

# Africa and MENA Regions (2020)

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## 1 Disaster Situation in the Africa Region in 2020

2020 heralded the mother-of-all crises – the COVID-19 pandemic – that impacted all countries in Africa, leading to loss of life, jobs, livelihoods and the crashing of economies, increasing poverty/destitution. This health crisis exposed Africa's disaster unpreparedness and exacerbated the continuing challenge of natural disasters in the continent, as discussed below.

Africa continues to face hazard risks that lead to disasters, with the continent recording 80 natural disasters in the year 2020.<sup>1</sup> The majority of these were hydrometeorological, with storms, floods and mud/landslides forming 85.5% of the disasters experienced; droughts at 7.5%; biological disasters such as pandemics at 3.75%; and geophysical disasters like earthquakes at 1.25%.<sup>2</sup> These disasters affected a total of 21,911,832 people, with a total of 1,518 deaths, 2,083 injuries, 655,253 displaced, and a total damage of US\$ 444,000,000.<sup>3</sup>

In the East African region, droughts juxtaposed with flash flooding continue to be the major disaster challenge. Burundi experienced floods and landslides resulting from torrential rains, which, coupled with the high level of existing conflict displacement and the COVID-19 pandemic, eroded livelihoods and led to increased hunger, with over 2.3 million people in need of urgent humanitarian assistance.<sup>4</sup> The humanitarian situation in Burundi was further worsened by the existing malaria epidemic and the threat of Ebola infections from the neighbouring DRC.<sup>5</sup>

In the Central African region, the main challenge has been drought due to failing rains. In the Central African Republic (CAR), lack of rainfall, the fall army worm menace and desert locust invasion has placed over 1.93 million

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1 EM-Dat 'The international disaster database', at <<https://www.emdat.be/database>> last accessed (as any subsequent URL) on 20 June 2021.

2 *Ibid.*

3 *Ibid.*

4 CARE, '10 most under-reported humanitarian crises of 2020', (2020) at <[https://insights.careinternational.org.uk/media/k2/attachments/CARE\\_10-most-underreported-humanitarian-crises-2020.pdf](https://insights.careinternational.org.uk/media/k2/attachments/CARE_10-most-underreported-humanitarian-crises-2020.pdf)>.

5 *Ibid.*

people at the risk of starvation.<sup>6</sup> Humanitarian assistance challenges caused by a raging conflict and the COVID-19 pandemic has made it almost impossible for relief support to this population, with CAR being considered as one of the most dangerous countries in the world for humanitarian relief activities.<sup>7</sup>

Southern Africa continues to experience drought conditions as a result of the manifesting adverse effects of climate change. For example, Madagascar has experienced recurrent, protracted drought (placing over 120,000 children under five at risk of acute malnutrition) while also facing an average of 1.5 cyclones per year (the highest rate in Africa) that brings with it torrential rains over short periods of time and its attendant flooding.<sup>8</sup> On 22 January 2020, cyclonic circulation called *Zone de Convergence Inter-Tropicale* made landfall on the West Coast of Madagascar, with the resulting flooding affecting over 13 districts, leading to the death of over 35 people, displaced 16,031 people and affected over 106,846 others while also damaging infrastructure, with 67 schools completely destroyed and another 28 schools partly destroyed.<sup>9</sup> This devastation led to the governmental declaration of a state of emergency. Madagascar was also affected by malaria (over 398 deaths in 2020), dengue, measles, bubonic and pneumonic epidemics, with over a third of the population (over 5 million people) directly affected by recurring natural disasters.<sup>10</sup>

In the near-North, Sudan was affected by record-breaking heavy flooding between July and October 2020, affecting over 1,034,000 people along the Blue Nile whose waters rose almost 58 feet (17.58 meters), the highest it has risen in more than 100 years.<sup>11</sup> The floods led to the death of over 143 people and injury to many others, total and partial damage of over 170,000 homes across 16 devolved states of Sudan, and exposed over 10 million people to the risk of water-borne diseases and 4.3 million more to vector-borne diseases.<sup>12</sup> The flooding also adversely impacted livelihoods and food security, with over 108,000 heads of livestock lost, 5.4 million acres of cropland was flooded, and over 1.1 million tonnes of grain were destroyed, increasing the number of people facing acute food insecurity to 9.6 million.<sup>13</sup>

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6 *Ibid.*

7 *Ibid.*

8 *Ibid.*

9 IFRC, 'Operations update 2 Madagascar: Heavy rains, floods and land slides', 16 September 2020, at <<https://reliefweb.int/sites/reliefweb.int/files/resources/MDRMG0166m.pdf>>.

