International Water Management Institute

CGIAR

MENAdrought overview

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IWMI International Water Management Institute

LIFE NOV 25, 2014

Drought in Lebanon hits the agricultural sector

159 Views by Outlook

Yara Beaini
Staff Writer

Last year, Lebanon faced one of its harshest droughts in the last 50 years. With a usual average of 812mm, precipitation levels hit an all-time low at 431mm, especially compared to the 905mm of the previous year. The increase

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Jordan facing 'one of the most severe' droughts in its history

Experts say Jordan is now in the grip of one of the most severe droughts in its history, but many warn the worst is yet to come.

Rains were massively reduced, totalling just 60 percent of normal fall, an expert said [Khalil Mazraawi/AFP]

14. THE CONTRIBUTION OF HUMAN-INDUCED CLIMATE CHANGE TO THE DROUGHT OF 2014 IN THE SOUTHERN LEVANT REGION

K. Bergaoui, D. Mitchell, R. Zaaboul, R. McDonnell, F. Otto, and M. Allen

A combined modeling and observational study suggests that the persistent rainfall deficit during the 2014 rainy season in southern Levant was made more likely due to anthropogenic climate change.

The New York Times

Russia-Ukraine War › LIVE Updates Maps Photos Key Cities Guide to the Conflict History of

Economies Weakened by Pandemic

Egypt imports most of its wheat from Russia and Ukraine, and is looking for alternative suppliers. And Tunisia was struggling to pay for grain imports even before the conflict.

Baking bread in Saqqara, near Giza, Egypt. Shokry Hussien/Reuters

africanews. EN NEWS

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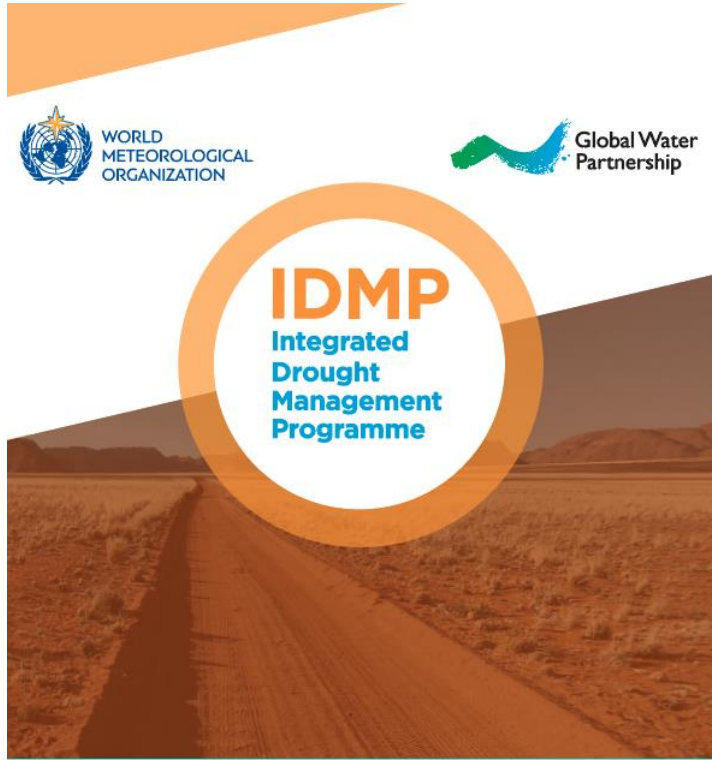
Morocco allocates $1 billion to mitigating drought

MENA Drought – 3 pillars



Adopted by 93 Nations

Drought Technical committee (Drought Monitoring Unit/Subgroup)
National Drought Management Committee

Figure 1. Cycle de gestion de la sécheresse (adapté de Wilhite, 2000).

National Committees: Met offices, DoS, Ministries (Env/Health/Planning-International Cooperation), NARS, crisis centers, water utilities and establishments), National Security and Crisis Management Center

Article

Drought Management Norms: Is the Middle East and North Africa Region Managing Risks or Crises?

