المجلس العربي للمياه
Arab Water Council

# Mapping the Way Towards Achieving Sustainable Development in the Arab Region

*A Focus on Food, Water Climate and Disaster Related SDGs*

2018

W. Erian

# Mapping the Way Towards Achieving Sustainable Development in the Arab Region




2018

# TABLE OF CONTENTS

## LIST OF TABLES



## LIST OF FIGURES



## ANNEXES

# ACKNOWLEDGEMENTS

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# ABBREVIATIONS

| | |
|---|---|
| **10YFP** | 10 Year Framework of Programmes on Sustainable Consumption and Production |
| **ACCWaM** | Adaptation to Climate Change in the Water Sector in the MENA Region |
| **ACF** | Administration for Children and Families |
| **ACRI** | Arab Climate Resilience Initiative |
| **ACSAD** | Arab Center for the Studies of Arid Zones and Dry Lands |
| **ADFS** | Agricultural Development and Food Security |
| **aeroallergens** | airborne allergens |
| **AGEDI** | Abu Dhabi Global Environmental Data Initiative |
| **AGIR** | Arab Geographical Information Room |
| **AOAD** | Arab Organization for Agriculture Development |
| **APACC** | Arab Plan of Action to deal with Climate Change |
| **ASADFS** | Arab Strategy for Agricultural Development and Food Security |
| **ASDRR** | Arab Strategy for Disaster Risk Reduction |
| **AWC** | Arab Water Council |
| **AWSS** | Arab Water Security Strategy |
| **BAT** | Best Available Techniques |
| **BEP** | Best Environmental Practices |
| **CAMRE** | Council of Arab Ministers Responsible for the Environment |
| **CBD** | Convention of Biological Diversity |
| **CC** | Climate Change |
| **CECCR/KAU** | Center of Excellence for Climate Change Research/ King Abdul-Aziz University |
| **CEDARE** | Center for Environment & Development for the Arab Region & Europe |
| **CIHEAM** | International Center for Advanced Mediterranean Agric. Studies |
| **CIMA foundation** | Centro Internazionale di Ricerca in Monitoraggio Ambientale |
| **CNRI** | Climate Nexus Risk Initiative |
| **CO2** | Carbon Dioxide |
| **COP** | Conference of the Parties |
| **CS 2.0** | Climate Services Center 2.0 |
| **CSO** | Civil Society Organizations |
| **DRC** | Egyptian Desert Research Center |
| **DRR** | Disaster Risk Reduction |
| **DWFI** | Daugherty Water for Food Institute |
| **EAD** | Environment Agency Abu Dhabi |
| **ESCWA** | United Nations Economic and Social Commission for Western Asia |
| **EWSCCP** | Eye on Water Security Climate Change Programme |
| **FAO** | Food and Agriculture Organization |
| **FAO-WSI** | The Regional Initiative on Water Scarcity in Near East and North Africa |
| **GCC** | Gulf Cooperation Council |

| | |
|---|---|
| **GDP** | Gross Domestic Product |
| **GFCS** | Global Framework for Climate Services |
| **GHG** | Greenhouse Gas |
| **GIS** | Geographical Information Systems |
| **GIZ** | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| **GLOSS** | Global Sea Level Observing System |
| **HFA** | Hyogo Framework for Action |
| **ICARDA** | International Center for Agricultural Research in the Dry Area |
| **ICBA** | International Center for Biosaline Agriculture |
| **ICPD** | International Conference on Population and Development |
| **ICSU/ISSC** | International Council for Science/ International Social Science Council |
| **IFPRI** | International Food Policy Research Institute |
| **IPCC** | Inter-Governmental Panel on Climate Change |
| **IPM** | Integrated Pest Management |
| **ISDR** | International Strategy for Disaster Reduction |
| **IUU** | Illegal, Unreported and Unregulated |
| **IUWM** | Introduction of Integrated Urban Water Management |
| **IWMI** | International Water Management Institute |
| **IWRM** | Integrated Water Resources Management |
| **KAUST** | King Abdullah University of Science and Technology |
| **LAS** | League of Arab States |
| **LDCs** | Least Developed Countries |
| **MDGs** | Millennium Development Goals |
| **MIS** | Management Information Systems |
| **NBSAPS** | National Biodiversity Strategies and Action Plans |
| **NCDs** | Non-Communicable Diseases |
| **NWRC-Egypt** | Egyptian National Water Research Center |
| **O3** | Ozone |
| **ODA/GNI** | Official Development Assistance/Gross National Income |
| **PEWM** | Public Engagement Water Management |
| **R&D** | Research and Development |
| **RAED** | Arab Network for Environment and Development |
| **RBAS** | Regional Bureau for Arab States |
| **RCIWRC** | Regional Coordination on Improved Water Resources and Capacity Building Program |
| **RHED** | Rural Housing and Economic Development |
| **RICCAR** | Regional Initiative for Assessment of Climate Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region |
| **SDC** | Swiss Agency for Development and Cooperation |
| **SDGs** | Sustainable Development Goals |

| | |
|---|---|
| **SDG 1** | End poverty in all its forms everywhere |
| **SDG 2** | End hunger, achieve food security and improved nutrition, and promote sustainable agriculture |
| **SDG 3** | Ensure healthy lives and promote well-being for all at all ages |
| **SDG 4** | Ensure inclusive and equitable quality education and promote life-long learning opportunities for all |
| **SDG 5** | Achieve gender equality and empower all women and girls |
| **SDG 6** | Ensure availability and sustainable management of water and sanitation for all |
| **SDG 7** | Ensure access to affordable, reliable, sustainable, and modern energy for all |
| **SDG 8** | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all |
| **SDG 9** | Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation |
| **SDG 10** | Reduce inequality within and among States |
| **SDG 11** | Make cities and human settlements inclusive, safe, resilient and sustainable |
| **SDG 12** | Ensure sustainable consumption and production patterns |
| **SDG 13** | Take urgent action to combat climate change and its impacts |
| **SDG 14** | Conserve and sustainably use the oceans, seas and marine resources for sustainable development |
| **SDG 15** | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss |
| **SDG 16** | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels |
| **SDG 17** | Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development |
| **SIDS** | Small Island Developing States |
| **SMHI** | Swedish Meteorological and Hydrological Institute |
| **UHC** | Universal Health Coverage |
| **UNDP** | United Nations Development Programme |
| **UNEP** | United Nations Environment Programme |
| **UNESCO** | UN Educational, Scientific and Cultural Organization |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **UNISDR** | United Nations International Strategy for Disaster Reduction |
| **WB** | World Bank |
| **WEF** | Water, Energy and Food Security |
| **WFP** | World Food Programme |
| **WMO** | World Meteorological Organization |
| **WTO** | World Trade Organization |

# EXECUTIVE SUMMARY

## Regional Context

The Arab region faces increasingly problematic and interlinked issues of water, food and energy that pose a threat to development of societies and undermine gains made to date. Being a water scarce region, a net food importer in addition to climate change impacts affecting the region's major sectors, systems and processes, tend to increase the probability to fuel pre-existing grievances such as ethnic, religious or economic marginalization. Meanwhile, millions are fleeing their homes to escape violence and millions more remain trapped by conflict or in occupied territories with no access to basic human needs. Consequently, surging conflicts and protracted crisis have become a very important challenge to consider as populations are displaced and governments' capacities to provide basic service provision is diminished. On that ground, it is increasingly clear that the key for sustainable development and stability in the Arab region lies in joint actions, risk-informed decisions and regional integration to exchange knowledge, experiences and successful mechanisms to create focused and effective implementation strategies that maintain peace and security.

Achieving the Sustainable Development Goals, "SDGs", and its related targets in the Arab region requires better understanding of the SDGs' framework to address the main key systemic barriers to sustainable development. Such barriers include inequality, unsustainable consumption patterns, integration of economic, environmental and social dimensions, weak governance, and environmental degradation, which have been neglected by the Millennium Development Goals (MDGs). A consolidated, long-term regional vision for sustainable development is essential to allow the region identify its own targets and means of implementation and provide a basis for assessing progress, identifying lessons learned, highlighting common challenges and promoting peer learning.

In light of the above, The Climate Risk Nexus (CRN) Initiative by the League of Arab States (LAS) was launched in 2015, to develop capacities of LAS member countries to enact decisions and policies to better manage the growing complexity of risks that hinders the achievement of the sustainable development goals. The Initiative, led by LAS, and supported by AWC, UNDP, WFP and UNISDR has facilitated a set of regional analysis, studies, conducted advocacy, provided technical advice, and supported the process of contextualizing social vulnerability in the Arab region.

| CRNI four main areas of work |
|---|
| 1) Science and Data Readiness for Decision-Making, |
| 2) Tools and Technology for Risk-Informed Development, |
| 3) Local Leadership and Capacity Development, |
| 4) Strategies and Policies for Transformative Change. |

Under the framework of the (CRN) Initiative, this report responds to the final recommendations of CNRI 1st Technical Committee Meeting, organized by the Arab Water Council (AWC) on November 2015, to take stock of major ongoing related regional strategies and initiatives in the field of water, food, and social vulnerability in the Arab Region. By mapping all related ongoing regional strategies and initiatives and linking them to current related SDGs, the report aims to identify and prioritize key areas and gaps that need further enhancement and possible support on the regional level by the Climate Risk Nexus Initiative (CRNI). It also aims to highlight how the Climate Risk Initiative with current Arab strategies can better complement each other in critical 'nexus areas', and identifies opportunities for re-thinking implementation in support of the SDGs.

## Mapping Major Water, Food, and Social Vulnerability Ongoing Regional Strategies, and Initiatives in the Arab Region

The main objective of this report is to provide better understanding and in-depth review of current Arab strategies and on-going regional initiatives by assessing their current status and compatibility towards achieving the 17 sustainable development goals (SDGs) and the 169 targets, as submitted to the UN General Assembly by the UN working group in 2015. It mainly focuses on a selected number of sectoral strategies in the Arab region (see Box 1) which are highly relevant for most of the SDGs, yet these strategies would need to be revisited in order to strengthen inter-sectoral linkages to more holistically and effectively support the implementation of SDGs. Currently, these strategies are not totally aligned with the SDG framework which is highly interlinked and mutually reinforcing where each and every SDG can be linked to the other, and thus advancement in any of the SDGs has the opportunity to stimulate progress in a range of related areas for the next decade.

**Highlighted Sectoral Strategies in the Arab Region**

- The Arab Strategy for Agricultural Development and Food Security (ASADFS) (2005-2025)
- The Arab Water Security Strategy – Action Plan (AWSS) (2010-2030)
- The Arab Plan of Action to deal with Climate Change (APACC)
- The Arab Strategy for Disaster Risk Reduction 2020 (ASDRR), with recommended changes after Sendai.