10 *Ibid.*

11 Centre for Disaster Philanthropy, 'Sudan flooding' (July 2020), at <<https://disasterphilanthropy.org/disaster/sudan-flooding/>>.

12 *Ibid.*

13 *Ibid.*

## 2 Disaster Prevention and Response in the Africa Region in 2020

In the context of legal development, the African Union Commission (AUC) adopted in 2017 a Plan of Action (POA) for the Implementation of the Sendai Framework and established a biennial reporting framework. The first biennial report under the POA covering periods between 2015–2018 was released in August 2020.<sup>14</sup> The Report notes the overall increase in hazard risks in all regions of Africa, especially in the Southern and Central African regions, as represented by the risk and exposure index in the table below:

| REC/Region   | 2015       |                | 2016       |                | 2017       |                | 2018       |                |
|--------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|
|              | Risk index | Exposure index | Risk index | Exposure index | Risk index | Exposure index | Risk index | Exposure index |
| EAC          | 5.9        | 4.8            | 6.0        | 4.8            | 6.4        | 5.9            | 6.2        | 5.5            |
| ECCAS        | 3.2        | 3.5            | 4.9        | 5.5            | 5.5        | 5.4            | 5.4        | 5.5            |
| ECOWAS       | 4.5        | 2.7            | 4.4        | 2.7            | 4.9        | 3.6            | 5.0        | 3.7            |
| IGAD         | 6.5        | 5.6            | 6.5        | 5.5            | 6.8        | 6.2            | 6.8        | 6.1            |
| NORTH AFRICA | 4.3        | 4.2            | 4.3        | 4.2            | 4.6        | 5.6            | 4.5        | 5.3            |
| SADC AFRICA  | 4.3        | 3.2            | 4.1        | 2.4            | 4.3        | 3.0            | 4.4        | 3.4            |
| AFRICA       | 4.8        | 4.0            | 5.0        | 4.2            | 5.4        | 5.0            | 5.4        | 4.9            |

These findings are in tandem with the 2018, 2019 and this current 2020 version of this Africa/MENA Region practice section that has detailed an increase in hazard risks and disaster occurrences in the two regions. These disasters have led to greater mortality (31.710 in 2015–2016 to 36.287 in 2017–2018) and, increased loss and damage (US\$2.84 billion in 2015–2016 to US\$8.14 billion in 2017–2018).<sup>15</sup> The Report also affirms the limited movement in the development of legal, policy and strategic frameworks for DRR in the region, with only 5% of countries having Sendai-compliant DRR strategies, 77% having

14 AUC, 'Biennial Report on the Programme of Action for the Implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030 in Africa for 2015–2018', (August 2020), at <[https://au.int/sites/default/files/documents/38982-doc1st\\_africas\\_biennial\\_report\\_on\\_disaster\\_risk\\_reduction\\_synopsis\\_report\\_english.pdf](https://au.int/sites/default/files/documents/38982-doc1st_africas_biennial_report_on_disaster_risk_reduction_synopsis_report_english.pdf)>.

15 *Ibid.*

partially-compliant strategies and 18% having no strategies at all.<sup>16</sup> This call for more concerted efforts to develop and effectively implement Sendai-compliant legal and policy frameworks to meet Target E of the Sendai Framework.

In 2020, the COVID-19 pandemic has generally affected DRR/M activities in the continent, with most of the governmental efforts and resources having been channelled towards pandemic response. The African Union has tried to organise COVID-19 response efforts through the African Centre for Disease Control and Protection that has engaged in data collection, experience sharing, coordination of material and financial support for response, and vaccine development/distribution.<sup>17</sup> The AU established a COVID-19 Response Fund whose objectives were to address the socio-economic and humanitarian challenges arising from the pandemic and enhance Africa CDC's health response to the pandemic.<sup>18</sup> A seed money of US\$12.5 million was availed by the AU for the Fund, and a call sent out to development partners to contribute to the Fund.<sup>19</sup>

Despite these regional efforts, financing for DRR/M at the national level still remains dismal, with many countries earmarking less than 4% of their annual national budgets on DRR/M.<sup>20</sup> The need for more national level resourcing for DRR/M was stated by the Head of UNDRR Africa, Mr. Amjad, as follows:<sup>21</sup>

With the social-economic impacts of the COVID-19 crisis and the ongoing climate emergency, it is becoming increasingly evident that governments need to increase budgetary allocations for disaster risk reduction and climate change adaptation.