Journal of Environment & Development
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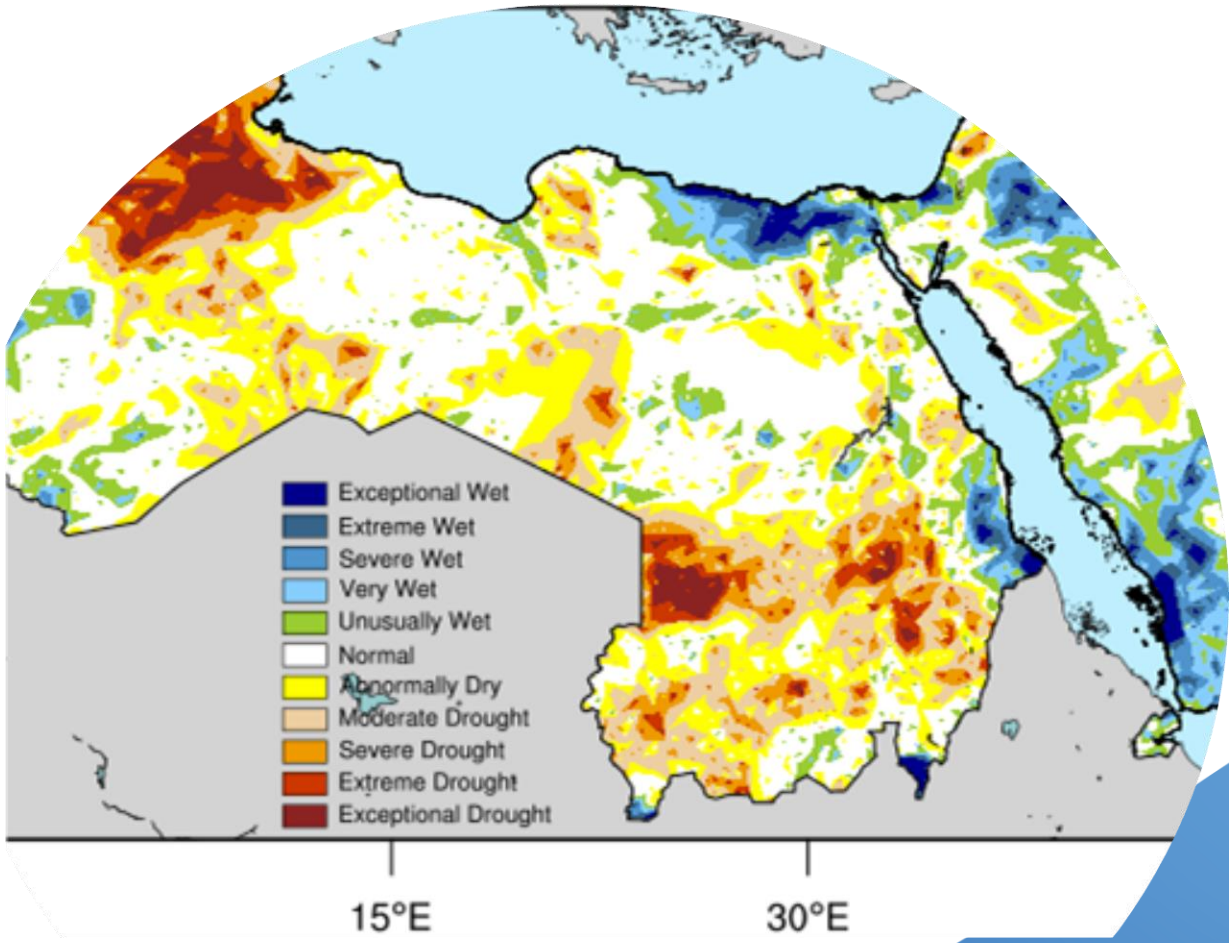
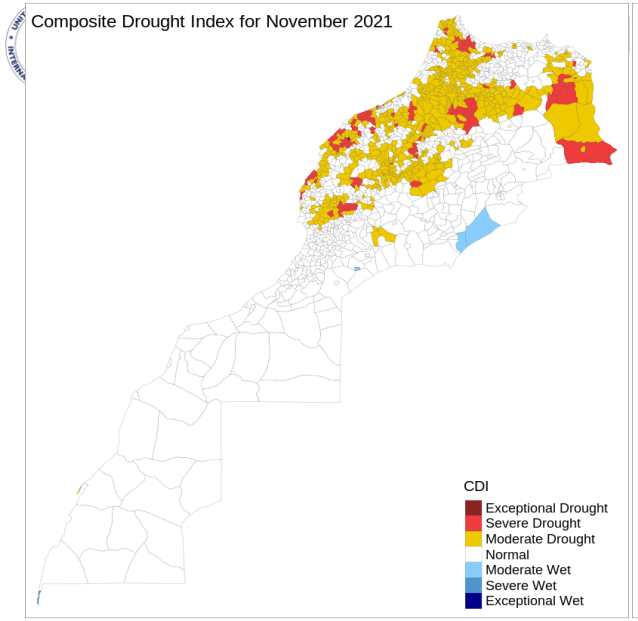
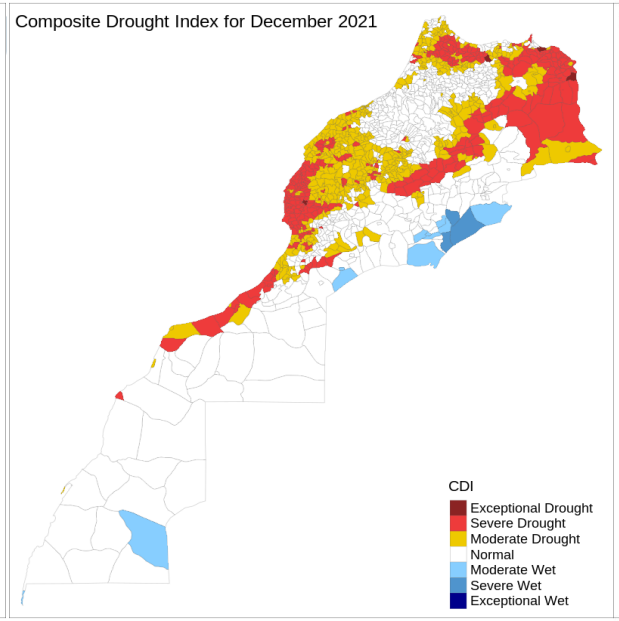
Pillar 1: Where is drought and how bad is it?

