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MENAdrought Webinar Miniseries

Summary Report

This report summarizes and includes links to content from the MENAdrought webinar miniseries entitled *'Building Climate Resilience in the MENA Region through Drought Risk Management'*. This included two webinars: the first on September 12, 2022 focused on *'drought monitoring and early warning systems'* and the second on September 14, 2022 focused on *'embedding drought risk management in policy'*.

The miniseries showcased experiences from 6 years of work with national government agencies and other stakeholders to strengthen the capacity for drought risk management in Jordan, Lebanon, and Morocco. We reflected on learnings from various activities to:

- Develop drought early warning systems with monitoring and seasonal forecasting components.
- Undertake drought impact and vulnerability assessments at the national and local levels and focused on economic sub-sectors, communities and their livelihoods, and water resources.
- Develop Drought Action Plans (DAPs) that include preparedness and mitigation actions, triggers for drought management responses once drought has occurred, and explicit governance and decision-making frameworks regarding those responses.

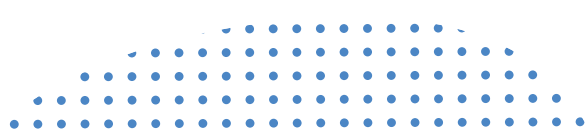
Webinar attendees (approximately 100 for webinar 1 and approximately 65 for webinar 2), came from a mix of geographies and professions. The rough proportional order is listed below:

- Government officials from project countries as well as several from other countries in the MENA region and beyond.
- Applied researchers from institutions within and beyond the CGIAR system as well as universities.
- Staff from donor organizations and multi-lateral organizations that have donor and implementation remits.
- Civil society organizations and journalists from project countries and beyond.
- Professional services and businesses.

This report includes the following:

- i. a summary of the webinars' contents, including a description of audience inputs via the chat, Q&A function, and the Mentimeter activity;
- ii. a short synthesis of learnings described during the proceedings;
- iii. a full record of audience inputs.

More details on the MENAdrought project, including technical and synthesis reports, as well as policy briefs, can be found on the [IWMI website](#).



Agendas with links to the relevant presentation or video recordings

Webinar 1. Drought Early Warning Systems – September 12, 2022

Component	Speaker(s)	Summary	Link to presentation or video recording
Introduction	Dr. Rachael McDonnell (Deputy Director General – Research for Development, IWMI)	Introduced the Three Pillars and work in countries to embed capability. Acknowledged partners and their long-term commitment, and describes the general co-development process. The MENAdrought video sets the scene and provides insight into where the project started and what is driving it.	Recording from 00:00:00 to 00:04:18 Webinar video 1 (and MENAdrought short video 1)
Scene setting	Dr. Youssef Brouziyne (Representative for the Middle East and North Africa region [MENA], IWMI) Ann Vaughan (Adaptation Coordinator and Senior Advisor for Climate Change, USAID)	Dr. Youssef – Delivered the opening welcome from IWMI’s MENA representative. Climate change adaptation is necessary to make key systems like food and water less vulnerable to drought and spur general economic growth. Combatting vulnerability must be scientifically advised and economically sound, which is one of the main objectives given its collaboration with decision-makers and use of robust technologies. Ann – Described the climate strategy through 2030, which calls on all of USAID to respond; confront urgent demands and make long-term transformational change. Doing this requires a more holistic approach to development. To paraphrase, USAID is a climate agency now. President Biden’s ‘emergency plan for adaptation and resilience’ (PREPARE) was launched at COP 26 and activated a coordinated approach for diplomatic, development and technical aspects by US institutions. It has three components: Knowledge, plans and programs, and resources. MENAdrought fits into the knowledge, and plans and programs components given its focus on early warning systems which is useable for policy planning components.	Recording from 00:06:45 to 00:16:15 Webinar video 1
Keynote speaker	Eng. Ali Ghanim, (Director of the Drought Management Unit, Ministry of Water and Irrigation, Jordan)	Acknowledges members of the Drought Technical Committee and especially the Jordanian Meteorological Department for its role with Drought Early Warning System (DEWS). Use of the DEWS helps build common understanding and confidence to act early in a targeted way. It supports the Water Sector Policy for Drought Management and the National Risk Reduction Strategy and other interagency collaboration on wider themes of water, food and energy security. Expressed the need to test and improve the DEWS effectiveness in monitoring desert and Badia rangeland areas and improve seasonal precipitation forecasting to guide proactive water management in the future.	Recording from 00:16:15 to 00:20:00 Webinar video 1
Overview of the Drought Early Warning System (DEWS)	Eng. Karim Bergaoui (consultant - meteorology and modeling, IWMI)	The presentation began with a conceptual description of the components of a DEWS from technical to information dissemination aspects. Showed inputs of enhanced Composite Drought Index (eCDI) in relation to the hydrological cycle and improvements made to system modeling. Strong stakeholder engagement, including through eCDI validation efforts in Jordan and Morocco supported the effort. Seasonal forecasting used global model data as inputs and refined results using regionalization and artificial intelligence techniques. Results in Morocco and Jordan are very good with additional work needed in Lebanon. DEWS information is conveyed via a web interface that enables users to show, aggregate and assess drought information in different ways to support effective decision-making.	Recording from 00:20:00 to 00:37:30 Webinar video 1
National experiences with the DEWS	Eng. Omar Hamadin (Director of Climatology, Jordanian Meteorological Department [JMD]) Eng. Hafida Bouaouda (Directorate of Strategy and Statistics, Morocco Ministry of Agriculture)	Eng. Omar – Described the role of JMD in producing the DEWS and supporting the Drought Technical Committee. Stated that developing the system improved JMD’s technical capability and also its ability to collaborate effectively with policy-focused agencies. In the future, the JMD will work on improving spatial aggregations of outputs and validating the DEWS outputs. In the longer term, the JMD wants to continue improving forecasting capability and link it to agencies’ modeling practices. Eng. Hafida – Described her role in running the system, working on validating outputs with regional government officials and how the ministry publishes the data. Discussed future objectives related to additional validation and improvements of the products to support policy implementation and insurance programs.	Recording from 00:37:30 to 00:45:00 Webinar video 1
Panel discussion	Host: Dr. Rachael McDonnell Panel members: Eng. Mona Fakhri (Director of Water Resources, Ministry of Energy and Water, Lebanon); Eng. Ali Ghanim; Eng. Fares Yahya (Directorate of Strategy and Statistics, Ministry of Agriculture, Morocco);	Question to Eng Mona: What has been your experience trying to link the technical content from the DEWS to the drought action plan? Response: The same group will work on drought monitoring and implementing the action plan. They were brought together through the project, and it’s a great mix of agencies. We gained a common understanding of issues; we put ourselves in each other’s shoes. This makes us ready to finalize those links between the monitoring and action plan when the DEWS system is fully installed and operational.	Recording from 00:45:00 to 01:00:00 Webinar video 1