The minimal national DRR/M financing led to a two-day conference organised by UNDRR-Africa and UNDP on budget expenditure tracking and public expenditure review at the national level to ensure that sufficient DRR actors at the national level are able to harness the national budgeting process for DRR financing.<sup>22</sup>

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16 *Ibid.*

17 See <<https://africacdc.org/covid-19/>>.

18 AU, 'Decision on the Establishment of the African Union COVID-19 Response Fund', (April 2020) at <[https://au.int/sites/default/files/decisions/38512-decisions\\_covid\\_19\\_en.pdf](https://au.int/sites/default/files/decisions/38512-decisions_covid_19_en.pdf)>.

19 *Ibid.*

20 UNDRR-Africa 'Decoding public finance for disaster risk reduction and climate investment', (11 February 2021) at <<https://www.undrr.org/news/decoding-public-finance-disaster-risk-reduction-and-climate-investments>>.

21 *Ibid.*

22 *Ibid.*

In the context of minimal national funding, partners such as the African Development Bank have strived to avail resources for DRR/M in the continent, allocating US\$10 billion for DRR/M to help AU Member States manage the COVID-19 pandemic and other disasters in the continent.<sup>23</sup> The World Bank earmarked about US\$50 billion to Africa to manage the COVID-19 pandemic, with the key focus areas being saving lives, protecting livelihoods and securing the future.<sup>24</sup> The Government of Italy provided a euro 3 million support to the African Centre of Meteorological Application for Development to implement a multi-hazard Early Warning System in several African countries.<sup>25</sup> The need for the development of Early Warning capabilities in Africa for effective DRR/M was stated by the UNDRR Global Head, Ms. Mami Mizutori, as follows:<sup>26</sup>

We need to move from managing disasters to managing risk if we are to prevent disaster losses. Multi-hazard early warning systems are a central component of that shift. We thank the Government of Italy for its commitment and support and the African Union Commission for its ongoing collaboration in this ambitious transboundary approach to disaster risk management.

This project will establish a 24/7 situation room in the AU Headquarters to monitor, gather, evaluate and disseminate weather-related risk data on ongoing and potential future hazards for a better coordinated prevention, preparation and response to weather-related hazards affecting the continent.

The development of early warning and prevention capabilities in the continent was further bolstered by the European Union funded “Building Disaster Resilience to Natural Hazards in sub-Saharan African Regions, Countries and Communities” programme. The Programme developed country-level quantitative disaster risk profiles of 16 African countries for floods and droughts using probabilistic approaches combined with DRR-sensitive national budgetary analysis.<sup>27</sup> The essence of this profiling was to inform holistic, inclusive

23 UNDRR-Africa ‘1st virtual Africa Working Group on Disaster Risk Reduction’, (July 2020) at <<https://www.undrr.org/publication/1st-virtual-africa-working-group-disaster-risk-reduction>>.

24 *Ibid.*

25 UNDRR-Africa ‘2nd Virtual Africa Working Group on Disaster Risk Reduction’, (October 2020) at <<https://www.undrr.org/publication/2nd-virtual-africa-working-group-disaster-risk-reduction>>.

26 *Ibid.*

27 UNDRR-Africa ‘4th webinar – using risk information and disaster risk profiles to inform DRR and decision-making: The Africa Road Map’ (November 2020) <https://www.preventionweb.net/events/view/74528?id=74528>.

and actionable strategies for DRR, climate change adaptation and sustainable development in the target countries. The Programme produced a Road Map for Improving Availability, Access and Use of Disaster Risk Information for Early Warning and Early Action, which identifies activities and practical recommendations for the prevention and response to hazard risks at the continental, regional and national levels.<sup>28</sup> A webinar was organised on 10 November 2020 to explore how to better utilise the risk profiles and the Road Map to enhance the DRR agenda in the continent. Despite these many efforts and external financing, the political will for DRR/M in the continent has generally been lacking, leading to the prevailing disaster risks in the continent.