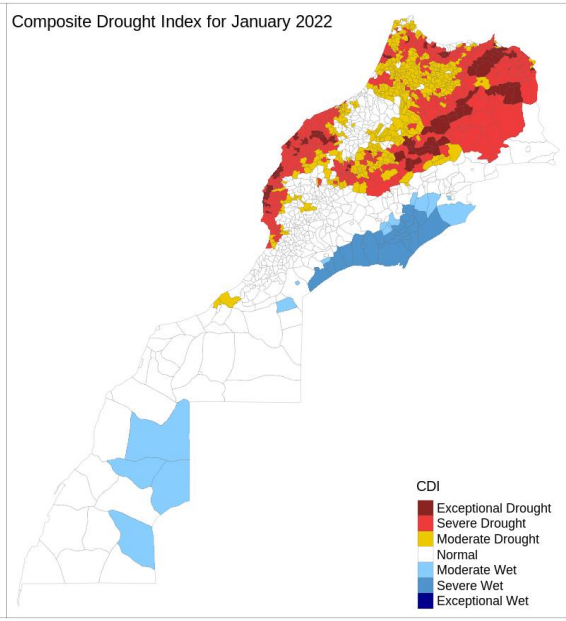
We generate drought maps using 4 inputs from satellite and modelled – relative to ***normal*** conditions at that time of year

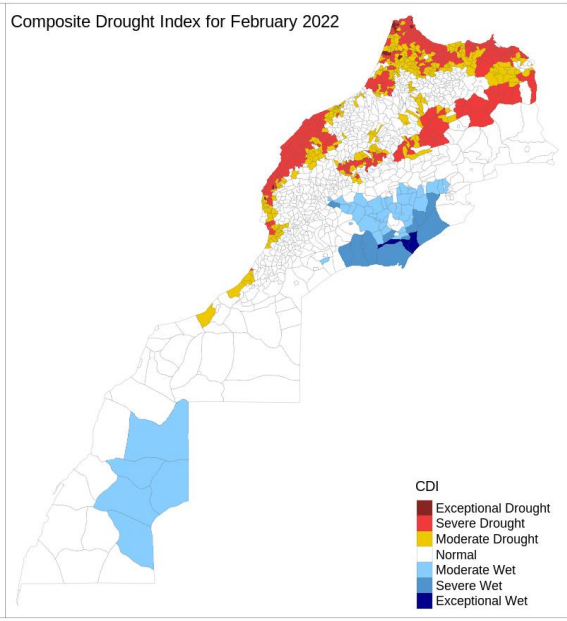
- rainfall
- temperature
- soil moisture
- stress of plants











PARTIE A. EVALUATION DE LA SECHERESSE OBSERVEE

1. Selon vos observations de terrain dans votre région, quel est le degré de sévérité (ou intensité) de la sécheresse du mois (Cochez une case)

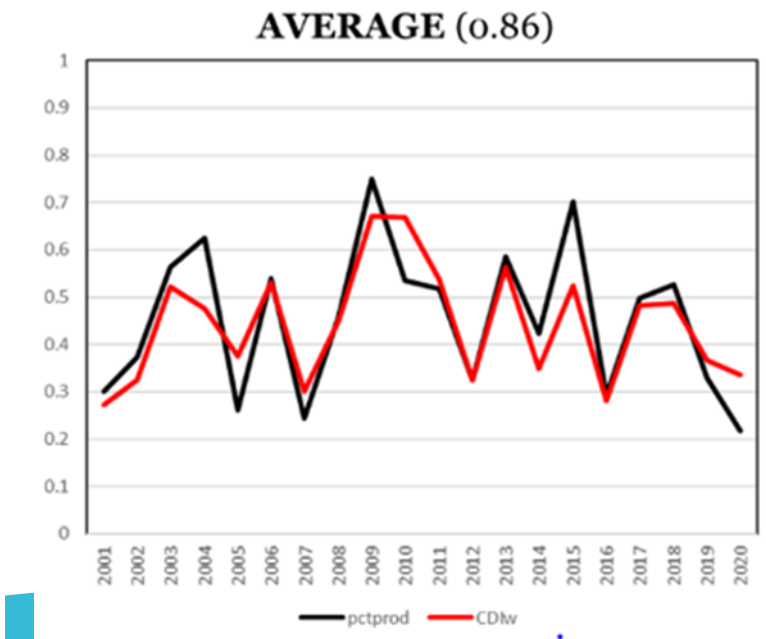
Sècheresse Exceptionnelle (Alerte)	Sècheresse Sévère (Avertissement)	Sècheresse Modérée (Veille)	Conditions normales	Modérément humide	Très Humide	Exceptionnellement humide
Impacts important (du jamais vu auparavant)	*Impacts irréversibles sur la biomasse et le rendement*	*Impacts réversibles sur l'humidité du sol*	*Condition normale*	*Biomasse et humidités acceptables*	*Biomasse élevée*	*Conditions très humides avec des rendements et des biomasses record (du jamais vu auparavant)*

2. Selon vos observations de terrain dans votre région, quelles sont les trois communes/localités les plus impactées par la sécheresse, et quelle est la proportion du territoire impactés ?

	Commune/localité	% superficies impactés
1		
2		
3		

3. Quels types d'informations avez-vous utilisé pour évaluer les conditions de sécheresse sur le terrain et commentaires (exemples : observation visuelle de la végétation des parcours/zones sylvopastorales et arganier, charge cheptel et transhumance illégale et/ou conflictuelle, difficulté d'accès aux ressources en eau et/ou conflits de partage, inflation des prix des aliments pour bétail et des denrées alimentaires de base, émergence de maladies et invasions d'insectes et de bio-agresseurs, vaccination du cheptel, données économiques, subventions, rapports internes d'évolution de saison agricole, évolution des travaux de conservation des eaux et sol/travaux agricoles, enquêtes des fermiers sédentaires et des transhumants, observation des niveaux piézométriques des nappes et des niveaux des ouvrages hydrauliques, tarissement de sources naturelles, l'humidité des sols dans la zone racinaire, etc.).