(Box 1)

## Ongoing Arab Strategies, and Initiatives: Synergies & Gaps

The review identifies key gaps between the Arab strategies and how the SDGs are being formulated. These gaps can be used to guide and provoke a re-thinking of Arab Strategies to allow better alignment to cope with the legally agreed agendas for post-2015 and deliver on the main targets.

Initial results from the review suggest that for current strategies to be aligned and to mutually reinforce each other, efforts are needed to either; 1) revisit and update key sectorial strategies, or; 2) create a strong umbrella strategy for the SDGs in the Arab Region. Such an umbrella strategy would need to focus on the integration of economic, environmental and social dimensions, and how certain goals and objectives have a high 'nexus potential', i.e. where actions and activities may support multiple SDG goals, objectives and targets. Additionally, significant efforts are highly needed to strengthen the roles and responsibilities of key regional and international actors, attract funding and better develop performance indicators and monitoring mechanisms to evaluate the impact on the region and determine long and short term gains. Attention should also be awarded to the use of an integrated approach being the backbone towards achieving sustainability as traditional sector-based approaches and tools are no longer suitable. Thus, understating the SDGs and its related targets in an integrated way, will not only provide incentives to pursue their achievement, but also uphold them beyond the Agenda's timeframe.

Main findings of the review, key gaps and areas of enhancements identified under each reviewed Arab strategy are briefly discussed under the following section:

### The Arab Strategy for Agricultural Development and Food Security

The Arab Strategy for Agricultural Development and Food Security was approved during the Riyadh Arab Summit in March 2007. The strategy comprised several directives related to management and conservation of water resources and arable lands; agricultural technology; community participation and private sector enhancement; capacity-building and human resources development; joint agricultural investments and trade; and rural areas development. Coordinated by the Arab Organization for Agriculture Development (AOAD), this strategy has the opportunity to better emphasize Rural Housing and Economic Development; Education for Rural Development - towards new policy responses; Rural Environment, Environmental Degradation and Ecological Footprint Analysis; Linking Renewable Energy to Rural Development; and Insurance for Agriculture, Freeing farmers from extreme weather risk, and Modern Agriculture and Extension's Survival. Key issues such as environmental degradation, ecological footprints and extreme weather risks represent other opportunities for the strategy to be more risk-informed and achieve more sustainable results. Also, Energy use with a stronger focus on renewable resources, as well as risk management in the form of agricultural insurance would further reinforce a resilience and risk management approach which would contribute to climate and environmental objectives and targets.

### The Arab Water Security Strategy (AWSS)

AWSS aims to guide joint Arab actions to ensure sustainable use of water resources in the Arab states and to pave the way for necessary actions till 2030. It includes a set of key objectives grouped under three main headings: **The economic and developmental field, The field of institutional, human and technical capacity development, *and* The political field,** especially in relation to the protection of Arab rights in cases of water under occupation or shared and transboundary water resources.
Successful practices showed that the strategy requires up-scaling and preparation of integrated regional – national – community projects to attract funding agencies and to meet with the increasing water scarcity challenges in the region. Reviewing the strategy showed that it requires more focus on the following aspects: Water Governance for Social and Economic Challenges (Poverty Reduction, Unemployment, Gender Equality and Displacement, Migration & Conflicts); Groundwater for Sustainable Development; Water Footprint and Virtual Water, and Water Pricing for a Dry Future.

### The Arab Plan of Action to Deal with Climate Change (APACC)

APACC comes as a response to potential impacts of climate change on development in the Arab region. These impacts are expected to have social consequences due to the flow and migration of people from the affected areas to others within the same country, neighboring States or other States, which would result in increased pressure on the environment and on natural resources. In addition, they may have implications on public health due to growing air pollution, extreme heat waves and the spread of infectious diseases. The strategy includes sectorial adaptation and mitigation programs on climate; water, land and biodiversity; agriculture and forestry; economic diversity; construction; tourism; population and human settlements; health; seas and coastal areas; energy; and transportation. The strategy also includes cross-cutting programs on promotion of environmental awareness; and women participation in climate change issues.

Considering that water, poverty and climate have a complex network of synergies with common interlinked aspects such as nutrition and human health. Applying a nexus approach in the Arab Plan of Action to Deal with Climate Change, tends to highlight how contributions made from a poverty reduction and climate perspective can, for example, support improvements in safe water access and sanitation facilities. It can also emphasize the understanding that climate change – just like poverty - could act as a risk multiplier for human health, food security, and a whole range of development goals.

### Arab Strategy for Disaster Risk Reduction 2020 (ASDRR)

Regarding ASDRR it has been noticed that it is in line with the Sendai framework, yet it has the potential to be an influencer on sectors beyond climate change and resilience if integration is well considered. By integrating different sectors, nexus potentials can be realized and are also likely to expand on stakeholders – and thereby the scale of impact – engaged in achieving common objectives. ASDRR also requires emphasizing the commitment for Comprehensive Disaster Risk Reduction across Sectors; developing capacities to identify, assess and monitor disaster risks; building resilience through knowledge, advocacy, research and training; improving accountability for disaster risk management at the sub-national and local levels, and integrating disaster risk reduction into emergency response, preparedness and recovery.

## Current Limitations in reviewed Arab strategies in relation to the SDGs

The review identified a number of areas in which strategies did not have a corresponding reference to key SDG related goals and targets. For example, neither strategy highlight the role of social protection, which is referenced in the SDGs as, for example, the need to 'implement nationally appropriate social protection systems and measures for all, including floors, and by 2030, achieve substantial coverage of the poor and the vulnerable.' A stronger emphasis on social protection could indeed be relevant for most of the sectoral strategies reviewed, by both protecting people, as well as promoting more sustainable consumption, climate adaptation and resilient livelihoods. Education and science, a human capital required to fulfill all SDGs, is also not emphasized sufficiently. Promoting gender equality, supporting peace and stability, engaging youth more effectively and combating inequality in all its forms are all examples of issues which Arab strategies should formulate and relate to in a more coherent and efficient manner, which would allow them to contribute better to the SDGs.

The review also identified several "nexus potential areas" between SDGs and related Arab Strategies/ Initiatives that could strongly be supported through the newly established CRNI to further enhance implementation and rejuvenate the regional partnership for achieving the SDGs. These nexus areas included:

- Food Security and Climate Risk Nexus;
- Food Security, Water Security, Climate Risk and Ecosystems Nexus; and
- Water Security, Social Vulnerability, Climate Risk and Ecosystems Nexus.

## Recommendations on the Way Forward:

### making efforts more efficient

The assessment of the already adopted Arab Strategies and action plans vs. SDGs and targets reflected the wide gap between the studied Arab strategies and the SDGs. Those gaps require re-thinking Arab Strategies to cope with the globally agreed agendas for post-2015, designing different shapes of needed "Nexus" and integrating natural and social dimensions.

CRN Initiative, supported by LAS-AGIR hosted by the Arab Water Council[1], could act as a major player in establishing an integrated framework for potential nexus areas and filling in the gaps between the existing Arab Strategies and action plan activities as well as the SDGs and targets. It could support the achievements of the SDGs under different Arab strategies and/or action plans for reducing climate risks using the "Nexus" that deals with water security, food security, social vulnerability, disaster risk reduction, climate change, terrestrial ecosystems, and for achieving sustainable resource base and resilient societies.

[1] *LAS - Arab Geographical Information Room (LAS-AGIR), hosted by the Arab Water Council (AWC), and supported by a Unit of Technical Excellence established by a decree of the LAS Arab Water Ministerial Council issued on May 27, 2015*

Through this initiative, efforts will be made to: strengthen regional cooperation and knowledge networks across disciplines; respond to gaps in science and data for managing risks; enhance the use of indicators and early warning systems, build local leadership and capacities for risk and resilience and support transformational change in development policies. To achieve the initiative's strategic objectives, some of CRNI main activities include but not limited to:

- Systematic identification to knowledge gaps within the Arab region and responding to needs in information, knowledge and data required for more effective actions on the regional, national and community levels for building resilience.
- Better characterization of hazards, vulnerabilities and exposure for more risk-informed decision making and better integration of economic, environmental and social dimensions in assessing multi-dimensional risks.
- Promoting the use of remote sensing (RS), Geographical information and early warning systems to reliably predict temporal and spatial distribution of multi-dimensional risks and forecast the severity of extreme events.
- Supporting the production of high-level reports on the state of multi-dimensional risk trends in the region, capturing findings of social vulnerability that are unique to the profile of the Arab region.
- Mobilizing the role of institutional and private sector investors to meet the implementation challenges.
- Enhancing local capacity and leadership skills of decision-makers and mid-level staff in improved management of multi-dimensional risks and reduction of social vulnerability, in partnership with World-class experts in risk management.
- Linking regional on going actions, like the Arab Climate change action plan and Arab DRR Strategy, towards achieving the 2030 agenda for Sustainable development in the Arab region.

## Conclusion

The Arab region is facing unique threats and opportunities which require advancement on the full set of SDGs to successfully address and take advantage of existing strategies and initiatives. These include population growth and a youth bulge, water scarcity, a decline of land productivity and increased land losses rates, higher rates of poverty, unemployment percentage and increasing inequality – not the least between men and women, boys and girls - that will reduce the living standards for a large segment of the already poor population. An increase in food insecurity and expectation of higher rates of conflicts and displacement are other factors on the horizon which will require substantial political will to address. By using a nexus and SDG lens, a number of conclusions for consideration by policy makers were made as part of this review, including:

- A consolidated, long-term regional vision for sustainable development is required to allow identifying regionally owned targets and means of implementation. It would also provide a basis for assessing progress, identifying lessons learned, highlighting common challenges and solutions, and promoting learning. Such a vision would help provide an umbrella and guide sectoral and national strategies over the next decade.