At the institutional level, efforts have been made by the different DRR-M institutions in Africa to progress their work despite the COVID-19 restrictions. On 23 July 2020, the Africa Working Group on DRR (AWGDRR) held a virtual one-day dialogue.<sup>29</sup> Key deliberations included support for African countries to recover and build-back-better post COVID-19 and other disasters affecting the continent in 2020, such as floods, droughts, locust invasion, and health-related epidemics.<sup>30</sup> The action points resulting from the meeting were: increased support for advocacy and awareness raising on DRR/M, with AWGDRR as the champion for disaster and climate resilience; increased resource mobilisation for enhanced DRR/M; capacity building to enhance prevention and response and to improve risk governance; better understanding and management of systemic hazard risks; and, strengthening coordination and early warning mechanisms.<sup>31</sup>

The July meeting was followed by a 2nd Virtual Meeting of the AWGDRR on 22 October 2020.<sup>32</sup> The virtual meeting was to assess progress made on the implementation of the focus areas identified in the first virtual meeting in July 2020 and to monitor the progress made in the implementation of the Sendai Framework, especially the requirement for countries to have national and local level DRR strategies by 2020. The meeting noted progress in capacity building for Member States and RECS on DRR/M; the support by the Italian Government in the establishment of continental early warning system and support by the Government of Sweden for the Early Warning, Early Action Programme in the Horn of Africa region; as well as provision of US\$12 billion by the World Bank towards COVID-19 response in the continent.<sup>33</sup> On

28 *Ibid.*

29 UNDRR-Africa, July 2020 (n 23 above).

30 *Ibid.*

31 *Ibid.*

32 UNDRR-Africa, October 2020 (n 25 above).

33 *Ibid.*

the development of DRR/M strategies, it was reported that at least 33 States had either developed (19 countries) or were in the process of developing (14 countries) their DRR/M strategies as per the requirements of the Sendai Framework target (e).<sup>34</sup> Despite this progress, the meeting noted the need for more effort to achieve the previous action points and also identified further action points to be addressed, which included: increased support to States in DRR/M resource mobilisation; increased capacity building for disaster and climate resilience in the continent; accelerated development of inclusive DRR/M strategies and plans of action at national and local levels; increased support to enhance implementation of DRR/M strategies adopted at national/local levels; better reporting using the online Sendai Monitor; and increased engagement of local-level governance frameworks and communities in DRR/M.<sup>35</sup>

On the basis of the two meetings and the limited progress made on the implementation of the key focus areas from the first virtual meeting to the 2nd virtual meeting, it is clear that not enough effort has been expended towards efficiently implementing programmes for effective DRR/M in the continent. There is thus a need for more focus on the actual implementation of the envisaged activities in the focus areas to make the continent and its inhabitants truly disaster and climate resilient in the short, medium and long term. This can only be done if there is a true partnership with the local communities, especially those most under threat of hazard risks. There is also a need for the greater involvement of the local level governance structures that are closest to the people and have a better understanding of the disaster profiles of their local areas and are thus better able to conceptualise workable measures to prevent hazard risks and effectively respond to hazard occurrences in a rapid manner so as to prevent hazards from becoming disasters.

### 3 Climate and Disaster Situation in the MENA Region

The MENA region continues to experience natural disasters such as droughts, floods, water scarcity, heatwaves, sandstorms and extreme winters. These disasters have caused untold human suffering due to inadequate DRR/M infrastructure/capacity, lack of sufficient human and material resources to adequately respond to disasters when they occur, environmental degradation and rapid urbanisation that has led to overcrowding and settlement in hazard-prone areas. These disasters have combined with the COVID-19

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34 *Ibid.*

35 *Ibid.*

pandemic and the ongoing conflicts to cause massive human suffering in the year 2020.

Climate change is playing a significant role in these disasters through declining winter precipitation increasing periods of drought that have entrenched chronic water scarcity in one of the world's most water-stressed region.<sup>36</sup> This water scarcity and the resulting competition for available fresh water resources has seen tensions rise between countries, with Egypt and Sudan locked in a tense negotiation for water rights with Ethiopia resulting from Ethiopia's building of the Grand Renaissance Dam (GERD) on the Blue Nile.<sup>37</sup> It is not clear how the completion and operationalisation of the Dam will affect the sustainability of livelihoods and availability of water in Egypt and Sudan, countries that already experience severe water scarcity and that have recognised the Dam as an existential threat.