Component	Speaker(s)	Summary	Link to presentation or video recording
		<p>Question to Eng. Ali: Can you describe the relationship between the Ministry of Water and Irrigation, the Jordanian Meteorological Department and the Drought Technical Committee that you lead?</p> <p>Response: Our main objective is to sustain the drought monitoring work over time. Now that we have the Committee, we try to include all stakeholders to progress the work of proactive drought risk management. We need technical support from the JMD to produce the eCDI but also involve the Ministry of Agriculture, the National Agriculture Research Centre, the Ministry of the Environment, etc., to use the information. We've used the eCDI for 2 years now and we're continuing to fine tune and customize it overtime.</p> <p>Question to Eng. Faress: Can you describe the regional network of validators and how you worked with them to assess the eCDI?.</p> <p>Response: Working on regional validation of the past version of the eCDI maps follows years of wider climate change (CC) adaptation and drought management policy implementation. We identified about 37 experienced specialists from various pastoral areas in Morocco, especially the southern and desert parts. We developed a special database and web interface to share the maps and receive the validators' feedback monthly on how precise and accurate the eCDI maps were. Then we gathered the data and worked with the IWMI specialists to analyze their feedback and determine to what extent the maps are coherent with what the local specialists noticed. The results show that maps were quite effective. Yes, there were minor defects that we can avoid simply in the next versions of the eCDI, but we're very satisfied with the results until now.</p>	
Mentimeter activity	Audience	A summary of responses is below and detailed responses are in the 'Audience inputs' section below.	Recording from 01:00:00 to 01:07:30 Webinar video 1
Keynote speaker	Eng. Faress Yahya	Eng. Faress – Described how sharing information and strong partnerships between central and local government improves the quality of information used for policy implementation, technical operations and financial planning. In particular, the DEWS is planned to support rangelands policy. More widely, the monitoring and rainfall seasonal forecasting will help with strategic planning functions. They hope to integrate several existing technical systems to produce information/alerts on food and water security that are technically sound and simple to understand.	Recording from 01:07:30 to 1:12:00 Webinar video 1
Developing drought triggers	Dr. Makram Belhaj Fraj (consultant – agronomy and vulnerability, IWMI)	Explained that drought 'triggers' are the concrete link between Pillar 1 (drought early warning systems) and Pillar 3 (policy and preparedness planning). The following was analyzed by working with the drought technical committees: drought history, typology, and impacts on key crops to determine thresholds of drought severity, extent, and duration to 'trigger' policy responses. Described how the analysis was undertaken to produce the results as well as how we worked in collaboration with drought technical committees to incorporate triggers into the drought action plans.	Recording from 1:12:00 to 1:21:30 Webinar video 1
Closing	Dr. Rachael McDonnell	Types of droughts vary significantly in impacts. Closing focused on how embedding DEWS into the policy system can happen and the novelty of what has happened through the Drought Action Plans.	Recording from 1:21:30 to end Webinar video 1
<p>Audience inputs</p> <p>Questions and comments from the audience revolved around:</p> <ol style="list-style-type: none"> 1. Technical aspects of the DEWS in relation to both monitoring and forecasting components. 2. Information dissemination from, and uses of, the DEWS data. 3. Replicability of the DEWS in other countries. <p>Mentimeter:</p> <ol style="list-style-type: none"> 1. Transferability of technologies and learnings to other countries: responses focused on capacity building and training, the criticality of adapting the system to fit the locality and its preexisting context and technological and institutional systems, and regional collaboration and knowledge-sharing platforms. 2. How audience members have worked to overcome barriers to institutionalization of regular drought monitoring to support government decision-making: responses focused on multi-stakeholder participation and interinstitutional committees, particularly official recognition of them, capacity development (human and tools), bridging the science to policy interface and agreeing on priority impacts, and issuing drought monitoring products like maps publicly. 			