.....



Use of Convolution Neural Network

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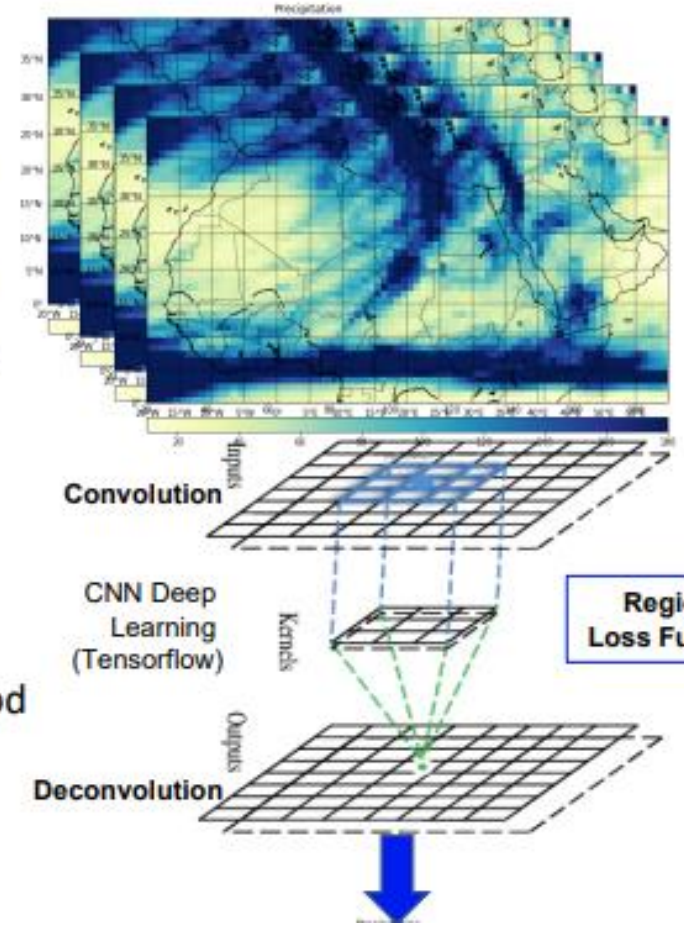
4 NMME forecasts: (predictors) GEOS5+CFS+NEMO+ CanCM4i (monthly 100 km)

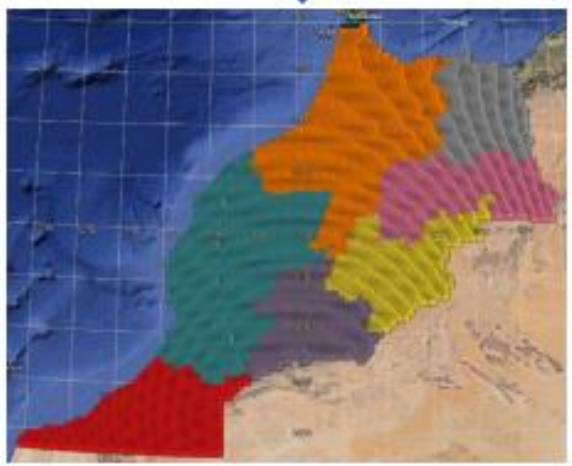
1 Predictand: CHIRPS (monthly 5 km)



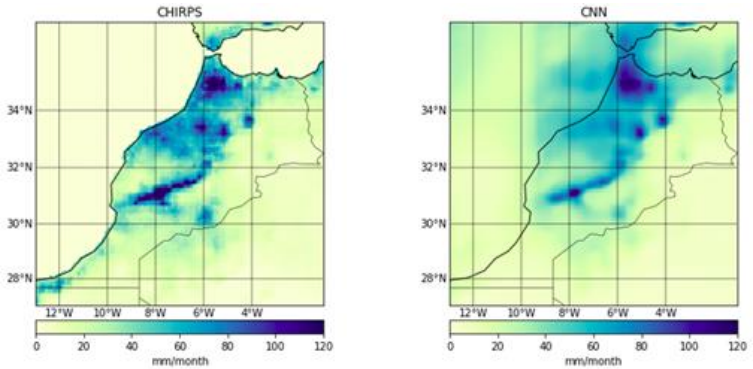
Regionalization (HiClimR) -> 7 regions with:

