI
- VHI
- SMI
- SWADI
- MAI
- IDSI

NDVI derived crop cover anomaly – deviation of observed crop cover from the norm

Hydrological Drought

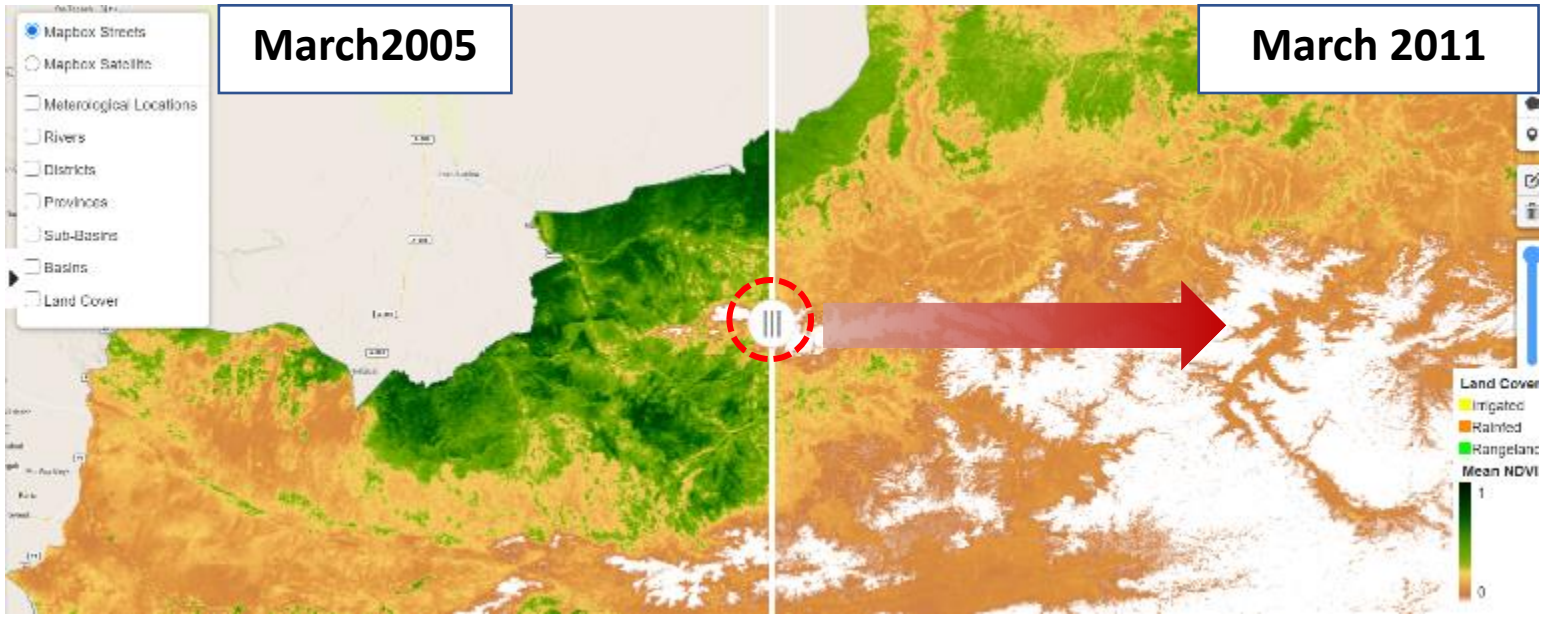
- Snow Cover and Anomaly
- SDI
- SWSI

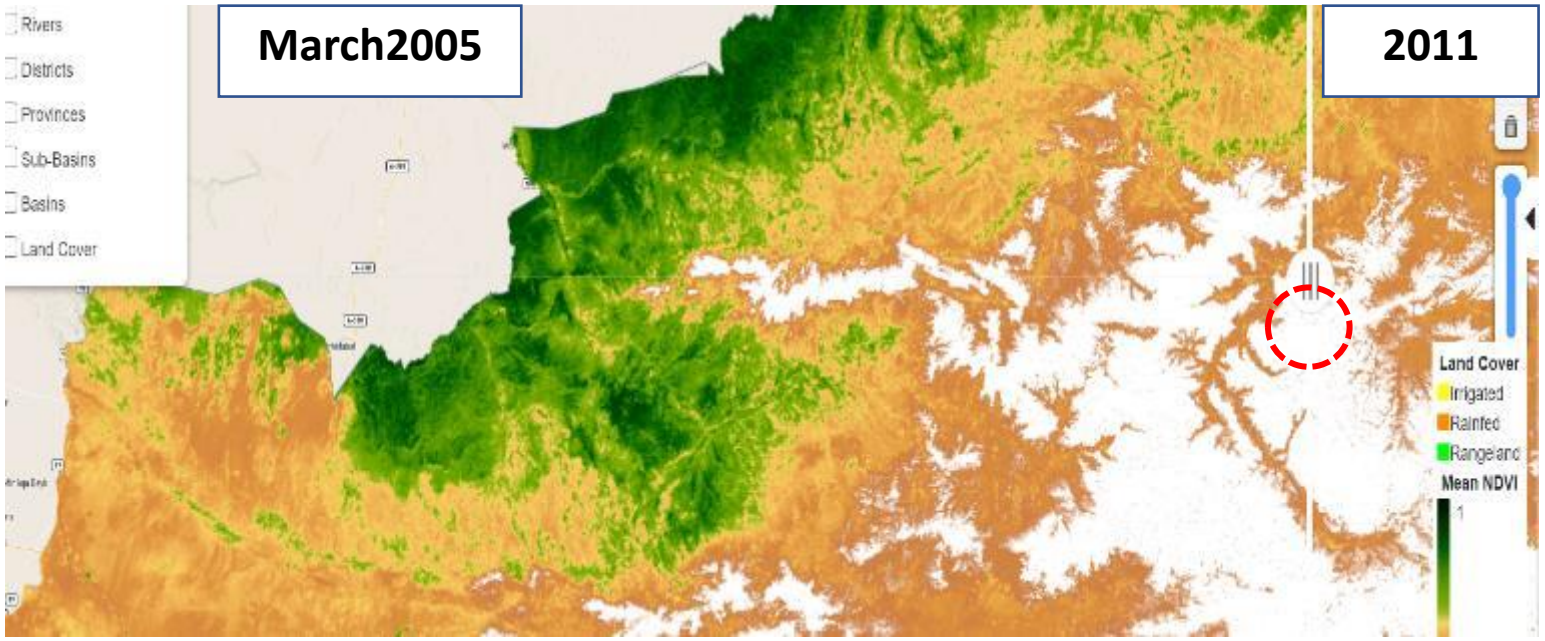
Snow Cover – actual snow cover and deviation from seasonal norm

Tool features (1)

Temporal analyses:

- **Compare the maps from two different time periods**
- Graphic temporal analyses at national / provincial / district and user defined level





Tool features (2)

Temporal analyses:

- Compare the maps from two different time periods
- **Graphic temporal analyses at national / provincial / district and user defined level**