Webinar 2. Embedding drought risk management in policy – September 14, 2022

Component	Speaker(s)	Summary	Link to presentation or video recording
Introduction and scene setting	Dr. Rachael McDonnell	This session focused on Pillar 3 (policy response planning) and Drought Action Plans (DAPs), which are unique in the region and innovative globally. It covered Pillar 2 (vulnerability and impact assessment) and was built off webinar 1's focus on Drought Early Warning System (DEWS). The speaker thanks the local and international partners and the funding agency (USAID) and emphasizes the collaborative development of policy plans. Video provides a summary of how DAPs function in terms of governance and in relation to the DEWS.	Recording start to 07:30; Webinar video 2 (and MENAdrought video 2)
Keynote speaker	Eng. Mona Fakh	The speaker thanked the members of the Drought Technical Committee from various ministries and agencies. Noted the role of the 2013/14 severe drought as a catalyzing event for policy development including the DAP. Expressed desire for final installation of the DEWS to embed DAP in government practice. The DAP development improved institutional collaboration and identified potential solutions for drought risk management. In the long-term, they desire to validate information from the DEWS with ground impact reporting, and implement various aspects of the DAP including governance, infrastructure development and making links with other water-related technical systems.	Recording 07:30 to 13:05 Webinar video 2
Impact and vulnerability assessments	Dr. Makram Belhaj Fraj	Spoke about impact and vulnerability assessment and stated that it is the link between Pillar 1 and Pillar 3. The webinar 1 presentation on 'drought triggers' covered some relevant content. The presentation 1.) Defines vulnerability for our purposes; 2.) Describes studies undertaken; 3.) Shows an example of drought history assessment and macroeconomic costs; 4.) Hazard maps and aspects of exposure; 5.) Factors of sensitivity to drought at the household, production unit, meso-, and macro-levels; 6.) Policy and development of coping mechanisms; 7.) Mitigation options focused on agricultural and water management.	Recording 13:05 to 27:50 Webinar video 2
Process to develop drought action plans	Guy Jobbins (consultant – policy and governance, IWMI)	Development of DAPs was the core component of Pillar 3. The presentation described: a.) Objectives – help the government to move away from reactive management responses to proactive approaches including development of specific risk management tools. b.) Engagement – works within the context of existing policy, political economy and governance: working with the grain to determine governmental priorities (differ per country). c.) The 5-step approach for DAP development: 1. Prioritize impacts 2. Determine the root causes of vulnerability to drought 3. develop potential options for preparedness, mitigation, and response 4. Screen and assess options against set criteria 5. Link actions to decision-making rubric and governance process. Steps 4 and 5 have a major focus on resourcing and responsibilities.	Recording 27:50 to 40:05 Webinar video 2
Panel discussion	Host: Dr. Youssef Brouziyne Panel members: Eng. Ali Ghanim; Eng. Mona Fakh; Eng. Faress Yahya; Guy Jobbins	Question to Mona Fakh: Describe challenges you faced in development of DAP and lessons to share related to them? Response: Organization of ideas and process is key. Guy and the DTC team were committed despite the challenges working online and our political/economic situation. Process ran well because members put on the 'hat' of managers and technical experts. We focused a lot on realistic response options that were not costly so that they can be implemented. Same question to Eng. Ali Ghanim. Response: The DAP is cross-sector. It was approved by the DTC. After getting the endorsement by the National Drought Management Committee we can refine it by focusing on the costs of response actions, and roles and responsibilities for their implementation. Question to Eng. Faress Yahya (00:51:30 – 00:58:40): Given Morocco's relatively advanced progress to implement the Three Pillars, what are your suggestions to other countries working on this theme? Response: Focusing on the agriculture sector, it is important to identify the legal and geographic context – Morocco had very severe droughts in the past 40 years which forced us to consider climate change effects earlier than other countries. We have a 2020-2030 agriculture strategy with major climate change adaptation components. Policies focus on rainfed and rangelands areas where climate change impacts are particularly severe. Through the MENAdrought project, we got the early warning systems and the monitoring on the ground. We hope to put policies around them (including seasonal forecasting) and to support crop production prediction. In irrigated areas, we are planning policies to increase water use efficiency and crop adaptation. We will emphasize food security and focus on production of plants related to food security. Lastly, the Ministry of Agriculture recently started working on the process to create a National Drought Observatory, which will allow us to bring together the many stakeholders which will support improving of the DEWS.	Recording 40:05 to 1:14:45 Webinar video 2