- Maximum intra-regional correlation
- Minimum inter-regional correlation

Regional Loss Function

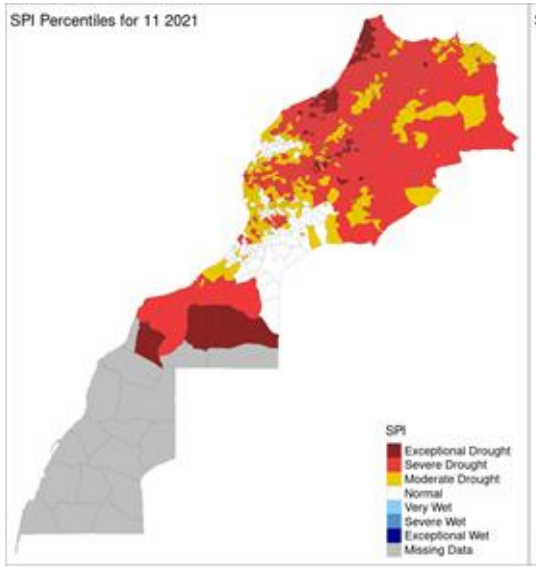
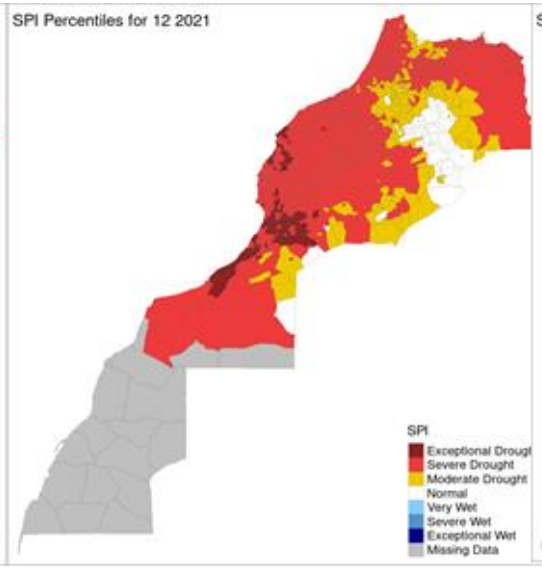
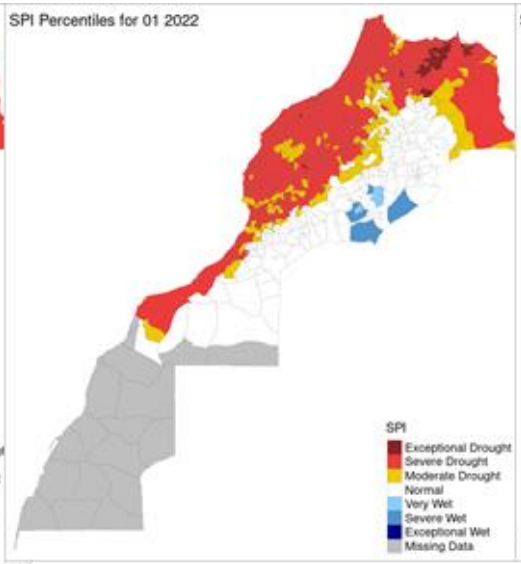
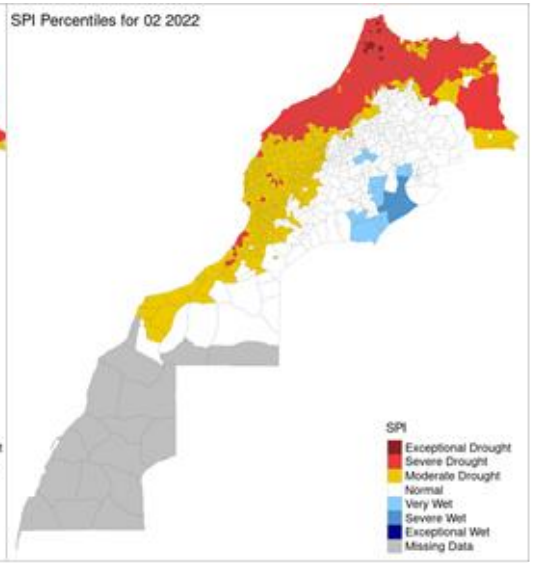
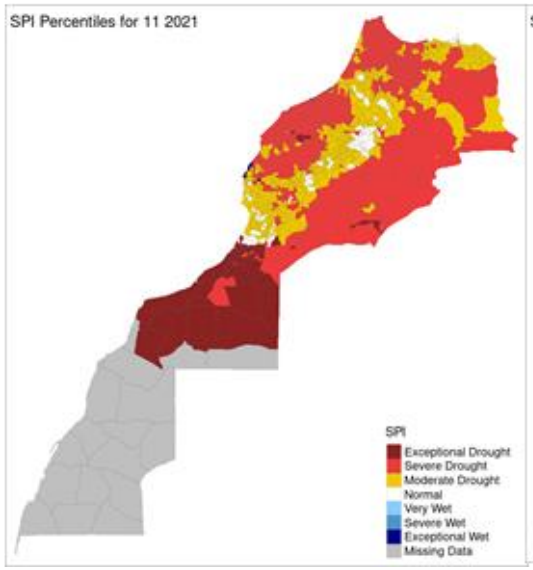
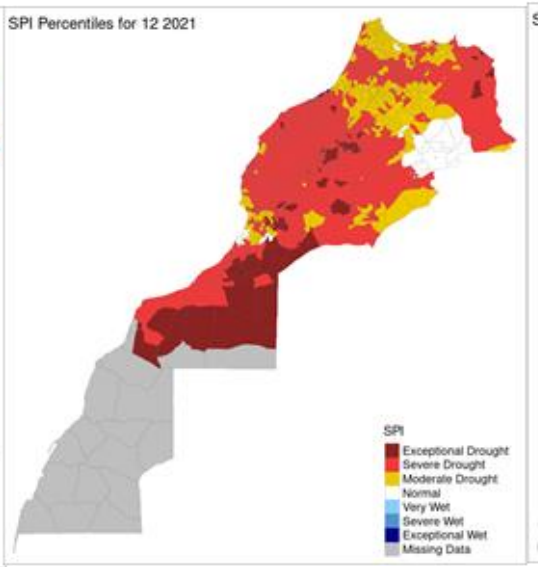
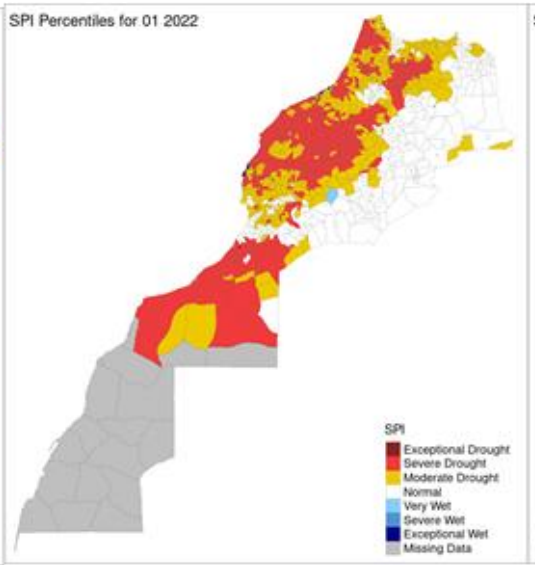
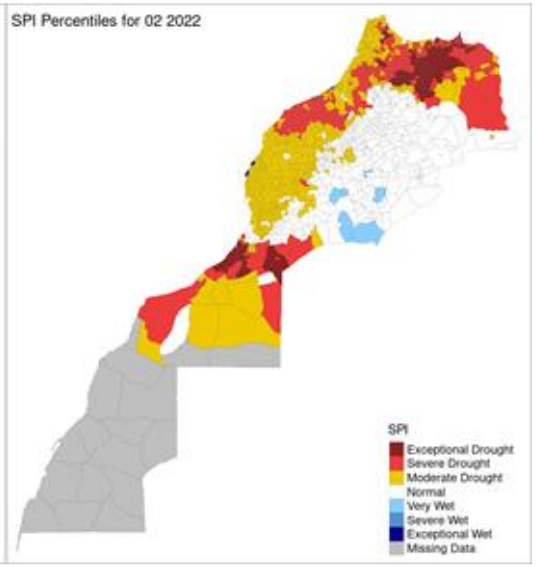