- In spite of a region which is marked by conflict and instability, there is a need – amidst the turmoil – to focus on mid to longer term planning and unlock investments for sustainable development in fragile, protracted crises and low-capacity settings, this will require an assessment and prioritization of key sectors and 'focus-SDGs' which can provide the most benefit and return on investment. Without these investments, future crises and emergencies become more likely.
- The assessment of already adopted sectoral Arab strategies and action plans vs. SDGs and their related targets has identified gaps and opportunities in how Arab strategies can become more relevant in view of the SDGs. A re-thinking of Arab Strategies can help realize potential nexus areas from social, economic and environmental perspectives as well as driving more collaboration and partnerships.
- Research shows that most goals have many areas of overlapping and that many targets can contribute to several goals. Understanding that there are important trade-offs between these is critical for longer-term planning and prioritization. Operationalizing a nexus approach can support the identification of a balanced way forward where optimal outcomes for one target can be achieved, whilst ensuring the best scenarios of potential influence on others.
- The four studied Arab Strategies (Food Security, Water security, APACC and ASDRR) reflected the need for designing a "NEXUS" approach. The study identified different types of "nexus areas" to strengthen the means of implementation and revitalize the global partnership for achieving the SDGs. These areas include: Food Security and Climate Risk Nexus; Food security, Water security, Climate risk and Ecosystems Nexus and Water security, Social vulnerability, Climate risk and Ecosystems Nexus.
- To support an enhanced science-policy interface, establishment of SDG baselines, contextualization of key indicators, and capacity building at large and, a stronger focus on data quality will be necessary – particularly in low-capacity settings. These efforts can support tools development, capacitated leadership and implementation not only of the SDGs, but also help triangulate efforts to address other key international frameworks, regional strategies and domestic policies.
- The Climate Risk Nexus Initiative (CRNI) could support the achievements of the SDGs under different Arab strategies and/or action plans for reducing climate risks using the "Nexus" that deals with water security, food security, disaster risk reduction, climate change, terrestrial ecosystems, and for achieving sustainable resource base and resilient societies.
- CRNI could participate in filling in the gaps between the existing Arab Strategies and action plan activities and the SDGs, coordinating or acting as a major player in implementing activities that could be covered by CRNI and the Arab Geographical Information Room (AGIR).
- Finally, CRNI main working areas could play major roles in contributing to the regional expected discussions to streamline the available Arab strategies and action plans to the new agreed and adapted SDGs, DRR and Climate Change. The newly established CRN initiative can serve as a platform for joint programming between LAS and regional agencies to help in creating synergies across sectors, enhancing further complementarities among regional and international partners, reducing fragmentation of efforts and maintaining coordination towards a sustainable future for the Arab region.

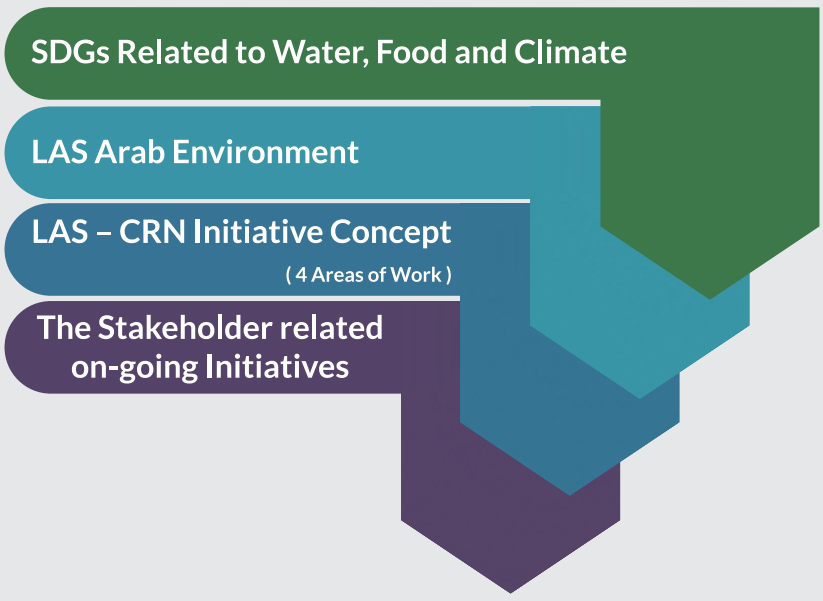

RATIONALE

The Climate Risk Nexus (CRN) Initiative by the League of Arab States (LAS) has been proposed to develop capacities of LAS member countries to enact decisions and policies that better manage the growing complexity of risks and support the resilience of people and countries. It will help address gaps that exist to achieve a more risk-informed development and will serve as a platform and network for joint programming between LAS and partner agencies to bring about a series of outcomes in the region that engage the complexity of risks, and exemplify resilient-based development solutions.

Through this initiative, efforts will be made to: strengthen regional cooperation and knowledge networks across disciplines; respond to gaps in science and data for managing risks; enhance the use of indicators and early warning systems; build local leadership and capacities for risk and resilience and support transformational change in development policies (Annex I). Meanwhile, to achieve these various strategic goals, LAS - Arab Geographical Information Room (LAS-AGIR) has been instituted, hosted by the Arab Water Council (AWC), and supported by a Unit of Technical Excellence established by a decree of the LAS Arab Water Ministerial Council issued on May 27, 2015.

Under the framework on the (CRN) Initiative, this report responds to the final recommendations of CNRI 1st Technical Committee Meeting, organized by the Arab Water Council (AWC) on November 2015, to take stock of major ongoing regional strategies and initiatives in the field of water, food, and social vulnerability to start off the initiative. It aims at prioritizing initial key issues, make use of currently available data while specifying the key factors and indicators that determine the main priorities and gaps in response to the regional urgent needs. By mapping all related ongoing regional strategies and initiatives and linking them to current related SDGs, the report aims to identify and prioritize key areas and gaps that need further enhancement and possible support on the regional level by the Climate Risk Nexus Initiative (CRNI). It also aims to highlight how the Climate Risk Initiative with current Arab strategies can better complement each other in critical 'nexus areas', and identifies opportunities for re-thinking implementation in support of the SDGs.

During the development of this report, a preparation of a matrix with CRNI suggested activities pursued the following scheme:




MAPPING THE WAY TOWARDS
ACHIEVING
SUSTAINABLE DEVELOPMENT
IN THE ARAB REGION

# 1. SUSTAINABLE DEVELOPMENT

## 1.1. Introduction

The 2030 Agenda for Sustainable Development is a plan of action for people, planet and prosperity. The 17 Sustainable Development Goals and the 169 targets demonstrate the scale of ambition in this Agenda. They seek to realize the human rights of all and to achieve gender equality and the empowerment of women and girls. They balance the three dimensions of sustainable development: economic, social and environmental (Figure 1). The Goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet. The inter-linkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realized, and that lives of all will be profoundly improved and our world will be transformed for the better.

The people of the Arab region face an uncertain future. Millions are fleeing their homes to escape violence and millions more remain trapped by conflict or in occupied territory (ESCWA-UNEP 2015)[2]. The Region's instability due to civil war could be seen in 18.5% of its total area, where ≅ 15.4% of its total population lives, including countries like Libya, Somalia, Syria, Yemen and Palestine. The Arab region suffers as well from a unique demographic growth and a high per capita consumption which constantly increase the demand on environmental resources. On the other hand, environmental depletion and degradation are reducing both the quantity and the quality of renewable resources. These combined trends create an increasing probability of serious environmental scarcity in poor States that fuel pre-existing grievances such as ethnic, religious or economic marginalization.

For thousands of years, people of the region have coped with the challenges of climate variability by adapting their survival strategies to changes in rainfall and temperature. Yet, over the next century, the variability will increase and the climate of the Arab region will experience unprecedented extremes, higher rates of poverty and unemployment percentage that will reduce the quality of life, cause socio-economic disturbance; increase food insecurity; with expectation of higher rates of conflicts and displacement that will cause high instability. Furthermore, The Arab States are rated among states facing extreme and high water security risks, having least secure supplies of water, less than 500 cubic meters per person per year in some of the Arab States, and are characterized by their aridity. The majority of Arab States are already experiencing water deficits in terms of internal and external renewable water resources. By mid-century, all Arab States will face serious water deficits as demand and supply continue to diverge.

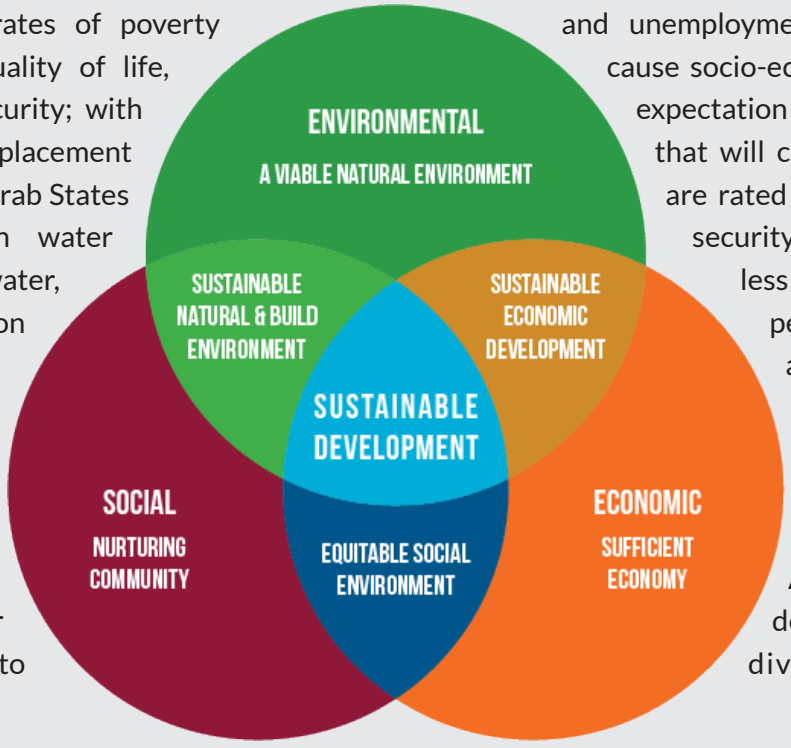



Figure 1. The Three Dimensions of Sustainable Development

[2] *ESCWA-UNEP 2015 "Arab Sustainable Development Report", First Edition*

Additionally, the supply/demand-induced dynamic and the unequal distribution of environmental resources remain also considerable challenges. Currently, the 2000-2009 supply-demand gap is compensated by non-renewable water resources including fossil groundwater, and by desalination as well as reuse. The demand is expected to rise by about 25 percent in 2020–2030 and up to 60 percent in 2040–2050 while renewable supply will drop by more than 10 percent over the same time period in the region. This will result in an unmet demand for the entire Arab region, expressed as a percentage of total demand, which will increase from 16 percent to 37 percent in 2020–2030 and 51 percent in 2040–2050 (World Bank, 2011).

Climate stress combined with better social and infrastructural services in cities has already led to the rapid urbanization of many Arab States. As a result, millions of people have left their rural homes to settle in urban centers, and it is expected that by mid-century the total population in urban areas will drop to 70% (UNISDR, 2013). All people of the region are vulnerable to the impacts of climate change and variability of water availability and food security. Cities conditions and services are deteriorating due to rapid urbanization resulting from forced displacement from conflict areas and the migration of poor rural and fragile communities. The rentier economy that prevails in many countries has proven unable to adapt to new realities or absorb the growing and increasingly youthful labor force- Information related to natural resources socio-economic characterization for the Arab States are shown Annex II - It underscores the need for urgent action at the national and regional levels, and for long-term, evidence-based planning and investments that address the root causes of the region's instability (ESCWA-UNEP, 2015).