Component	Speaker(s)	Summary	Link to presentation or video recording
		<p>Question to Eng. Mona Fakh (00:58:40 – 01:02:45): How do you see the concrete implementation of DAP in Lebanon? Response: We face a tremendous crisis and water services are declining with fuel cost increases and currency devaluation. We have a lot of recovery to do. Most of the actions in the DAP are linked to existing policies and strategies of integrated water resources management (IWRM), climate change adaptation, population growth including from refugees. Our main concern is financing and funding of the actions. This is common in vulnerable and developing countries and institutions.</p> <p>Same question to Eng. Ali Ghanim in relation to Jordan. Response: We have chronic water stress and drought increases problems similar to what happened this year and last year. Many ministries have drought responses but we need to measure and coordinate them. There is a lot of work to put them into practice in agriculture, water, health and environment. Sometimes the financial limitations slow down actions. But now with the DEWS and monitoring system, we have good evidence. Last year, we sent our report using the eCDI to the Ministry of Agriculture and they could use it for soliciting donor aid.</p> <p>Question to Eng. Faress Yahya (01:06:15 - 01:10:45): How does MENAdrought’s work link to agricultural insurance? Response: There are subsidies to farmers for insurance on cereals and oilseeds, with over a million hectares insured. It is run by the government in collaboration with the private sector (MAMDA), and part of the indemnity payment comes from the national treasury. We use field data and other information about droughts. Using the DEWS, we are able to estimate probable effects on crops, which gives us an early view of the year. Involvement in the insurance program requires farmers to identify all the areas that will be planted. This spatial data supports us in drought impact evaluation. Working with the DEWS system including seasonal forecasting will help us improve the financial services and insurance system overall.</p> <p>Question to Guy Jobbins: What could be the role of aid agencies and NGOs in DAPs? Response: DAPs are there to coordinate risk management, so the question then is ‘at which point NGOs get involved’. During a simulation exercise with the Jordanian DTC, we found that there are lags; it takes time to mobilize international responses and they need data for justification of interventions. If responses only come long after the failed harvest, that is late. Having the DEWS linked into the DAP enables governments to send alerts to international organizations and begin discussions early. Secondly, a critical enabler of this work is having the commitment and engagement of government agencies and having champions in the agencies. They know how to progress work and make change, so we rely on them and having their involvement is key. Thank you.</p>	
Mentimeter activity	Audience	Summary of responses is below and detailed responses are in the ‘Audience inputs’ section below.	Recording 1:14:45 to 1:22:45 Webinar video 2
Closing reflections	Dr. Alona Bachi, (MENA Climate and Environment Lead, USAID); Dr. Rachael McDonnell	Spoke about the origins of the MENAdrought project which started in 2015, with testimony to the US Congress about the need for support to drought management systems in the MENA region. Challenges are great, but cost of inaction is unacceptable. The work conducted with partners in Jordan, Lebanon, and Morocco drives it and hopefully others in the future. Doing work on all Three Pillars is key. Added that navigating the science policy interface and the translational part, called the ‘valley of death’ because it’s challenging to overcome but also because it is dire if it does not succeed. The collaborative approach shown here has proven to be successful elsewhere and is now successful in the MENA region. The outcomes that were described today are a start and are looking forward to supporting similar projects in other countries. USAID takes climate change adaptation very seriously, and hoping that coming into COP27 these efforts can be expanded.	Recording 1:22:45 to end Webinar video 2
<p>Audience inputs</p> <p>Questions and comments from the audience revolved around:</p> <ol style="list-style-type: none"> 1. Policy, governance, and institutional aspects of the DAPs and more generally around drought risk management. 2. The link between the DEWS and DAPs. 3. Out scaling the efforts and transferability to other countries. 4. Drought-related economic and financial risk management matters. 5. Lessons learned and related comments. <p>Mentimeter:</p> <ol style="list-style-type: none"> 1. The transferability of processes to develop DAPs and content: Responses focused heavily on the need for human capability and capacity building, and collaborative development of policy documents to suit local contexts. 2. Barriers to developing ‘triggers’ or comparable policy mechanisms to structure governmental drought responses: Financial, political will, weak communication mechanisms (intra-government and to public), data quality and availability, and lack of successful models to replicate. 			

Synthesis of learnings

During the webinars, speakers emphasized several key learnings from the MENAdrought project. They raised these points from specific professional positions, but they are relevant to all participants in different ways:

Reiteration and reaffirmation of the importance of the project objective – enabling and supporting the shift to proactive drought risk management approaches

All speakers reaffirmed their views about the fundamental need to progress drought risk management as a critical element of climate change adaptation and more immediately, increasing societal resilience to natural hazards. Government officials from project countries described the policy context in which they work on drought risk management and the fact that they now have clear conceptual and policy frameworks that will benefit from support for implementation and translating the policy frameworks into action on the ground. Speakers and participants described these implementation efforts as crosscutting, which necessitates strong interagency interaction and some national government speakers described efforts at governmental levels to wider public interactions as well.

Intragovernmental collaboration to tackle systemic issues

Speakers emphasized that for the technical tool and policy planning development processes to be meaningful, they need to include a range of governmental participants. This set should be broad enough to be useful but not so large as to be unmanageable from the outset. They preferred to start relatively small and then expand as their experience and confidence grows.

Likewise, the speakers described the need for technical tool and policy development to be undertaken in clearly structured and iterative processes to ensure sustainability of the capacity built and to ‘embed’ both technical and policy tools in practice. This does not imply rigidity of thinking, process and practice; rather, it conveys the need for participants in the collaborative group to build a common understanding of the issues at hand and the role of the participants in dealing with issues in the status quo context.

In this way, members of the group can consider issues thoroughly from a common starting point while each member brings his/her agency’s own expertise and experience to bear. This enables creativity in technical and policy development. Creativity is what enables the group to produce useable tools (technical or policy) given the constraints they face.

For example, the speakers emphasized the need to be financially realistic when considering the plans’ response actions during times of drought; therefore, their creativity was expressed through the way in which they assessed and matched preexisting government activities, datasets, proposals and objectives to drought risk management themes.

Likewise, these threads come together in the creative ways they worked to assess and validate the drought early warning system tools based on their specific policy needs and institutional contexts. For example, the Moroccan speakers described their validation exercises that mobilized local government officials with an emphasis on rangelands impacts, which is a policy implementation focus of the Ministry of Agriculture. In contrast, part of the Jordanian validation efforts focused on determining the effectiveness of the eCDI maps in reflecting locally severe drought impacts through a detailed and focused case study.

Criticality of integrated work on Three Pillars

Speakers emphasized the necessity of integrated work on the Three Pillars of drought management, and attendees’ questions implicitly did as well. For example, audience members asked about how the drought action plans enable targeting of interventions to the most vulnerable or affected populations. IWMI presenters described how the impact and vulnerability assessments provided information on just those themes – which groups and/or sub-sectors have been most affected in past droughts and why, the underlying reasons for their vulnerability. Likewise, government officials described how the drought early warning system and action plan has helped them coordinate, rationalize and justify targeted interventions, whether through state-led action or in conjunction with private-sector intervention mechanisms.