1981-2014 Training period
2015-2019 Test period



Downscaled regional predictions at 5km

Predicting the Standard Precipitation Index as an eCDI component

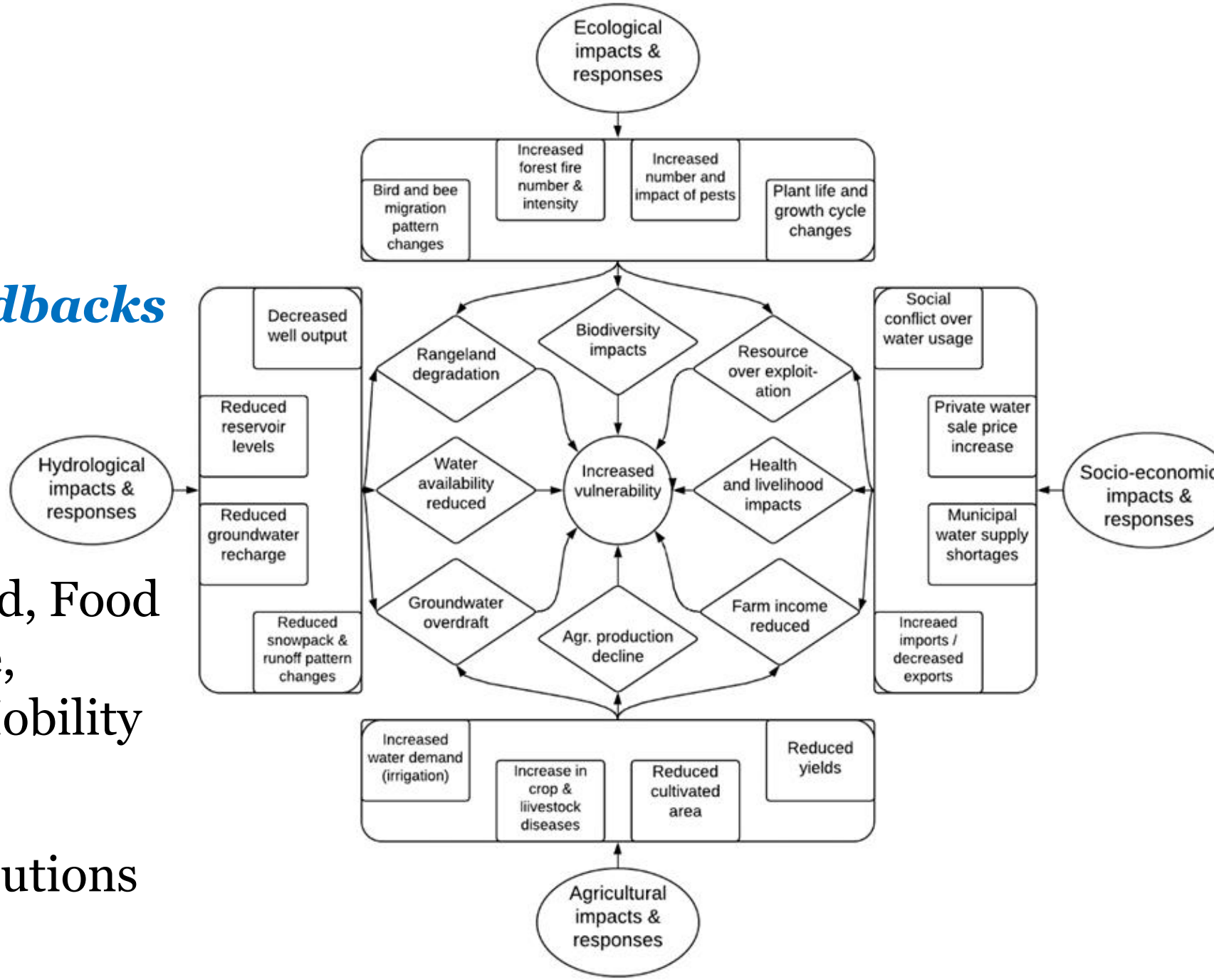
	November	December	January	February
Observed				
Forecasted (1 month)				