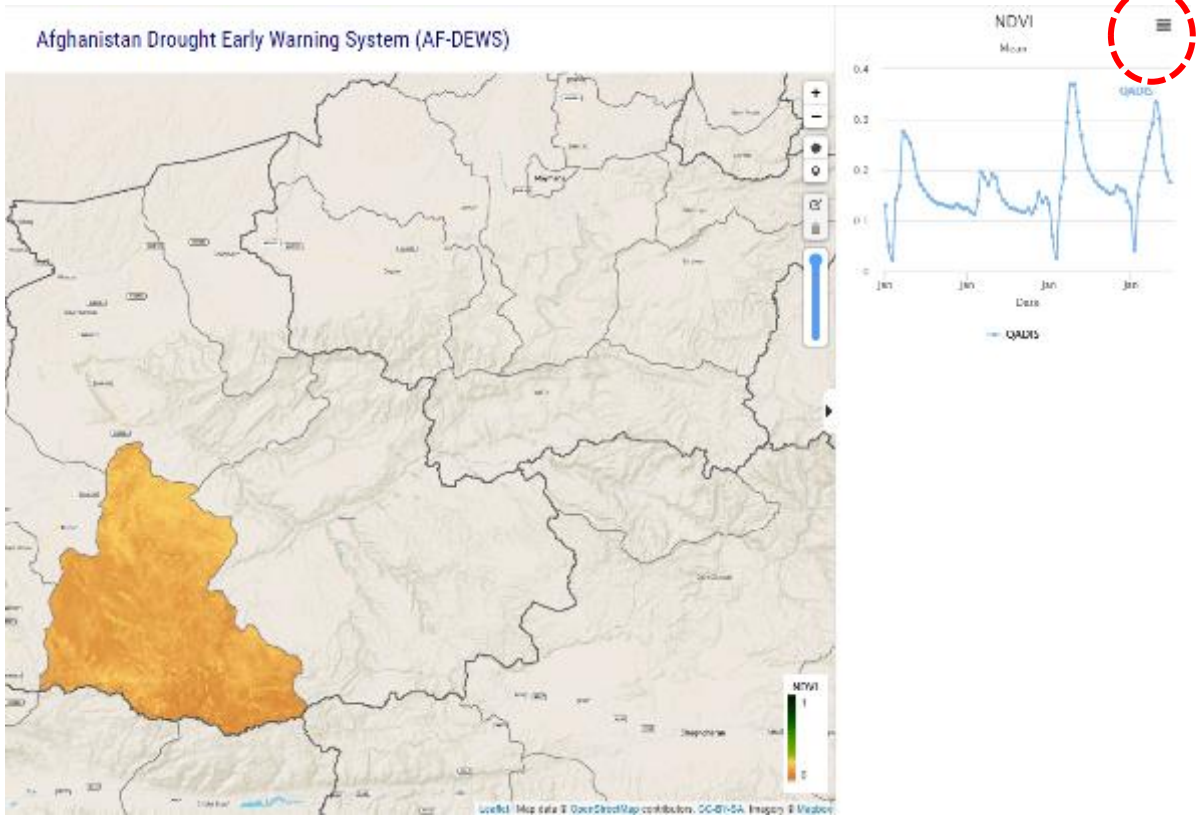
Irrigated area

Rainfed area

Tool features (3)

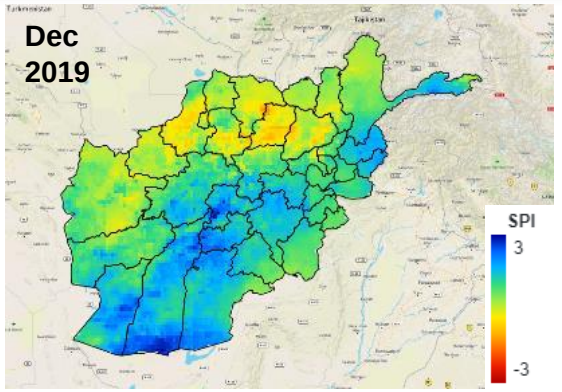
Download data in various formats:

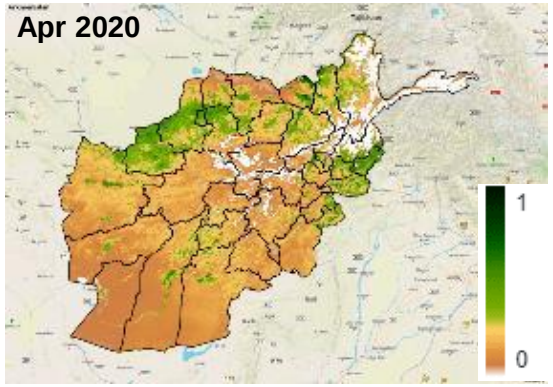
- **Option to download time series data of selected province or districts or any customized area of interest.**
- **User can download the data in various formats i.e., JPEG, CSV, PDF or SVG for additional analysis and reporting.**