Strategic patience and alignment

Lastly, participants’ comments described how traversing the ‘valley of death’ of the science to policy interface required strategic patience and alignment. Government officials described how their drought policy programs were launched after major droughts and that interest sometimes flagged but was revived following subsequent events.

For now, the drought early warning system and action plans are ready in the waiting. For them to be feasible and get political approval when the time is right, they need strategic alignment – this is in relation to objectives, mandates, activities, and ways of working of the participating agencies, as well as their resourcing availability, both human and financial. This is where the integration of the Three Pillars comes together, the determination of what drought preparedness, mitigation and response actions are critical, feasible and justifiable, and in relation to response actions after drought has occurred, at what thresholds of drought severity.

Audience inputs – webinar Q&A, chats and Mentimeter activities

Engagement from Webinar 1. Drought Early Warning Systems

Theme	Questions from Q&A and chat during the webinar	Arabic translation
Technical questions about the DEWS - monitoring and forecasting components		
Question	How many months in advance are you able to make predictions in Jordan? (it's 4 in Morocco)	
Answer	Yes, we do the 4 months prediction over Jordan too.	
Question	How does tensorflow help in drought monitoring? Can you please explain it.	
Answer	The tensorflow is trained during 35 years on the model's errors and it produces coefficients of calibration for all the grid points (of 5 km resolution). Then when we have a new raw forecast from the dynamical models, we then apply these coefficients and we have a corrected forecast at 5 km resolution.	
Question	My question is about the performance of composite index in drought early warning and areas for future work you identified.	
Response post-webinar	The Pillar 1 report has extensive information on this and it will be published in the near future. In short, impact and validation assessments show that the eCDI outperforms precipitation alone in terms of correlation with key crop production and yields. Future identified work is country-specific. In Jordan an emphasis on linking with regional network of reporters and eventually incorporation of hydrological modelling; in Morocco, linking crop type mapping and enhancement of the rangeland map as well as inclusion of all information into a decision-maker dashboard/web interface; in Lebanon, development of the regional network of validators and additional seasonal forecasting predictors and for the three countries. We might work on the bias correction of the rainfall product by using the available ground observations and the regionalization techniques.	
Comment	Hi Karim, great work and congrats to the MENAdrought team. I agree with Rachael, even with 2 months of reliable seasonal forecast strengthening multi-institutional coordination for timely early action to mitigate drought risk.	
Response	Many thanks. I fully agree	
Response	Please kindly note that the correlations of the seasonal forecast we presented are interannual. So if we look at the intra-annual forecast then the correlation for all the months will be higher than 90 percent.	
Question	What are the skills of Convolutional Neural Network (CNN) for the near future up to 1 month? Are they better than the 4 months? I saw the skills are comparable for the 4 regions in Morocco. Is there a reason why 4 months are comparable to 1 month lead time?	
Answer	The 4 months are comparable to 1 month because the CNN forecasts are reliable and are different from the principle of the dynamical forecast where the forecast is depending on the initial conditions.	
Question	Hi Karim, can you explain in a bit more detail why the seasonal forecasting didn't work for Lebanon?	
Answer	The seasonal forecast didn't work in Lebanon because we need to spend more time in finding the good predictors.	
Answer	In Morocco the CNN worked better because it is impacted by El Nino and the sea surface temperature of the Atlantic. An idea for Lebanon would be the use of other global models and the test of the topography and land use as inputs as well. Also we need to perform a full teleconnection study to find among the big number of predictors in a large domain, which ones are influencing more the rainfall regime in Lebanon.	

Theme	Questions from Q&A and chat during the webinar	Arabic translation
Question	How reliable is the model and how often it must be calibrated or reprogramed?	
Answer	The model is calibrated once for the full period from 2000 to 2022. However, we can always improve the tuning of the model by improving the bias correction of the rainfall product or the use of more recent satellite data (like VIIRS rather than MODIS). When we access new observations (that we didn't use in our current calibration) we might review the coefficients of the 4 inputs of the drought monitor so we can match the drought observed in the regions where we have new data or new validators. For example in Jordan, we noticed some weaknesses of the system recently in the southern regions (Tafilah) because the rainfall products are not as good as the other parts of the countries. So by implementing a network of validators we can change the weighting (according to their ground assessment) and improve the calibration of the monitor in that region.	
Question	Monthly production of eCDI drought prediction: is it not true that for instance, the 150 years parameters are changing due to CC? If it is so, should these parameters also not 'learn' from data collected to reflect the impact of CC on drought parameters?	
Answer	We use the sliding window technique whereby we produce six values per month, and so these changes over time will be captured and yes, the ranking procedures will shift over time as averages shift. Good point. In fact, we use the sliding window to produce a climatology of 6 values for each month...which leads to more than 120 values for the whole period and hence we can rank into percentiles.	
Question	What makes the prediction accuracy lower outside December-January?	
Response post-webinar	The prediction correlation is slightly lower for October and November because these are the months where the convective systems are dominant. These systems are very localized and using the synoptic predictors will not help too much! As an idea of improvement, we can add some local predictors like the topography, land use and specific humidity at the lower layer of the atmosphere.	
Questions about information dissemination and uses		
Question	Thank you Karim, how is the drought information disseminated to stakeholders?	
Answer	The drought information is produced by the national stakeholders...and we developed a web interface but it remains the decision of the national stakeholders to put it online or not.	
Question	The drought impacts farmers, pastoralists, rural communities etc., how the drought information reaches these people?	
Answer	The drought maps are not intended for the farmers etc., but mainly for decision makers, and for this the focal point institution is in charge of that.	
Answer	However, if the drought national committee decides to put the web interface online then the general public can access immediately to the drought maps.	
Question	How did data and maps help improve agricultural production or avoid damage?	
Answer	The maps cannot improve the agricultural production but they can give the decision maker a clear idea on the most damaged zones on time so they take the right mitigation decisions.	
Question	How did the data and maps help agricultural production or avoid impacts?	كيف ساعدت البيانات والخرائط على تحسين الإنتاج الزراعي أو تفادي الأضرار؟
Answer	Even early detection of drought often happens after crops have been planted, but drought maps can help mobilize early support interventions from the state.	رداً على سؤال أحمد. حتى الاكتشاف المبكر للجفاف يحدث غالباً بعد زراعة المحاصيل. لكن خرائط الجفاف يمكن أن تساعد في تعبئة الموارد للتدخلات المبكرة من الدولة.
Answer	For example, during 2021 in Jordan the Ministry of Agriculture used drought maps to justify some financial support to farmers in affected areas.	: على سبيل المثال ، في عام ٢٠٢١ ، استخدمت وزارة الزراعة في الأردن خرائط الجفاف لتبرير الدعم المالي للمزارعين في المناطق المتضررة
Question about potential replicability of the DEWS system		
Question	How applicable is the drought early warning system for other MENA countries? Are there any plans to introduce this technology elsewhere in the MENA region in the immediate future?	
Answer	Yes the model is very flexible and it is possible to use it in other countries. We are using an Foreign, Commonwealth and Development Office (FCDO) fund to set up the system for Tunisia.	