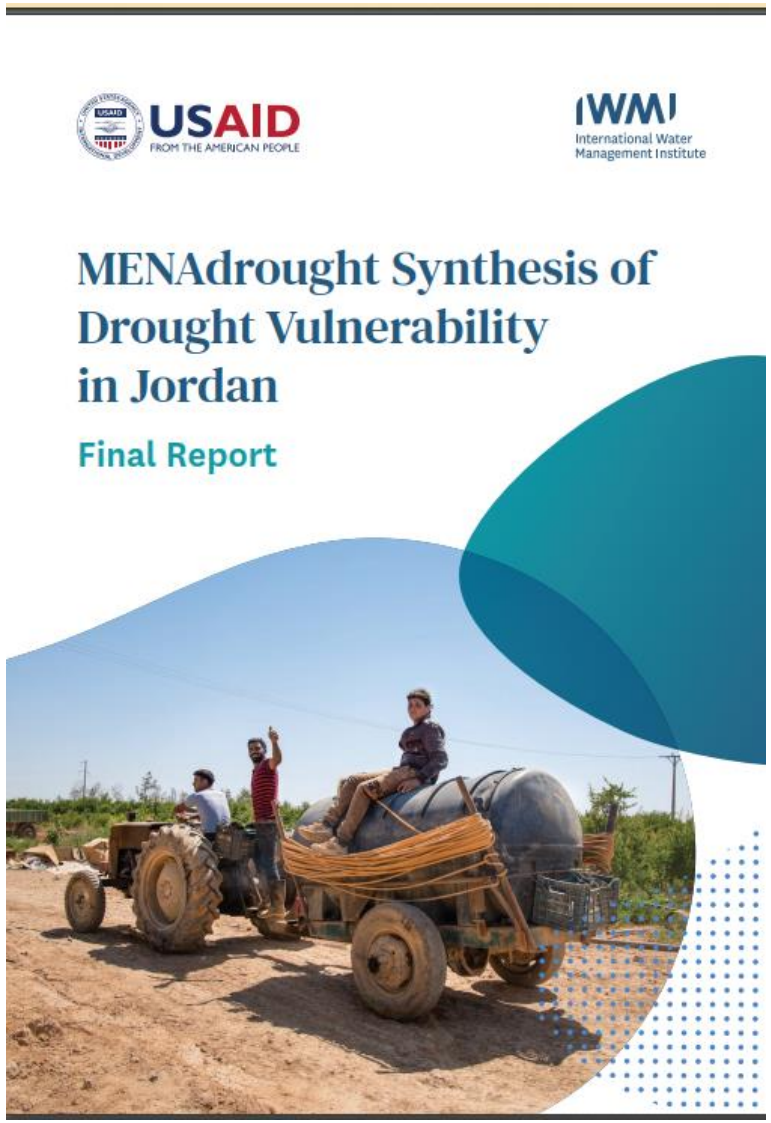
Pillar 2

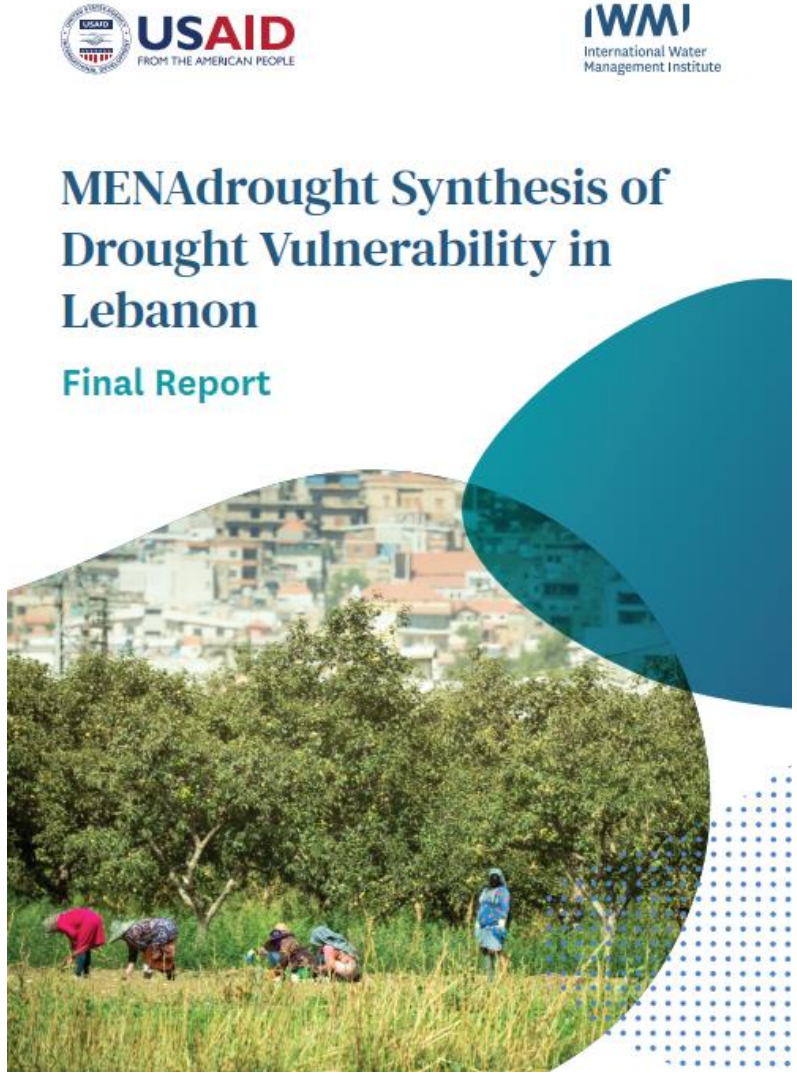
Vulnerability and Impact Assessment

Drought impacts and potential negative feedbacks on vulnerability

- Priority impacts
- Vulnerability tree
- Case studies: Livelihood, Food Security, Debt/Finance, Migration/Fragility/ Mobility
- Financial remediation
- Drought Mitigation Solutions







https://menadrought.iwmi.org/