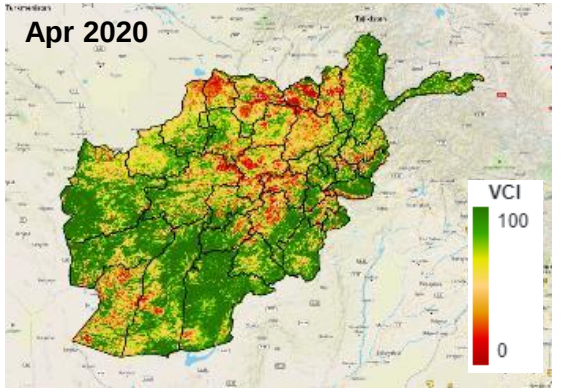


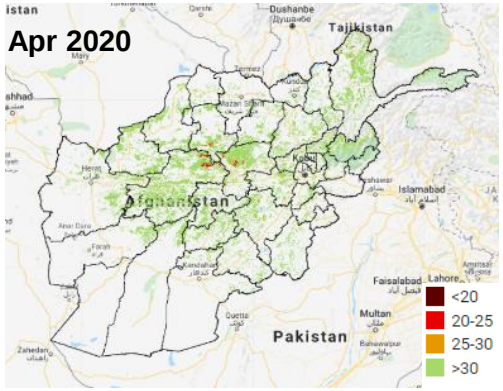
Definition of key indicators

Monitoring period	Key variable	Indicator / Indices
Dec-Apr	Rainfall (Met)	SPI
Jan-Apr	Agri cover (%)	Crop cover
Feb-Apr	Vegetation condition (Agri.)	VHI
Apr	Composite Index	IDSI









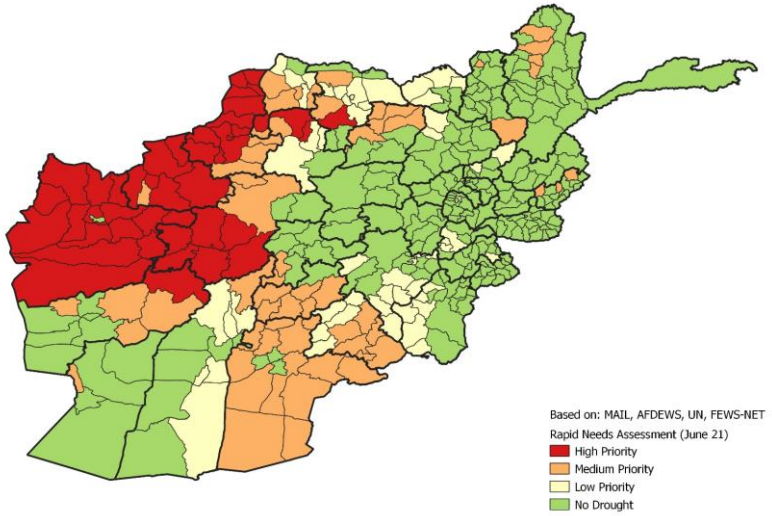
The 2021 drought

Since January 2021 a weekly – bi-weekly drought bulletin was released weekly by the Afghanistan Meteorological Dept. with WBG support.
The bulletin helped the country prepare a timely response strategy to the emerging drought conditions well in advance of the 2018 event. On 22nd June 2021, H.E. President of Afghanistan declared drought conditions in the Country.

- During the past wet season (October-April) meteorological drought conditions emerged over large swath of western, northern and central Afghanistan.

- Below average precipitation combined with above average temperatures caused an anticipated depletion of soil moisture with negative impacts on crop vigor and growth.

- Overall, **40% of Afghanistan districts (160 out of 401) are experiencing drought conditions.**



Tashakor!