In light of the above, this report is an independent unique tool designed primarily for better understanding and reviewing the position of the Arab region with current Arab strategies and on-going initiatives in achieving the 17 Sustainable Development Goals (SDGs) and the 169 targets, as submitted to the UN General Assembly by the UN Open Working Group (OWG). It is designed to provide support to technical teams and other actors engaged in defining a regional, integrated and transformational set of global goals and targets for sustainable development and the political declaration on the post-2015 Development Agenda. In particular, it is a resource for technical review of the targets carried out in preparation for their adoption and translation at the national level.

The report focuses on the Arab region and highlights the responsibilities of regional organizations and developed States to assist sustainable development in the Arab region through development assistance and international cooperation.

## 1.2. Sustainable Development Goals and Targets Framework, and Systemic Barriers

One of the main outcomes from the UN Conference on Sustainable Development (Rio+20) in 2012 was an international agreement to negotiate a new set of global Sustainable Development Goals (SDGs) to guide the path of sustainable development in the world after 2015. The Rio+20 Outcome Document 1 indicates that the goals are intended to be "action-oriented, concise and easy to communicate, limited in number, aspirational, global in nature and universally applicable to all States, while taking into account different national realities, capacities and levels of development and respecting national policies and priorities.

## 1.2.1. Sustainable Development Goals (SDGs) - Annex III

The Sustainable Development Goals are integrated and indivisible, they need to be connected and grouped together, for providing a clearer means-to-end continuum. Three major groups suggested as follow and as shown in figure (2):

**i. SDGs related to Life Quality:**

- End poverty in all its forms everywhere (SDG 1)
- Ensure healthy lives and promote well-being for all at all ages (SDG 3)
- Ensure inclusive and equitable quality education and promote life-long learning opportunities for all (SDG 4)
- Achieve gender equality and empower all women and girls (SDG 5)
- Reduce inequality within and among States (SDG 10)
- Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels (SDG 16).

**ii. SDGs related to Infrastructure and Resources**

- End hunger, achieve food security and improved nutrition, and promote sustainable agriculture (SDG 2)
- Ensure availability and sustainable management of water and sanitation for all (SDG 6)
- Ensure access to affordable, reliable, sustainable, and modern energy for all (SDG 7)
- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (SDG 8)
- Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (SDG 9)
- Make cities and human settlements inclusive, safe, resilient and sustainable (SDG 11)
- Ensure sustainable consumption and production patterns (SDG 12).

**iii. SDGs related to Environment**

- Take urgent action to combat climate change and its impacts (SDG 13)
- Conserve and sustainably use the oceans, seas and marine resources for sustainable development (SDG 14)
- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (SDG 15)
- Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development (SDG 17).


Figure 2. Grouping SDGs with Regard to their Major Thematic Objectives

The ESCWA-UNEP (2015) "Arab Sustainable Development Report" clusters, analyzes and highlights links and relationships between the 17 SDGs. It also highlights the main trends and status in the Arab Region that provide information covering a range of indicators structured along the themes of the 17 SDGs. The regional average value for each indicator is benchmarked against the MDG target or world average and is available, using traffic lights (RED or GREEN), to indicate how the Arab region[3] compares against world averages and MDG targets. (see Annex IV).

Thorough regional reading of the SDGs and their corresponding targets that took place ahead of their inclusion under one of the four nested areas: a) Means of Implementation and Partnerships, b) Peace, Governance and Institutions, c) Sustainable and Resilient Societies and d) Human Dignity and Well-being. The framework reflects, in part, the outcome of negotiations on the global agenda in early 2015 and the regional priorities.

### 1.2.2. Analyzing the SDG Targets

The analysis of the targets provided in the ICSU/ISSC (2015) document could support a technical review of the targets around criteria such as:

**Consistency with Existing International Agreements and Processes**

The success of the SDGs is partly dependent on aligning targets and goals with existing international agreements and political processes. These include the Post-2015 Framework for Disaster Risk Reduction (agreed upon in Sendai, March 2015), the UNFCCC negotiations with the new climate agreement (December 2015), and the process on Financing for Development. All of these depend on each other for success.

**Implementability**

In order to drive change, quantified targets and time frames are required to determine whether sufficient progress is being made. This means that major analytical and political efforts are needed to enhance the SDG framework. Many of the environmental sustainability targets are considerably more vague (e.g. "ensure sustainable food production systems") than most of the social targets. Some targets lack the focus to enable effective implementation. Recommendations are made where possible for specifying potential fields of application. Many of the targets may also contribute to several goals, and some goals and targets may conflict. For example, progress on ending poverty SDG 1 cannot be achieved without progress on the food security target under SDG 2, macro-economic policies related to targets on full and productive employment and decent work under SDG 8, the reduction of inequality under SDG 10, and without enhancing resilience to climate change under SDG 13 and ensuring availability and sustainable management of water under SDG6.

There are also Trade-offs between targets: For example, an increase in agricultural land-use to help end hunger can result in biodiversity loss, as well as in overuse and/or pollution of water resources and downstream (and likely negative) effects on marine resources, which in turn could exacerbate food security concerns. But land degradation neutrality (SDG 15.3) and sustainable consumption and production patterns (SDG 12) could bring balance. (Figure 3)

[3] *The region's considerable diversity makes it indispensable to break it down into the following sub-regions: the Gulf Cooperation Council countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates); the least developed countries (the Comoros, Djibouti, Mauritania, Somalia, the Sudan and Yemen); the Maghreb countries (Algeria, Libya, Morocco and Tunisia); and the Mashreq countries (Egypt, Iraq, Jordan, Lebanon, Palestine and the Syrian Arab Republic).*

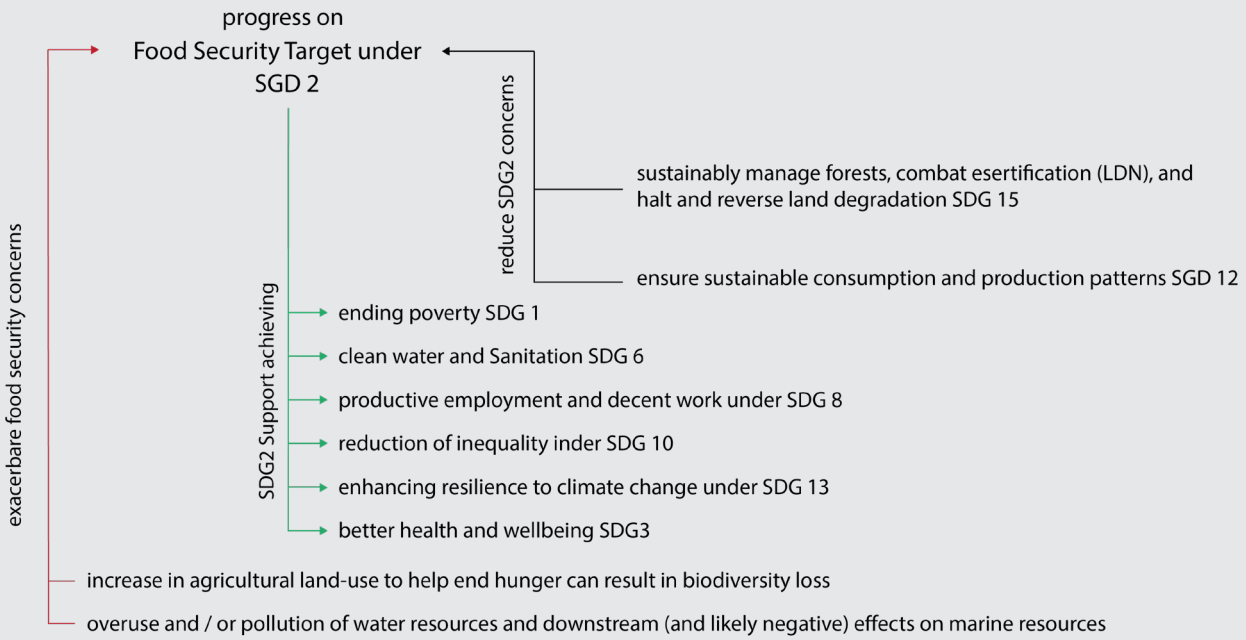



Figure 3. Food Security Integration of targets Vs Trade-offs

## Measurability

Measurability will depend on the availability of data and the capacity to measure the targets. The capacity to collect reliable data at the national level consistently across member states is considered, as well as the availability of data and commonly agreed upon definitions to enable comparison. Also, the veracity of some existing indicators needs to be confirmed before relying on them for performance assessment, and the importance of baselines that are country-appropriate is raised. Additionally, indicators for measuring progress mainly focus now on the identification of some apparent gaps while key indicators should be properly developed to allow providing recommendations to support an ambitious framework for monitoring and review of implementation.

Another major challenge in measuring the SGD targets is due to the Complex Interlinked Web of challenges which are sometimes very difficult to assess. For example, Measuring "Resilience Capacities" by drawing on existing targets measurement of resilience is complex and there is currently no international standard. Part of the measuring challenge is that resilience needs to be thought about in the context of 'resilience of what, for whom' and take account of both the capacities that enable people to be resilient, as well as the outcomes of resilience, in terms of development gains and improvements in well-being despite multiple shocks and stresses. People's resilience can be considered in terms of a set of interrelated capacities to absorb, anticipate and adapt to different kinds of shocks and stresses (Bahadur et al., 2015), as follows:

**Adaptive capacity:** The ability of social systems (for example households, communities or States) to adapt to multiple, long-term and future risks, and also to learn and adjust after a disaster. It describes the capability to take deliberate and planned decisions even when conditions have changed or are about to change to achieve the desired state.

**Anticipatory capacity:** The ability of social systems to anticipate and reduce the impact of shocks through preparedness and planning. This is seen in the proactive actions taken before an event to avoid upheaval, either by avoiding or reducing exposure, or minimizing vulnerability to specific disturbances.

**Absorptive capacity:** The ability of social systems to absorb and cope with the impacts of shocks and stresses. This is similar to coping capacity and refers to the ability of social systems to manage and recover from adverse conditions using available skills and resources.

## 1.2.3. Systemic Barriers to Sustainable Development

The SDG framework addresses key systemic barriers to sustainable development such as inequality, unsustainable consumption patterns, weak institutional capacity, and environmental degradation that the Millennium Development Goals (MDGs) neglected. This framework was designed to offer a non-biased, objective approach to understanding, country by country, where attention is most needed to advance sustainable development, both locally and globally. This could help developed States to create focused and effective implementation strategies and plans for achieving the SDGs within their own domestic context. On the regional scale, some of the major systemic barriers that hinder the implementation of the SGDs in the Arab region include but not limited to:

**Lack of Good Governance**

Governance must be a crucial part of the Sustainable Development Goals (SDGs). However, there are also different ways of integrating key aspects of governance into the SDGs. Much of the discussions for the SDGs have revolved around either having a stand-alone governance goal or integrating governance into other goals on specific issues (e.g. goals on poverty reduction, water, food) (Biermann et al., 2014)[4].