Theme	Mentimeter activity – questions and responses	Arabic translation
Question 1	In what ways are the technologies and learnings presented today transferable to other countries?	ما هي الطرق التي يمكن من خلالها نقل التقنيات والمعرفة المقدمة اليوم إلى بلدان أخرى؟
Responses	<p>Capability building is the first step.</p> <p>Up taking the good results.</p> <p>Capacity building.</p> <p>It is important to understand the existing platforms and institutional frameworks to adopt the technologies presented today.</p> <p>AI based rainfall prediction techniques are very relevant to other countries — they can then be tested and improved in their new environment.</p> <p>Knowledge sharing platforms.</p> <p>Aside from the obvious geographic limitations (country focus of the maps), the maps are highly relevant. A drought map is a straightforward tool to understand and act on if the willpower is there.</p> <p>Establishing MENA consortium.</p> <p>The technologies are used widely and it is critical to have countries interconnected. To implement, champions are needed in key agencies in each country and international platforms of exchange are required.</p> <p>The methodology is completely transferrable. However, the specifics of the models used to produce the eCDI are particular to every country/region and must be developed closely with the local stakeholders, as was the case in Jordan, Lebanon and Morocco.</p> <p>Through similar projects and webinars first I think, especially when showing evidence of success. The web interface is a great way also.</p> <p>Through regional meetings and trainings. It is very important to share the experiences between countries through regional meetings.</p> <p>Segregated and derived products.</p> <p>Other countries such as in Central Asia, Nile Basin and sub-Saharan Africa countries, need to have their own systems for DEWS including seasonal forecasting. National Drought Technical Committees composed of capable engineers can be trained.</p> <p>Likely transferable, but with a research within itself as to what weighting to give to the drought index. For example, over a tropical country like India (with high spatial variability within itself) and for South Africa.</p> <p>Sharing the experiences with them live.</p> <p>Sharing knowledge with young graduates and university students</p>	<p>مشاركة المعرفة مع الشباب حديثي التخرج و طلاب الجامعات</p>
Question 2	How have you worked to overcome barriers to institutionalize regular drought monitoring that supports government decision-making?	كيف عملت للتغلب على العوائق التي تحول دون إضفاء الطابع المؤسسي على مراقبة الجفاف المنتظمة التي تدعم اتخاذ القرارات الحكومية؟
Responses	<p>Involving stakeholders from the start in needs-assessment, solution development and implementation stage.</p> <p>Through committees from different related institutions.</p> <p>Capacity development in disaster risk reduction and digital tools for prediction. Enhance cross-sectoral collaboration for preparedness.</p> <p>Help connect policy makers to continuously improve cutting edge science.</p> <p>To build a common platform for further discussion and involve them in the next level of the development.</p> <p>Being a focal point for the drought committee makes it easier.</p> <p>By creating the drought technical committee from the different ministries, but it still needs to be official.</p> <p>Agreeing on priority impacts and understanding of various interventions and coordination.</p> <p>In Lebanon we did not overcome the barriers yet. Completing the link between the DEWS and the DAP will show that we've overcome the barrier.</p> <p>The meetings of the group have improved institutional relationships and enriched our understanding of each other's experience. This leads to every person in the group going back to his institution [and being able to share the important information].</p> <p>Help in issuing drought maps for the region and Jordan.</p>	<p>المساعدة في إصدار الخرائط الخاصة بالجفاف لمنطقة الأردن</p>