Climate change has also entrenched extreme weather events that have become hazardous in the region. On 12–14 March 2020, the region experienced the powerful “Dragon Storm”, a mid-latitude 480km wide cyclone characterised by torrential rains, lightning, hail, flooding, destructive winds (60–75 mph/over 100km/h) and towering dust/sandstorms<sup>38</sup> that affected Egypt, Israel, Lebanon, Jordan, Syria, Palestine, Iraq and Northern Saudi Arabia.<sup>39</sup> The storm was estimated to be six standard deviations from normal for the region and time of year, with the resulting rain being referred to as ‘the heaviest rain in recent memory’.<sup>40</sup> The tempest led to the declaration of a state of emergency in Egypt, resulting in the closure of schools, offices, rails, seaports and airports, as well as power outages, water disruptions and infrastructure damage.<sup>41</sup> The death of at least 21 people was reported in Egypt, with another 20,000 people being affected directly by the floods through the destruction of their houses,

36 King Marcus and Lehanne Rianna, ‘Drought leading to instability and water weaponization in the Middle East and North Africa’ (April 2021) available at <<https://www.preventionweb.net/news/view/77581>>.

37 John Mbaku, ‘The controversy over the Grand Ethiopian Renaissance Dam’ (August 2020) available at <<https://www.brookings.edu/blog/africa-in-focus/2020/08/05/the-controversy-over-the-grand-ethiopian-renaissance-dam>>.

38 CNN Weather, ‘A rare hurricane-like storm in the Mediterranean threatens Egypt and Israel’, 25 October 2019, <https://edition.cnn.com/2019/10/25/weather/medicane-mediterranean-storm-egypt-israel-wxc/index.html>.

39 *Ibid.*

40 Arab News ‘Egypt to make use of “Dragon Storm” water’, 17 March 2020, available at <<https://www.arabnews.com/node/1642391/middle-east>>.

41 NOAA, ‘Powerful “Dragon” storm hits Egypt while Israel prepares for impact’, 13 March 2020, available at <<https://www.nesdis.noaa.gov/content/powerful-%E2%80%9Cdragon-%E2%80%9D-storm-hits-egypt-while-israel-prepares-impact>>.



and even more people were adversely impacted by the heavy wall of dust as a result of the accompanying sandstorm. The Egyptian Government placed the preliminary cost of the losses resulting from the storm at EGP 1.2 billion.<sup>42</sup> Though there is consensus on the need for an upgrade of disaster prevention and response infrastructure to manage such tempests in the future, the costs are prohibitive, taking into account the prevailing risks of rain occurring only about 8 days in a year, with the Egyptian Cabinet Spokesperson, Nader Saad, stating as follows:<sup>43</sup>

A lack of a rainwater drainage system in Egypt is a crucial problem, but building such a system in Greater Cairo would cost between EGP 200–300 bn.

These regional level hazards would need regional level responses within the MENA region, with the institutional frameworks being improved to respond adequately to the climate and disaster challenges. This collective action is critical as scientific evidence points to the doubling of future Mediane occurrences as a result of climate change.<sup>44</sup>

MENA Region also experienced man-made disasters, with the most poignant one being the Beirut double explosion of the 4th August 2020.<sup>45</sup> The explosion, the equivalent of a 3.3 magnitude earthquake, led to massive devastation: death of over 200 people, injury to over 6,500 people, destruction of critical infrastructure/settlement (70,000 homes damaged, leaving over 300,000 people homeless), and affected more than 70% of buildings in Beirut.<sup>46</sup> The cost of loss and damage resulting from the explosion is estimated at US\$10–15 billion, with insured loss ranging from US\$2–3.5 billion.<sup>47</sup> The explosion exacerbated the hazard risk situation in Lebanon, with COVID-19 cases rising to 180,000 by December 2020, an increase of nearly 36 times the number of cases before the explosion.<sup>48</sup> The repeated negligent handling of the hazardous material lead-

42 ACT Alliance 'Flood emergency in Egypt – Rapid Response Fund' (June 2020) 1–7, <https://actalliance.org/wp-content/uploads/2020/06/RRF03-Floods-Emergency-in-Egypt.pdf>.

43 *Ibid.*

44 R. Romero and K. Emmanuel, 'Climate change and hurricane-like extratropical cyclones: Projections for North Atlantic Polar Lows and Medicanes based on CMIP5 Models' (2017) 30 *Journal of Climate* 279–299.

45 See an elaborate discussion of the legal implications of the Beirut Explosion in Silvia Venier's paper above.

46 Centre for Disaster Philanthropy 'Beirut explosion' (August 2020), available at <<https://disasterphilanthropy.org/disaster/beirut-explosion/>>.

47 *Ibid.*

48 *Ibid.*

ing to the explosion, and the lack of effecting disaster management framework and financing by the Lebanese Government was laid bare by this occurrence.<sup>49</sup> It also exposed the limited capacity of the League of Arab States for rapid disaster response.<sup>50</sup> We look at some of the disaster-related interventions by institutions to improve disaster prevention, response and relief in the region in the next section.