They added that three aspects of governance need to be considered: good governance (the processes of decision-making and their institutional foundations), effective governance (the capacity of States to pursue sustainable development), and equitable governance (distributive outcomes). While these three different aspects have a number of connections between them, the three aspects will require separate political efforts. To most fully integrate governance into the SDGs, it is important to take account of all three aspects of governance when shaping the goals and targets. The Key trade-offs and complementarities among goals and targets should be specified to encourage on-going efforts to the implementation of the Sustainable Development Agenda.

**Bridging the Gap between Science and Decision Making**

Science plays an important role in sustainable development from informing the formulation of evidence-based targets and indicators, to assessing progress, testing solutions, and identifying emerging risks and opportunities. In recent decades, Earth-system research has provided critical inputs into our understanding of the inter-linkages and interdependencies between natural and social systems which can support integrated policy-planning, monitoring and review at different scales

The SDG framework poses a number of conceptual as well as implementation challenges that will require enhancing the close collaboration between the policy and scientific communities and other stakeholders. Global research initiatives such as “Future Earth” which aim to mobilize scientists to collaborate, to tackle these issues in partnership with policymakers and stakeholders, and more broadly, to provide the knowledge needed to support transformations towards sustainable development.

[4] *Frank Biermann, Casey Stevens, Steven Bernstein, Aarti Gupta, Ngeta Kabiri, Norichika Kanie, Marc Levy, Måns Nilsson, László Pintér, Michelle Scobie, and Oran R. Young (2014). Integrating Governance into the Sustainable Development Goals. POST2015/UNU-IAS Policy Brief #3. Tokyo: United Nations University Institute for the Advanced Study of Sustainability.*

# 2. ARAB STRATEGIES

Achieving sustainable and resilient societies will require promoting risk-informed policies, boosting regional integration and enhancing national actions and investments, especially in terms of natural resources and in order to address inherent risks.

A consolidated, long-term regional vision for sustainable development would allow the region to identify its own targets and means of implementation, and provide a basis for assessing progress, identifying lessons learned, highlighting common challenges and solutions, and promoting peer learning. The regional vision could also guide national strategies. The "Arab Strategic Framework for Sustainable Development" adopted in 2017 would, therefore, need to be revisited in order to provide an umbrella for the mentioned and other related sectoral regional strategies (Annex VI).

Meanwhile, the Arab major sectoral strategies structure related to the League of Arab States Climate Risk Nexus Initiative (CRNI), addressing food security, water scarcity and social vulnerability to build resilience in the Arab region are briefly discussed below while detailed in (Annex V):

- The Arab Strategy for Agricultural Development and Food Security (2005-2025)
- The Arab Water Security Strategy – Action Plan (2010-2030)
- The Arab Plan of Action to deal with Climate Change (APACC)
- The Arab Strategy for Disaster Risk Reduction 2020 (ASDRR), with recommended changes after Sendai.

## 2.1. The Arab Strategy for Agricultural Development and Food Security (2005-2025)[5]

The Arab States are suffering from severe shortages in food commodities, particularly grains, vegetable oils and sugar. This is taking place while the land and water resources of the region, albeit scarce, continue to be exposed to exploitation which is un-economical in some cases and irrational in most of them. This is clearly depicted in agricultural expansion and unplanned horizontal urban sprawl at the expense of natural resources specifically pastures and forests.

Against this background, the Arab leaders, aspiring for a future of safe food production in the Arab region and the sustainability of Arab agricultural resources, and taking into consideration the urgency of working towards the optimal and rational uses of these resources, issued the Tunis Declaration of 2004 on Sustainable Agricultural Development and Food Security in the Arab Region. The Declaration calls for coordinating country-specific agricultural policies within a pan-Arab agricultural development strategy that supports the processes of Arab agricultural and economic integration and achieves the goals of Arab economic merging.

As a result, the Arab Strategy for Agricultural Development and Food Security was approved during the Riyadh Arab Summit on March 2007. Coordinated by AOAD, the strategy comprised several directives related to management and conservation of water resources and arable lands; agricultural technology; community participation and private sector enhancement; capacity-building and human resources development; joint agricultural investments and trade; and rural areas development. For more details about the strategy please see (Annex V).

[5] *29th of March 2007, the Riyadh Arab Summit issued its Resolution (No. S.R.: 393 R.S. 19) Approval of the Strategy for Sustainable Arab Agricultural Development (2005-2025) (separate document), Document No. C 03/79 [07/02)/05 – D (0002)]*

## 2.2. The Arab Strategy for Water Security (ASWS) – Action Plan (2010-2030)

The Arab region suffers severe scarcity in water. The effect of this scarcity has been reflected on the growth of the size of water deficit, against the accelerated increase in water demand in most of the Arab States, which slowed the process of sustainable development, contributed to the recession of the agricultural sector, increased the food gap, expanded the spot of deserted territories, besides the increase of poverty, and aggravation of immigration from suburbs to the cities.

Facing these challenges, the Arab Strategy for Water Security in the Arab Region- Meeting the Future Challenges and Needs of Sustainable Development- was approved by the Arab summit held in Bagdad-Iraq in 29/03/2012. The Arab Water Security Strategy aimed to guide for joint Arab actions to ensure sustainable use of water resources in the Arab states. The ASWS establishes a set of key objectives grouped under three headings:

**The economic and developmental field**

related to the provision of water services for drinking, agriculture and sanitation, including financing and investment, technology transfer, application of the principles of integrated management of water resources, and the development of non-conventional water resources.

**The field of institutional, human and technical capacity development,**

as well as the promotion of social and individual awareness on regional water issues, including scientific research, promoting civil society participation in decision-making with environmental impacts, and other measures.

**The political field,**

especially in relation to the protection of Arab rights in cases of water under occupation or waters shared with neighboring States, promoting cooperation among Arab states for the management of shared water resources, and implementation of the commitments of the Arab States under the Millennium Development Goals.

It is worth mentioning that the ASWS is not a rigid structure, rather it is a guide for joint Arab action to ensure sustainable use of water resources in the Arab states and to pave the way for necessary actions from now until 2030.

## 2.3. The Arab Plan of Action to deal with Climate Change (APACC)[6]

Climate change is compounding development challenges in the Arab region, and is acting as a risk multiplier to various social and development issues. The 5th Assessment Report AR5 (2014) of the Inter-Governmental Panel on Climate Change (IPCC) classifies arid and semi-arid lands in the region as highly vulnerable to climate change, and notes that the Arab region will face serious climate and disaster risks in the coming years. Existing risks to food security in the natural sphere (drought, groundwater scarcity, crop diseases) and in the social sphere (social instability, inflation, food price spikes) are being exacerbated by climate change, increased climate variability and extreme disaster events. Moreover, models project that domestic food production will decline by 10-20 percent in the region due to climate change, directly impacting countries for which agriculture is a major employment base. A particular concern is the increased severity and frequency of droughts and floods in key cereal exporting regions (CRNI, 2015)[7].

[6] *Adopted by CAMRE, resolution No. 394 24th Session (Baghdad: 24-25/12/2012)*
[7] *The League of Arab States - Climate Risk Nexus Initiative "CRNI", 2015*

The Arab region will be one of those more vulnerable to potential impacts of climate change than to the threat on coastal areas, increased drought and desertification, water scarcity, increasing salinity of groundwater, and the spread of epidemics, pests and diseases in an unprecedented way. The potential impacts of climate change may have negative implications on development in the Arab region, such as decline in agricultural production and vegetation, loss of biodiversity, lack of food security and the threat to vital economic investments. These impacts may also have social consequences due to the flow and migration of people from the affected areas to others within the same country, neighboring States or other States, which would result in increased pressure on the environment and resources. In addition, they may have implications on public health due to growing air pollution, extreme heat waves and the spread of infectious diseases.

The Arab Plan of Action to deal with Climate Change (APACC) comes as a response to the above. APACC includes sectorial adaptation and mitigation programs on Climate; water, land and biodiversity; agriculture and forestry; economic diversity; construction; tourism; population and human settlements; health; seas and coastal areas; energy; and transportation. The strategy also includes cross-cutting programs on the promotion of environmental awareness; and women participation in climate change issues.

## 2.4. The Arab Strategy for Disaster Risk Reduction 2020 (ASDRR)[8]

The Arab States recognize the impacts of on-going environmental degradation, rapid unplanned urbanization, acute water scarcity, changing demography and migration trends on achieving sustainable development goals for the region. Secondary risks associated with population displacement, disease outbreak, pandemic influenza, food insecurity, conflict and civil unrest pose multi-fold challenges to the region, on a larger scale than ever before.

**A) Before the Sendai Framework for Disaster Risk Reduction[9]**

In response, and as a follow-up to the 1st Arab Summit on Socio-Economic Development, the Council of Arab Ministers Responsible for the Environment has adopted specific actions relating to disaster risk reduction through a significant decision on 24th May 2009 calling for the need to develop an Arab Strategy for Disaster Risk Reduction with a two-fold purpose: (1)To outline a vision, strategic priorities and core areas of implementation for disaster risk reduction in the Arab region; and (2) To enhance institutional and coordination mechanisms, and monitoring arrangements to support the implementation of the Strategy at the regional, national and local levels through the preparation of a Programme of Action.

Deriving from the Hyogo Framework for Action (HFA) in 2005, global priorities for disaster risk reduction, and based on the Arab Strategy's purpose, the below five corresponding key priorities are outlined to address disaster risk reduction efforts in the region: (1) Strengthen commitment for comprehensive disaster risk reduction across sectors; (2) Develop capacities to identify, assess and monitor disaster risks; (3) Build resilience through knowledge, advocacy, research and training; (4) Improve accountability for disaster risk management at the sub-national and local levels; and (5) Integrate disaster risk reduction into emergency response, preparedness and recovery.

[8] *Adopted by the Council of Arab Ministers Responsible for the Environment, resolution #345, in its 22nd session held at the League of Arab States 19-20 December 2010.*
[9] *ASDRR Executive Summary*

## B) After the Sendai Framework for Disaster Risk Reduction[10]

The Sendai Framework for Disaster Risk Reduction was adopted by the UN Member States on 18 March 2015 at the Third UN World Conference on Disaster Risk Reduction in Sendai City, Japan. The Sendai Framework 2015 - 2030 uses a wide-scale people-centered approach in disaster risk reduction that applies to both large- and small-scale disasters caused by natural or man-made hazards, as well as related environmental, technological and biological disasters. The Sendai Framework also aims to integrate multi-hazard management to disaster risk in development at all levels and across sectors. The implementation of the framework requires strong political leadership and commitment.