Engagement from Webinar 2 – Embedding drought risk management in policy

Note. no audience responses were in Arabic

Theme	Questions from Q&A and chat during the webinar
Policy, governance and institutional involvement aspects of DAP and drought risk management	
Question	For the DAP committee are all stakeholders represented i.e. MWI and MOA MOEnv, Farmers CBOs NGOs?
Answer	We are working with USAID Jordan and the Chief of Party/team of the new Water Governance project there, to take the drought work into their developments. So drought planning/policy/early warning systems will be embedded into these strengthened water policies and governance.
Response post-webinar	The Jordanian Drought Technical Committee (DTC) is a governmental body with members from multiple ministries and an advisor from Jordan University. The project's needs assessment and impact and vulnerability assessments informed the work of the DTC and development of the DAP and they used participatory research methods that included a wide range of stakeholders, particularly from rural agricultural communities.
Question	Another question about the role of NGOs (humanitarian and development) in this project as we saw it was limited between IWMI, governmental bodies and academics/institutes.
Response post-webinar	See the response above - development of the DAPs was undertaken entirely by government agencies, but their work was informed by needs stated by, and other information sourced from, a range of stakeholders including local and international NGOs, private sector actors, academia, and civil society organizations especially including farmers unions and agriculture-related professional associations.
Question	Thanks for the clear presentation of the process of studying vulnerabilities and supporting drought action plans. It is impressive to see how many complexities were taken on board when considering institutional legacies and existing relationships between agencies and stakeholders. How would you suggest that students approach this task when they are looking at the second and third pillar of drought management? Is there a simplified framework for doing this? If so, what are the challenges
Answer	The IDMP 3 pillars framework is an excellent first overview. Then each pillar has its own specificities. But this work has to be place- and context-specific. The impacts and vulnerabilities of relevance to stakeholders in each country will be unique. So the first guidance is to go in open-minded because you will be working with various groups all with their own context.
Answer	In terms of academic frameworks of relevance, we are writing up our final reports (some are already published), which includes some description of these matters. They will be published within the next few months. There is relatively little academic literature from this region on this type of integrated science to policy planning.
Response to Answer	These case studies will help with the theory-building. I will direct my students to the publications.
Question	How about a recovery plan as part of the strategy?
Answer	Yes, that is part of the action plan.
Follow up comment	What to do once the drought has happened is equally important to plan.
Follow up response	It is. The Drought Action Plans include preparedness and mitigation, and response actions for priority impacts on water, agriculture, health...
Question	Do we accept that the water polices and strategies for water, agriculture and climate change will be modified in the targeted countries soon?
Answer	Yes, we need to update water, agriculture and climate adaptation policies -and energy too - as the changes we are witnessing in the region demands, different actions are taken. This means looking at mitigation activities and any incentives that are needed to help these solutions to be taken up.
Question	Can you share with us one example for the prepared DAP to see its elements?
Response post-webinar	The DAPs are government documents, and therefore the decision to publish them rests with the ministries and agencies concerned: the Ministry of Water and Irrigation in Jordan, the Ministry of Energy and Water in Lebanon, and the Agence de Bassin Hydraulique Souss-Massa in Morocco.
Link between Drought Early Warning System and Drought Action Plans	
Question	US NDMC input into CDI seems to be an important and influential step into drought action planning and policy reform in MENA - a similar approach is used in Queensland Australia - Q - to what extent do the committees use the eCDI to implement the recommendations and government response?
Answer	US NDMC has been critical to bringing international experience to the MENA region. IWMI has worked with them but also the local partners as everything has to be adapted to the local conditions - climate, environment, social, economic and political. Drought is also specific to an area.
Comment	Effective drought plans should include early warning systems implemented to initiate response or mitigation actions in the event of drought. Early warning systems may include, for example, the initiation of water restrictions when a community's water supply reservoir reaches a certain level.
Response	The DAPs are linked to the early warning systems that were the topic of the first webinar. In short, there is a drought map generated monthly based on a composite drought index produced using remote sensing and modelling data. In the Jordan and Lebanon DAPs, that information goes to the Drought Technical Committee. They have 'triggers' for drought classes that reflect severity of drought and the institutional components of response.