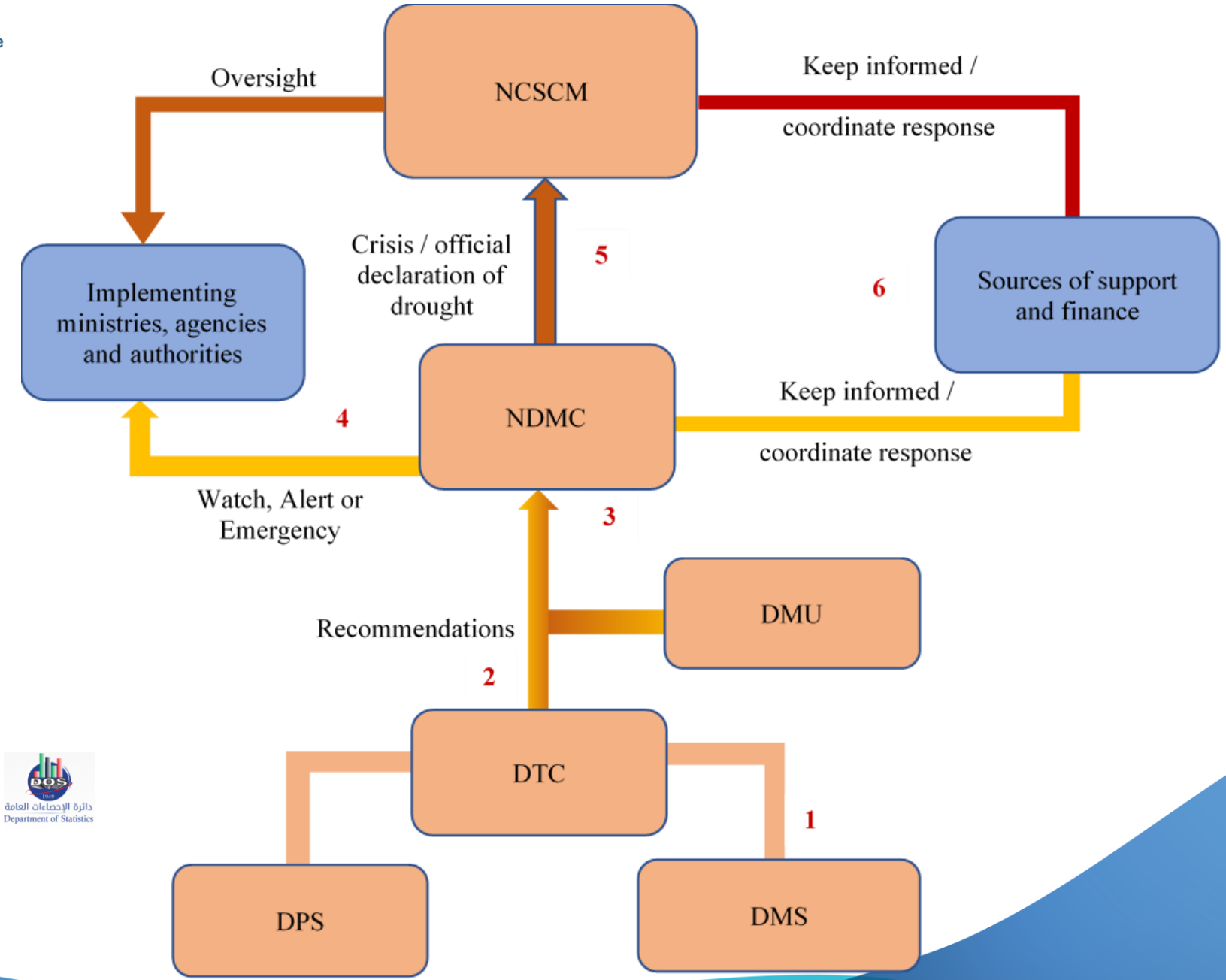
Pillar 3

Preparedness, mitigation and response

Drought Preparedness

- **Co-development of DAP**
- **Linking drought maps to DAP through triggers**
- **Ongoing institutional support**

Supporting the operational framework for drought response



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Thank you for your attention and welcome questions

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