Based on regional consultations that took place to review and strengthen the Arab Strategy for Disaster Risk Reduction and in light of the context of the Sendai Framework, participants recommended that the priorities of the Arab strategy are to be in line with the Sendai Framework with a focus on the following four priority areas: (1) Enhancing disaster risks understanding; (2) Strengthening disaster risk governance to manage disaster risk; (3) Investing in disaster risk reduction for resilience and (4) Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

[10] *The Outcomes of the Arab Region Meeting on the Implementation of the Sendai Framework for Disaster Risk Reduction Cairo, Arab Republic of Egypt, 8 - 10 November 2015.*

## 3. Possible NEXUS Areas between Sectoral Arab Strategies and SDGs

Most development policy-making in the region remains focused on sectoral, linear approaches in decision-making that fails to engage the complexity of converging risks and challenges, and fails to engage the benefits of a nexus approach. While initiatives for climate and disaster resilience, land, water and food security, and social empowerment all proceed in parallel, they each face gaps in achieving their individual aspired results, often owing to lack of means to address converging risks and cross-thematic issues that would be more in focus from a nexus approach. Thus, the assessment identifies several "nexus potential areas" between SDGs and related Arab Strategies/Initiatives that are highly needed to further enhance implementation and rejuvenate the regional partnership for achieving the SDGs. These nexus areas include:

- Food Security and Climate Risk Nexus;
- Food Security, Water Security, Climate Risk and Ecosystems Nexus;
- Water Security, Social Vulnerability, Climate Risk and Ecosystems Nexus;

The following tables present possible SDG targets that could be considered for different types of nexus in relation to Food Security, Water Security, Climate Risk and Ecosystems.

| **Food Security and Climate Risk Nexus** | |
|---|---|
| *Food Security*<br><br>*(SDG2)* | *2.3 By 2030, double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous peoples, family farmers, pastoralists and fishers, through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment.* |
| | *2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality.* |
| *Combat Climate Change and its Impacts*<br><br>*(SDG13)* | *13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all States.* |
| *Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development*<br><br>*(SDG17)* | *17.14 Enhance policy coherence for sustainable development.* |
| | *17.18 By 2020, enhance capacity-building support to developing States, including least developed States and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts.* |

| Food Security, Water Security, Climate Risk and Ecosystems Nexus | |
|---|---|
| *Food Security*<br><br>*(SDG2)* | *2.5 By 2020, maintain genetic diversity of seeds, cultivated plants, farmed and domesticated animals and their related wild species through soundly managed and diversified seed and plant banks at national, regional and international levels, and ensure access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge as internationally agreed.* |
| *Ensure Healthy Lives*<br><br>*(SDG3)* | *3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases.* |
| *Ensure Availability and Sustainable Management of Water*<br><br>*(SDG6)* | *6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity.* |
| | *6.5 By 2030, implement integrated water resources management at all levels through transboundary cooperation as appropriate.* |
| *Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable*<br><br>*(SDG11)* | *11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums.* |
| *Combat Climate Change and its Impacts*<br><br>*(SDG13)* | *13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning* |
| *Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss*<br><br>*(SDG15)* | *15.3 By 2020, combat desertification, and restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation neutral world.* |
| *Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development*<br><br>*(SDG17)* | *17.6 Enhance North-South, South-South and triangular regional and international cooperation and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms through improved coordination among existing mechanisms, in particular at the United States level, and through a global technology facilitation mechanism.* |
| | *17.9 Enhance international support for implementing effective and targeted capacity-building in developing States to support national plans to implement all the Sustainable Development Goals, through North-South, South-South and triangular cooperation.* |

| Water Security, Social Vulnerability, Climate Risk and Ecosystems Nexus | |
|---|---|
| *End Poverty in all its forms Everywhere*<br><br>*(SDG1)* | *1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day.* |
| | *1.4 By 2030, ensure that all men and women, in particular, the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.* |
| *Ensure Inclusive and Equitable Quality Education and Promote Life-Long Learning Opportunities For All*<br><br>*(SDG4)* | *4.7 By 2030, ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others, education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development.* |
| *Ensure Availability and Sustainable Management of Water*<br><br>*(SDG6)* | *6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse by x% globally.* |
| | *6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.* |
| *Promote Sustained, Inclusive and Sustainable Economic Growth, Full and Productive Employment and Decent Work for All*<br><br>*(SDG8)* | *8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage formalization and growth of micro-, small- and medium-sized enterprises through access to financial services.* |
| *Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable*<br><br>*(SDG11)* | *11.3 By 2030, enhance inclusive and sustainable urbanization and capacities for participatory, integrated and sustainable human settlement planning and management in all States.* |
| *Take Urgent Action To Combat Climate Change and its Impacts*<br><br>*(SDG13)* | *13.2 Integrate climate change measures into national policies, strategies, and planning.* |
| *Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development*<br><br>*(SDG14)* | *14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, by strengthening their resilience, and taking action for their restoration, to achieve healthy and productive oceans.* |

| | |
|---|---|
| *Protect, Restore and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss*<br><br>*(SDG15)* | *15.1 By 2020, ensure conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.* |
| | *15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and increase afforestation and reforestation by x% globally.* |
| | *15.5 Take urgent and significant action to reduce degradation of natural habitat, halt the loss of biodiversity, and by 2020, protect and prevent the extinction of threatened species.* |
| *Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development*<br><br>*(SDG17)* | *17.1 Strengthen domestic resource mobilization through international support to developing States, to improve domestic capacity for tax and other revenue collection.* |
| | *17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for the least developed States by 2017 and enhance the use of enabling technology, in particular information and communications technology.* |
| | *17.13 Enhance global macroeconomic stability through policy coordination and policy coherence.* |
| | *17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development.* |
| | *17.16 Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all States, in particular developing States.* |
| | *17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing States.* |

Mapping SDS and Targets in relation to major Arab sectorial strategies is further elaborated in Annex VII.

# 4. Revisiting and Re-Thinking Arab Strategies

The assessment reflected the wide gaps between the studied Arab strategies, which have a direct link to the Climate Risk Nexus Initiative and the SDGs. Those gaps require re-thinking these strategies to cope with globally agreed agendas for post-2015, and defining different shapes of needed "Nexus" to integrate natural, economic and social dimensions. Initial results from the assessment suggest that for current strategies to be aligned and to mutually reinforce each other, efforts are needed to either; 1) revisit and update key sectorial strategies, or; 2) create a strong umbrella strategy for the SDGs in the Arab Region. Such an umbrella strategy would need to focus on the integration of economic, environmental and social dimensions, and how certain goals and objectives have a high 'nexus potential', i.e. where actions and activities may support multiple SDG goals, objectives and targets. Additionally, significant efforts are highly needed to identify the roles and responsibilities of key regional and international actors, attract funding and better develop performance indicators and monitoring mechanisms to evaluate the impact of current strategies on the region and determine long and short term gains. Attention should also be awarded to the use of an integrated approach being the backbone to achieving sustainability as traditional sector-based approaches and tools are no longer suitable. Thus, understating the SDGs and its related targets in an integrated way, will not only provide incentives to pursue their achievement, but also to uphold them beyond the Agenda's timeframe. In the following section, major topics for re-thinking Arab Strategies will be highlighted, for three out of the four assessed Arab Strategies, as ASDRR has been adopted to match with "Sendai Framework for Disaster Risk Reduction 2015".

## 4.1. Re-Thinking the Arab Strategy for Agricultural Development and Food Security

The challenge of improving the level of resilience within rural areas to cope with the challenges that hinder sustainable development is an important component of the strategy. Therefore, there is a need to further introduce successful pilots, case studies and best practices to ensure effective and efficient implementation and to stress the following elements:

**Modern Agriculture and Extension's Survival**

The traditional basic agricultural education provided by the Extension system is increasingly irrelevant and ignored, causing a decline in the philosophical and financial support for Extension at local, state, and federal levels. Agencies that were for decades the bedrock source of information and advice for production agriculture, has seen its role change as farmers have become more reliant on consultant services, marketing services, and immediate access to information via the Internet.

To ensure its survival, extension must (1) redefine its niche, finding ways to serve traditional partners while exploring new horizons, (2) develop relevant programs and aggressively market them to the appropriate clientele , (3) employ rigorous communication and education strategies, and (4) use financial creativity and leveraging to meet challenges of diminished state/federal funding.

**Insurance for Agriculture, Freeing Farmers from Extreme Weather Risk**
Life for rural smallholder farmers is often marred by difficulties, and there are many constraints limiting their economic potential. Challenges include uncertain weather conditions affecting harvests, insecure land ownership limiting farmers' propensity to invest, restricted access to capital and farm inputs such as fertilizer or seeds, unfavorable trade policies and price fluctuations. Many of these constraints are beyond the farmer's control as they depend on environmental conditions, policies or market players. Agricultural insurance has the potential to address some of these constraints by facilitating access to means of production and changing behavior by reducing uncertainty. Insurance can also be a catalyzer, as lenders will be more likely to extend credit to farmers covered by insurance, allowing them to make productivity-enhancing investments.

**Rural Housing and Economic Development (RHED):** The Rural Housing and Economic Development (RHED) Program provides for capacity building at the state and local level for rural housing and economic development and supports innovative housing and economic development activities in rural areas.

- Village Economies, the Design, Estimation, and Use of Village-wide Economic Models
  - Most of the world population and the vast majority of the world›s poor live and work in villages. Their activities are usually centered in households, but interactions among households shape the impacts of policy, market, and environmental changes on rural production, incomes, employment, and migration.

- Improve Agricultural Credit and Financing systems
  - Making credit available in reasonable and fixable terms to farmers and ranchers and their cooperatives, for rural residences and to associations and other entities upon which farming operations are dependent, to provide for an adequate and flexible flow of money into rural areas.
  - Making credit available for farm-related businesses, rural home-owners, rural infrastructure providers, including electric, telecommunications, water and waste, as well as other rural service providers.
  - Cooperative structure is important to customers because it means they have a say in how Farm Credit does business. As cooperatives, Farm Credit institutions often return their earnings in the form of patronage to borrower-owners.
  - Provide market-based safety nets and fund long-term investments to support sustainable economic growth.

**Rural Environment Degradation and Ecological footprint analysis**
Environmental degradation: is the failure of the governments to formulate appropriate policies to ensure sustainable land and water use. Such policy failures include price distortions through government-controlled prices, subsidies or taxes which give incorrect price signals, faulty delineation of property rights regimes and other legal structures, government projects which directly cause environmental damage, and weak public institutions.

cological footprint analysis: The ecosystem within which all rural activities are conducted encompasses the air we breathe, the water bodies surrounding us, and the land we walk on. Ecological footprint analysis, which is an accounting tool that estimates the resource consumption and waste assimilation requirement of a defined human population or economy in terms of a corresponding land area, needs to be encouraged.