Theme	Questions from Q&A and chat during the webinar
Question	Is the DAP linked to an Early Warning System?
Answer	The drought early warning system is linked to the drought action plan - the different classes of drought shown on the maps trigger the actions in the areas identified.
Answer	Drought maps are generated on monthly basis using the DEWS and discussed by the Drought Technical Committee to check drought triggers applicability and customize response actions according to the DAP response escalating ladder.
Out scaling the efforts and transferability to other countries	
Question	My question is how the international community can help to build a drought resilient nation where the government in charge is highly volatile and not recognized by international community like the Taliban in Afghanistan and Houthis in Yemen?
Answer	Many thanks indeed for this important question. We know that droughts can compound other crises, such as conflict, and the combined effects can be profound - this happened in Syria in 2014. In short, it is very difficult. As you know, most international donors will not fund such work due to sanctions. However, some humanitarian organizations can work in such environments because of their neutrality principles. ICRC is an example - they have done some excellent work on water management - and capacity building for water management - in conflict situations such as Syria (I recommend you read that - I will try to post some links). It might be that humanitarian organizations like ICRC could engage with authorities such as the Taliban and Houthis on drought risk management. I hope this is helpful.
Question	In what ways to mitigate/action plans on agricultural drought in developing countries like Pakistan?
Answer	The IWMI Pakistan office can help with this.
Question	Is there any plan to build on this success to target new countries in the MENA such as Iraq, Syria, etc.?
Answer	IWMI would be happy to work with any country that also requires integrated drought risk management. The funding by USAID has been critical to supporting the steps taken in Morocco, Jordan and Lebanon, and IWMI would be happy to work with any funding organization identified for these new countries.
Drought-related economic and financial risk management matters	
Question	Are there economic assessments of the cost-of inaction compared to the toll of drought in financial terms and the environment co-benefits of preparedness?
Answer	Our economic analyses did not try to create a counterfactual and specifically determine the cost of inaction. Rather, we evaluated damages and/or costs incurred by drought impacts. This did include some aspects of ecosystem services in Morocco such as those related to forest fires and water quality themes.
Answer	The IDMP has two excellent reports on that theme of the cost of inaction. We incorporated some elements but were unable to include all.
Follow-up question	Thanks. I presume such encourage investments in forecasting, anticipating, mitigation and recovery.
Answer	The DAPs include components related to environmental monitoring and modelling as well as socioeconomic impact reporting that relate to these matters, as well as sector-specific regulatory reform and/or strategies and plans. The implementation of DAP components is dependent on future funding and decisions-making.
Question 1	How far has the region moved into drought risk transfer through insurance, for instance?
Answer 1	La Mamda drought insurance in Morocco is an important example of one form of drought financial risk mitigation - https://www.mamda-mcma.ma/fr -- it needs suitable financial enabling environment to implement.
Response to Answer	There is a wealth of experience worldwide on how to tap into that knowledge base. Morocco's small and bold steps are a good example to bring to discussion.
Response to Answer	There are some exchange visits between Morocco and Egypt to learn from Morocco's experience. IWMI can help bring in and share the learning from global experiences. GIZ work on this is immense. Australia, California too.
Answer 2	We conducted initial market assessments in Jordan to identify existing capacities, gaps and opportunities when discussing with all market actors involved in the supporting functions, norms and rules. We have shortlisted three solutions that are applicable in Jordan. The plan is to move forward to pitching collaboration. For this we are initiating discussions with development agencies.
Response to Answer 2	May be topping up the project activities if possible, on countries capacity building in risk transfer through innovative forms of insurance.
Response to Answer 2	Hope one outcome of this project will be how to cope with the financial challenges facing the countries in the MENA region.
Follow-up question	Are there any resources (to read for example) about the insurance that Mr. Fares is telling us about?
Answer 3	The website is here https://www.mamda-mcma.ma/fr ; It is an excellent scheme that has been working since the 1990s.
Lessons learned and related comments	
Question	What are the lessons learned from this project that we should take into account for future programming?
Answered in speech	<ol style="list-style-type: none"> 1. Be patient, ensure everyone is involved and that there's ownership as part of the process. 2. Be flexible as political and bureaucratic leaders change. 3. Leverage events to catalyze action. Nobody wants a drought, but when it occurs, it's amazing how quickly you can get that response. 4. Our work has tried to empower self-reliance. 5. Long-term engagement by USAID. We've done this over 7 years -we couldn't have done it in 2 or 3.

Theme	Questions from Q&A and chat during the webinar
Comment	I wanted to share here WFP's recent publication on the state of anticipatory action in the MENA region, which focuses on the broader DRM for anticipatory action and includes a chapter on the regional integration of risks including drought in policy and planning, financing, and delivery to early action - and includes spotlights on projects including the MENAdrought project. Link: https://www.wfp.org/publications/anticipatory-action-mena-region-state-play-and-accelerating-action
Theme	Mentimeter activity
Question 1	In what ways are the processes to develop drought action plans, and the actual format and content of them transferable to other countries? ماهي الوسائل التي يمكن من خلالها نقل عمليات وضع خطط العمل الخاصة بالجفاف ، وكذلك شكلها ومحتواها ، إلى بلدان أخرى؟
Responses	<p>Workshops, training sessions, conferences paper, sharing via websites.</p> <p>The transferability is quite limited, in my opinion, due to variation in political institutions and also climate conditions, societal vulnerability and the occurrence of drought.</p> <p>Workshops and trainings and site visits.</p> <p>Exchanging experts via countries. Online webinars.</p> <p>Collaboration both national and regional level - like Afghanistan.</p> <p>Ownership of systems and participatory development.</p> <p>We want them to be, but it needs good investment of time and resources.</p> <p>Expert missions, study tours, delegations, online conferences, training opportunities.</p> <p>Training on approaches and models for context adaptation.</p> <p>Well, bridging the analysis by some type of organization already existing in different countries can help in transmission of information regarding DAP.</p> <p>The technology-based integrated process can be applied elsewhere, but it needs adaptation to each local context.</p> <p>Showcase successful implementation of DAP in a country.</p> <p>Spatial database format that is compatible with GIS tools.</p>
Question 2	What are the major barriers to developing 'triggers' or comparable policy mechanisms to structure governmental decision-making about drought responses? ما هي العقبات الرئيسية التي تحول دون تطوير هذه المحفزات أو وضع آليات سياسات مماثلة لهيكله صنع القرار الحكومي بشأن الاستجابات للجفاف؟
Responses	<p>Financial challenges and having real success models to encourage practicing.</p> <p>Hierarchy in government bodies on implementation of action, weak communication mechanism, financial allotments.</p> <p>Lack of capacity to understand the drought processes.</p> <p>There is no strong willingness from policymakers to apply DAP (political choices). Financial support is weak.</p> <p>Sufficient financing, synchronization between the sectors/governmental organizations, political will.</p> <p>Continuous quality checked records/data/information on agricultural and water statistics (secondary data). No dedicated drought impact reporting.</p> <p>Agreement on indicators is challenging; agencies might rely on different ones.</p> <p>The specificity of each context; harmonization of triggers among partners.</p> <p>Major barriers to uptake of whatever solutions projects can offer. We must make sure that solutions to drought are driven by a demand from those that have power and interest to implement solutions.</p> <p>Guidelines for action plan and even for the wholly system of connecting the early warning system with the right action plan with related sustainable financing training and capacity building is very important to show.</p> <p>The political will and financing besides.</p> <p>Political and financial.</p>

MENAdrought Webinar Miniseries Summary Report



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