#### 4 Disaster Prevention and Response in MENA in 2020

The COVID-19 pandemic has meant that most disaster prevention activities and funding, as well as other humanitarian operations and programmes, have been suspended in the region. This has mainly been due to the containment measures that have been put in place to prevent/reduce contagion, but also the re-direction of disaster funding to health emergency to respond to the pandemic. Efforts have, however, been made by regional DRR institutions to continue their work towards the realisation of the targets of the Sendai Framework, as discussed below.

In November 2020, the League of Arab States, in Collaboration with UNDRR Regional Office for Arab States, held the bi-annual Arab Partnership for DRR Group Meeting. The Meeting noted that some progress had been made in the implementation of the Arab Strategy for DRR 2030 and its Prioritised Action Plan 2018–2020, but acknowledged that challenges to effective implementation still persist and that there was thus need for more collective and coordinated efforts to advance DRR in the region.<sup>51</sup> To document progress, the Meeting agreed that there was a need for an extensive evaluation of the implementation of the Prioritised Action Plan 2018–2020, and the lessons learnt from this exercise to be the basis for the development of the subsequent Prioritised Action Plan 2021–2024. This draft Action Plan 2021–2024 is then to be subjected to deliberations and adoptions by the League of Arab States in the planned 5th Arab Regional Platform for DRR in the latter parts of 2021. The Meeting also agreed that there was need to develop a Guiding Note on Integrating Biological Hazards in DRR Action in the MENA Region, which would be a joint effort

49 Solana Javier 'Lebanon needs a new start' (20 August 2020), available at <<https://www.brookings.edu/blog/order-from-chaos/2020/08/20/lebanon-needs-a-new-start/>>.

50 Reuters 'Arab League says ready to mobilise Arab efforts to help Lebanon; Turkey ready to rebuild port' (8 August 2020), <<https://www.reuters.com/article/us-lebanon-security-blast-arabs-idUSKCN2540AM>>.

51 UNDRR-ROAS 'The fifth Arab Partnership Meeting for DRR', (November 2020) at <<https://www.preventionweb.net/events/view/74470?id=74470>>.

between the League and UNDRR. Finally, the Meeting also requested Arab Stakeholder Groups for DRR to prepare stocktaking reports of the implementation of their Voluntary Action Statements and report progress and updates to the 5th Arab Regional DRR Platform to be held in the latter part of 2021.<sup>52</sup>

It is clear from the deliberations of this Meeting that effort is being made by the Arab League to learn from the past implementation of its DRR strategies/plans of actions and voluntary action statements with the objective of utilising the lessons learnt to improve on the planning and implementation of legal, policy and strategic frameworks for the risk reduction and enhancement of resilience for both people, livelihoods and ecosystems. It is hoped that these lessons learnt will guide the further development of legal and policy frameworks on DRR in the region, with the lessons percolating to the national and local levels for effective whole-of-society action towards risk reduction and the building of hazard resilience in the region.

Non-state actors have supplemented governmental DRR/M activities in the region. In addressing drought and its related water security challenges, USAID, in collaboration with NASA and the International Water Management Institute in the MENAdrought project are pooling resources and expertise to provide training (technical and policy) and research-based data for drought forecasting and mitigation to equip water managers and engineers in Jordan, Lebanon and Morocco to better respond to and endure droughts and strengthen water security in these countries.<sup>53</sup> The objectives of the MENAdrought project are to institutionalise integrated whole-of-government drought management and enhance national water self-sufficiency through the development of drought monitoring and early warning systems (satellite data and modelling), conducting impact vulnerability assessments and elevating the importance of drought mitigation, response and preparedness through the preparation of drought action plans.<sup>54</sup> This project envisages that real-time data, powerful monitoring tools and locally developed drought action plans would enhance the successful proactive management of drought risks rather than reactive drought crises response subsequent to onset of droughts, and thus increase drought resilience in the countries of focus as well as other MENA countries.<sup>55</sup>

52 *Ibid.*

53 Sticklor Russel 'Strengthening drought monitoring across the Middle East and North Africa' (November 2020) <<https://www.preventionweb.net/news/view/74912>>.

54 *Ibid.*

55 *Ibid.*; Theresa Jedd et al, 'Drought management norms: Is the Middle East and North Africa managing risks or crises' (2021) 30 *Journal of Environment and Development*, 3–40.