**Linking Renewable Energy to Rural Development**

Renewable energy is being championed as a potentially significant new source of employment and rural growth, and a means of addressing environmental and energy security concerns. It is considered to be a new revenue source that can generate extra income for land owners and land-based activities, create new jobs and business opportunities and create direct jobs, such as in operating and maintaining equipment. It can also provide affordable energy in remote rural areas with the opportunity to produce their own energy (electricity and heat in particular), rather than importing conventional energy from outside. Communities will be able to generate reliable and cheap energy that can trigger economic development.

## 4.2. Re-Thinking the Arab Water Security Strategy

The action plan of the **Arab Water Security Strategy** requires re-reading based on plus 2015 with all the new agreements in SDGs, DRR and CC; at the meantime, evaluation should take place to give more space for more initiatives and different types of "NEXUS" in scope and space to take place. Successful practices require up-scaling, and preparation of integrated regional – national - communities projects to attract donors' contribution and to meet with the challenges of water scarcity in the region. Hence, re-thinking the Arab Water Security Strategy needs to stress the following elements:

**Improved Water Governance for social and economic challenges (i.e. poverty reduction, unemployment, gender equality and displacement, migration & conflicts):**

It is expected that water challenges will increase significantly in the coming years. This will seriously constrain the availability of water for all purposes – particularly for agriculture, which currently accounts for more than 80 percent of water consumed in Arab countries. The continuation of the Agriculture self-sufficient policies sounds unsustainable from the agricultural point of view, in the meantime both urban and industrial demands are growing and likely to increase water pollution as well as water use. Climate change and variability, particularly the foreseen increases in the frequency and severity of extreme events, will worsen water scarcity to crisis levels in many local communities of the Arab region and to populations already living in water stress are living in water stress, water scarcity is likely to become a more frequent cause for displacement, migration and conflicts.

Accordingly, dealing with water governance is more than national-level water legislation, regulations and institutions, though these are important components. It also refers to the processes that exist to promote popular participation in designing water and sanitation systems and where decisions about those systems are made as well as how and by whom. It refers to social mobilization and other actions designed to promote ownership, co-investment, capacity building, incentives for participation, and willingness to pay for services at the community level.

Effective water governance builds institutional capacity from the local level upwards, empowers stakeholders with knowledge and ability to make decisions about matters that directly affect their lives, promotes the equal participation of women and men in decision-making.

**Groundwater Management for Sustainable Development:**

Groundwater is one of the most important natural and strategic resources due to its usually high quality and perennial availability. Groundwater has always been considered to be a readily available source of water for domestic, agricultural and industrial use. In many parts of the Arab region, groundwater extracted for a variety of purposes has made a major contribution to the improvement of the social and economic circumstances of human beings. Management strategies have been focused on the development of groundwater resource while projects of various types and scales have been developed and managed in response to the growing demand for water by communities and industries. In most of the aquifer systems, unplanned and uncontrolled water withdrawal, waste disposal and pollution have already led to situations of excessive stress and water shortage.

The key principles in the evolution of sustainability in groundwater development are addressed as: (a) providing sustainable water use; (b) protecting groundwater resources from degradation, i.e. sustaining quality; and (c) controlling environmental impacts of development, i.e. sustaining environmental diversity.

The complexity of the system requires special efforts to develop the monitoring network and modeling tools needed for predictive analysis. Another challenge is to find alternative methods of protection and effective methods of treatment in the case of protecting groundwater quality. However, the most important challenge is to understand the interaction and interdependency between groundwater and ecosystems. It has to be realized that a substantial amount of time, manpower and funding is needed to acquire all necessary data and information through monitoring as well as through quantitative analysis. However, all these efforts and costs are insignificant compared with the cost of remedying the adverse impacts of over-exploitation or contamination of groundwater, or even of providing an alternative water supply.

**Water Footprint and Virtual Water:**

The water footprint of a product is an empirical indicator of how much water is consumed, when and where, measured over the whole supply chain of the product. The water footprint is a multi-dimensional indicator, showing volumes but also making explicit the type of water use (evaporation of rainwater, surface water or groundwater, or pollution of water) and the location and timing of water use.

The water footprint helps to show the link that exists between our daily consumption of goods and the problems of water depletion and pollution that exist elsewhere, in regions where our goods are produced. Better understanding of the relationship reduces indirect water footprint by substituting a consumer product that has a large water footprint by a different type of product that has a smaller water footprint, or by sticking to the same consumption pattern but selecting the same goods that have a relatively low water footprint or that have their footprint in an area that does not have high water scarcity.

Virtual water is the amount of water that is embedded in food or other products needed for its production. Trade in virtual water allows water scarce countries to import high water consuming products while exporting low water consuming products and in this way making water available for other purposes. Showing people the ‹virtual water› content of various consumer goods will increase people's awareness on water.

National, regional and global water and food security can be enhanced when water-intensive commodities are traded from places where they are economically viable to produce to places where they are not. This requires, however, that consumers have the proper information to make that choice. Since this information is generally not available in the world of today, an important thing consumers can do now is ask product transparency from businesses and regulation from governments.

**Water Pricing for Water Conservation:**

Irrigation costs and prices are rising due to a combination of increasing scarcity, changes in public preferences regarding water allocation among competing uses, rising energy prices, and increasing awareness of climate change and the potential implications for rainfall and the availability of surface water resources. These issues likely will encourage public officials to utilize water pricing and other market-based incentives or socially accepted solutions to motivate further improvements in water use efficiency in agriculture similar to other sectors.

## 4.3. Re-Thinking the Arab Plan of Action to deal with Climate Change (APACC)

The APACC is lacking both the Nexus approach and the integration between natural and social elements. Accordingly, there is no mention of climate risk or any existing links between climate changes and socio-economic aspects of the affected communities. Attention should be awarded to the following areas:

**Climate Change and Poverty Alleviation:**

Climate change hits the poorest people the hardest, those living in vulnerable areas with the fewest resources to help them adapt or recover quickly from shocks. As the effects of climate change worsen, escaping poverty becomes more difficult. While SDGs are acting for ending extreme poverty and putting in place the safety nets that can keep poverty at bay while also building resilience, that requires developing policy guidance and recommendations that can help.

Strengthening the relationship between APACC and ASDRR is crucial and important as millions of people are vulnerable to effects such as: drought and water shortages, floods and other extreme weather, crop failures and food insecurity, reduced agricultural productivity, loss of low-lying lands, desertification, loss of biodiversity and ecosystem services, and spread of diseases, such as malaria.

**Climate Change making Food Crops Less Nutritious:**

It is uncontroversial that climate change has an impact on nutrition, since it affects all basic, underlying and immediate causes of under nutrition and brings additional pressures for the already food insecure regions of the world. Nutrition only plays a supporting role in the agriculture and food security discussions on climate change. For the poorest groups, the seasonal cycles of food availability, infection, and time use remain a significant challenge to nutrition security and provide a stark indicator of the vulnerability of populations to climate risk.

## Impacts of Climate Change on Human Health[11]

- Climate Change and Human Health: The influences of weather and climate on human health are significant and varied. The frequency, severity, duration, and location of weather and climate phenomena — like rising temperatures, heavy rains and droughts, and some other kinds of severe weather — are changing.

- Temperature-Related Death and Illness: Days that are hotter than the average seasonal temperature in summer or colder than the average seasonal temperature in winter, cause increased levels of illness and death by compromising the body's ability to regulate its temperature or by inducing direct or indirect health complications. Temperature extremes can also worsen chronic conditions such as cardiovascular disease, respiratory disease, cerebrovascular disease, and diabetes-related conditions. Prolonged exposure to high temperatures is associated with increased hospital admissions for cardiovascular, kidney, and respiratory disorders.

- Air Quality Impacts: Changes in the climate affect the air we breathe, both indoors and outdoors. The changing climate has modified weather patterns, which in turn have influenced the levels and location of outdoor air pollutants such as ground-level ozone (O3) and fine particulate matter. Increasing carbon dioxide (CO2) levels also promote the growth of plants that release airborne allergens (aeroallergens).

- Vector-Borne Diseases: Climate change is likely to have both short- and long-term effects on vector-borne disease transmission (include mosquitoes, ticks, and fleas) and infection patterns, affecting both seasonal risk and broad geographic changes in disease occurrence over decades. While climate variability and climate change both alter the transmission of vector-borne diseases, they will likely interact with many other factors, including how pathogens adapt and change, the availability of hosts, changing ecosystems and land use, demographics, human behavior, and adaptive capacity.

- Water-Related Illness: Factors related to climate change — including temperature, precipitation and related runoff, and storm surge — affect the growth, survival, spread, and virulence or toxicity of agents (causes) of water-related illness. Other factors may include human behavior and social determinants of health that may affect a person's exposure, sensitivity, and adaptive capacity.

- Food Safety, Nutrition and Distribution: This factor focuses on some of the less reported aspects of food security, specifically the impacts of climate change on food safety, nutrition and distribution. Increasing carbon dioxide (CO2) and climate change alter the safety, nutrition, and distribution of food.

- Mental Health and Well-Being: The effects of global climate change on mental health and well-being are integral parts of the overall climate-related human health impacts. Mental health consequences of climate change range from minimal stress and distress symptoms to clinical disorders, such as anxiety, depression, post-traumatic stress, and suicidality.

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[11] *USGCRP, 2016: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska, Eds. U.S. Global Change Research Program, Washington, DC, 312 pp. http://dx.doi.org/10.7930/J0R49NQX*

## Climate Change and Environmental Education[12]

While children are among the most vulnerable to climate change, they should not be considered passive or helpless victims. Children are powerful agents of change, and studies have found that many children can be extraordinarily resilient in the face of significant challenges. Providing children with empowering and relevant education on disasters and climate change in a child-friendly school environment can reduce their vulnerability to risk while contributing to sustainable development for their communities. Educating girls and women is one of the best ways of strengthening community adaptation to climate change, as shown by recent studies.

## The Resilience of Water Supply and Sanitation Infrastructure and Services

Climate change is expected to affect the capacity and operations of existing water and sanitation infrastructure and services. These services have to prepare for the widely anticipated consequences of floods and droughts, or risk compromising access to safe drinking water and adequate sanitation for substantial numbers of people in Arab countries, with cascading effects on human health and development. Resilience needs to be integrated into drinking-water and sanitation management to cope with present climate variability. It will be critical in controlling the adverse impacts of future variability. Urgent action is required to turn the potential adaptive capacity of many utilities managed water supplies to actual resilience to climate change. Systematic assessments of the climate change resilience of all utilities and of rural water and sanitation programmes are needed. Adaptations that are available need to be put in place in areas likely to face climate changes.

[12] *UNESCO (2013). Climate Change and Environmental Education.*

## 5. The Way Forward: Making Efforts More Efficient

The assessment illustrates that most goals have many areas of overlapping and that many targets can contribute to several goals. Understanding that there are important trade-offs between goals is critical for longer-term planning and prioritization. Operationalizing a nexus approach can support the identification of a balanced way forward where optimal outcomes for one target can be achieved, whilst ensuring the best scenarios of potential influence on others.

CRN Initiative, supported by LAS-AGIR hosted by the Arab Water Council[13], could act as a major player in establishing an integrated framework for potential nexus areas and filling-in the gaps between the existing Arab Strategies and action plan activities as well as the SDGs and targets. It could support the achievements of the SDGs under different Arab strategies and/or action plans for reducing climate risks using the "Nexus" that deals with water security, food security, social vulnerability, disaster risk reduction, climate change, terrestrial ecosystems, and for achieving sustainable resource base and resilient societies.

Through this initiative, efforts will be made to: strengthen regional cooperation and knowledge networks across disciplines; respond to gaps in science and data for managing risks; enhance the use of indicators and early warning systems, build local leadership and capacities for risk and resilience and support transformational change in development policies. Based on analysis shown in Annexes VII and VIII the following activities are lacking support under current major Arab Region strategies and initiatives could fit under the four CRNI areas of interest:

| *Activities and Areas of Interest for Possible CRNI Support* | | | | |
|---|---|---|---|---|
| *Activities* | *CRNI Area of Work* | | | |
| | *(1) Science and Data Readiness for Decision-Making* | *(2) Tools and Technology for Risk-Informed Development* | *(3) Local Leadership and Capacity Development* | *(4) Strategies and Policies for Transformative Change* |
| • *Understanding variations in vulnerability, exposure, risks and disaster losses, according to gender, age, and socio-economic backgrounds*<br>• *Understanding extensive and intensive risks*<br>• *Understanding the social, economic and institutional factors in addition to the natural and physical factors that contribute to the vulnerability and the accumulation of risks* | ✓ | | | |

[13] *LAS - Arab Geographical Information Room (LAS-AGIR), hosted by the Arab Water Council (AWC), and supported by a Unit of Technical Excellence established by a decree of the LAS Arab Water Ministerial Council issued on May 27, 2015*

| | | | | |
|---|---|---|---|---|
| • *Setting the methodologies of integrated management for water resources and developing water policies based on the principle of integrated management for water resources*<br>• *Development of monitoring systems for water recourses*<br>• *Developing proper information and communication technologies*<br>• *Coordinating agricultural research policies and technology transfer*<br>• *Organizing pastoral resources and forestry*<br>• *Preparing methodologies of sustainable integrated management for land based on maps of soil, vegetation and optimal use*<br>• *Organizing the management of pastoral forestry and forest resources* | |  |  | |
| • *Scientific and community assessment taking into consideration the views and opinions of those active organizations operating in the most vulnerable countries to disasters*<br>• *Taking economic, social and institutional measures in addition to physical measures to reduce risk and vulnerability*<br>• *Following-up and monitoring international and regional changes and the required adjustments*<br>• *Developing climate – agricultural maps at the level of the Arab region that contributes directly to support the decision-making process in order to counter climate change effects on the Arab region* |  |  | | |
| • *Institutionalizing national and local forums for disaster risk management across different sectors*<br>• *Developing capacities of the national institutions working in the field of analyzing and assessing agricultural policies*<br>• *Providing guidance and awareness among farmers*<br>• *Reduction of vulnerability of livelihoods and investments*<br>• *Developing vegetation and organizing pastures*<br>• *Application of appropriate agricultural cycles (rotation)*<br>• *Promoting the participation of women in the Arab delegations to the Conference of the Parties (COP)*<br>• *Improve Capacities for Combating Desertification* | | |  | |

| | | | | |
|---|---|---|---|---|
| • *Interaction with the main disaster risk factors – i.e. poverty, environmental degradation, rapid urban development, poor governance, and in particular, the weak risk governance*<br>• *Develop and activate regulations and legislations that promote accountability (for risk formation) and risk transfer to the relevant sector*<br>• *Develop a risk governance framework to promote transparency and accountability of the decisions taken during all phases of risk assessment (pre-assessment, scientific and community assessment and classification and management of disaster risks)*<br>• *Develop and implement programs that aim at increasing the resilience of all national critical infrastructures including those of cultural and natural heritage, work areas, and the education and health sectors*<br>• *Reducing the existing risks and preventing new ones* | | |  |  |
| • *Coordinating agriculture investment policies*<br>• *Developing skills in the field of policy analysis, negotiations and international arbitration*<br>• *Risk reduction in agriculture*<br>• *Rehabilitation of degraded forests and grasslands*<br>• *Dissemination of press releases and talk shows about climate change through print, audio and visual media and social network to illustrate the personal practices that can be done to contribute to the mitigation of climate change*<br>• *Identifying financial mechanisms for the implementation of national, local and sectoral plans, as well as identifying potential funding sources for disaster risk management policies from the public and the private sector and implementation action plans.* | | | |  |

## 6. Conclusions and Recommendations

The Arab region is facing unique threats of population growth; water scarcity; decline of land productivity and increased land losses rates; higher rates of poverty and unemployment percentage that will reduce the quality of life; socio-economic disturbance; increased food insecurity; with expectation of higher rates of conflicts and displacement that will cause high instability. The complex factors shaping the region include: occupation; on-going conflicts; governance, human rights and institutional deficits; and shortcomings in terms of financing, science and technology, trade and statistical capacity. By using a nexus and SDG lens, a number of conclusions for consideration by policy-makers were made as part of this review, including:

- A consolidated long-term regional vision for sustainable development is required to allow identifying region's own targets and means of implementation, and provide a basis for assessing progress, identifying lessons learned, highlighting common challenges and solutions, and promoting peer learning. This regional vision could also guide national strategies development and implementation.

- The already adapted Arab Strategic Framework for Sustainable Development would need to be revisited in order to provide an umbrella for sectoral strategies in the region that had been developed during the last years.

- The objective of this report, is to take stock of the major ongoing related regional strategies and initiatives in the field of water, food, and social vulnerability in the Arab Region. It aims at identifying and prioritizing key areas and gaps that need further enhancement and possible support on the regional level by Climate Risk Nexus Initiative (CRNI).

- Driving-change quantified targets and timeframes for the SDGs are required to determine whether sufficient progress is being made. Research suggests that most goal areas are interlinked, that many targets might contribute to several goals, and that there are important trades-offs among several goals and targets.

- Most goals have many areas of overlapping and many targets can contribute to several goals. Understanding that there are important trade-offs between different goals and targets is critical for longer term planning and prioritization. Operationalizing a nexus approach can support the identification of a balanced way forward where optimal outcomes for one target can be achieved, whilst ensuring the best scenarios of potential influence on others.

- The four studied Arab Strategies (Food Security, Water security, APACC and ASDRR) reflected the need for designing a "NEXUS" approach. The study identified different types of "nexus areas" to strengthen the means of implementation and revitalize the global partnership for achieving the SDGs. These areas include Food Security and Climate Risk Nexus; Food security, Water security, Climate risk and Ecosystems Nexus and Water security, Social vulnerability, Climate risk and Ecosystems Nexus.

- The assessment of the already adopted Arab Strategies and action plans vs. SDGs and targets reflected the wide gap between the studied Arab strategies, and the SDGs. Those gaps require re-thinking Arab Strategies to cope with the globally agreed agendas for post- 2015, designing different shapes of needed "Nexus" and integrating natural and social dimensions.

- The challenge towards improving the level of resilience within rural areas to cope with the challenges that hinder sustainable development is a very important component in the **Arab Strategy for Agricultural Development and Food Security (ADFS) Strategy.** The main challenge is in introducing successful pilots, case studies and best practices to ensure effective and efficient implementation in the fields of:
    - Rural Housing and Economic Development (RHED), including: village economies, agricultural credit & financing systems, environment and health in rural areas;
    - Education for Rural Development, including making schools relevant to the rural environment, and improving access to education;
    - Rural Environment Degradation and Ecological Footprint Analysis;
    - Linking renewable energy to rural development;
    - Insurance for agriculture, freeing farmers from extreme weather risk;
    - Modern agriculture and extension's survival.

- The action plan of the **Arab Water Security Strategy** requires re-reading based on plus 2015 with all the new agreements in SDGs, DRR and CC; at the meantime, evaluation should take place to give more space for more initiatives and different types of "NEXUS" in scope and space to take place. Successful practices require up-scaling, and preparation of integrated regional – national - communities projects to attract donors' contribution and to meet with the challenges of water scarcity in the region. The following areas are proposed for additional support:
    - Water governance for social and economic challenges (poverty reduction, unemployment, gender equality and displacement, migration & conflicts)
    - Groundwater for sustainable development
    - Water footprint and virtual water analysis
    - Water pricing policies for a dry future

- **Arab Plan of Action to deal with Climate Change (APACC)** deals with Climate Change (APACC) is in need of re-reading based on plus 2015 with all the new agreements in SDGs, DRR and CC. This will include identifying the roles of the different organizations and seating indicators and system for development measurements. The following areas are proposed for additional support:
    - Climate change in relation to ending poverty
    - Climate change impact on food crops nutrition
    - Impacts of climate change on human health
    - Climate change and environmental education
    - The resilience of water supply and sanitation in the face of climate change

- **The Arab Strategy for Disaster Risk Reduction 2020 (ASDRR 2020),** which in line with the Sendai framework, requires modifying the draft action plan; the recommendations for making changes in ASDRR in line with the Sendai framework and require re-discussion for making those modifications to the action plan and distributing roles among different organizations.

## Assessing and mapping SDGs and Targets vs. Arab Strategies and the major on-going initiatives (Annexes VII and VIII) illustrates the following:

- The Climate Risk Nexus Initiative (CRNI) could support the achievements of the SDGs under different Arab strategies and/or action plans for reducing climate risks using the "Nexus" that deals with water security, food security, disaster risk reduction, climate change, terrestrial ecosystems, and for achieving sustainable resource base and resilient societies.

- CRNI could participate in filling in the gaps between the existing Arab Strategies and action plan activities and the SDGs, coordinating or acting as a major player in implementing activities that could be covered by CRNI and the Arab Geographical Information Room (AGIR).

- Finally, CRNI main working areas could play major roles in contributing to the regional expected discussions to streamline the available Arab strategies and action plans to the new agreed and adapted SDGs, DRR and Climate Change. The newly established CRN initiative can serve as a platform for joint programming between LAS and regional agencies to help in creating synergies across sectors, enhancing further complementarities among regional and international partners, reducing fragmentation of efforts and maintaining coordination towards a sustainable future for the Arab region.