

**Review of the Arab Strategy for
Disaster Risk Reduction 2020 (ASDRR)
in view of Sendai Framework for
Disaster Risk Reduction (2015-2030),
the Sustainable Development Goals
(SDGs) and the Climate Change agenda**

Analysis of gaps and recommendations to
strengthen the Arab Strategy for DRR

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This document compiles three analytical reports produced for this review exercise of the Arab Strategy for Disaster Risk Reduction. The 3 reports in order of presentation in this document are:

1. Note on the review of the Arab Strategy for Disaster Risk Reduction 2020 (ASDRR) in view of Sendai Framework for Disaster Risk Reduction (2015-2030), the Sustainable Development Goals (SDGs) and the Climate Change agenda
2. A Preliminary Analysis of existing Gaps in the Arab Strategy for Disaster Risk Reduction (ASDRR) and Recommendations for Strengthening the ASDRR in view of the Sendai Framework for Disaster Risk Reduction (SFDRR)
3. A Preliminary Analysis of the Existing Gaps in the Arab Strategy for Disaster Risk Reduction (ASDRR) and Recommendations for Strengthening the ASDRR in view of ASDR and APACC Initiatives

Note on the review of the Arab Strategy for Disaster Risk Reduction 2020 (ASDRR) in view of Sendai Framework for Disaster Risk Reduction (2015-2030), the Sustainable Development Goals (SDGs) and the Climate Change agenda

I. Introduction

This document provides a summary of the following two reports, commissioned by UNISDR and developed by the author, with the aim of strengthening linkages between the Arab Strategy for Disaster Risk Reduction in view of international and regional initiatives on the Sendai Framework for Disaster Risk Reduction (SFDRR), the Sustainable Development Goals (SDGs) and Climate Change Adaptation (CCA):

- 1) A Preliminary Analysis of Existing Gaps in the Arab Strategy for Disaster Risk Reduction (ASDRR) and Recommendations for Strengthening the ASDRR in View of the Sendai Framework for Disaster Risk Reduction (SFDRR).
- 2) A Preliminary Analysis of Existing Gaps in the Arab Strategy for Disaster Risk Reduction (ASDRR) and Recommendations for Strengthening the ASDRR in View of the Arab Sustainable Development Report (ASDR) and the Arab Plan for Adaptation to Climate Change (APACC) Initiatives.

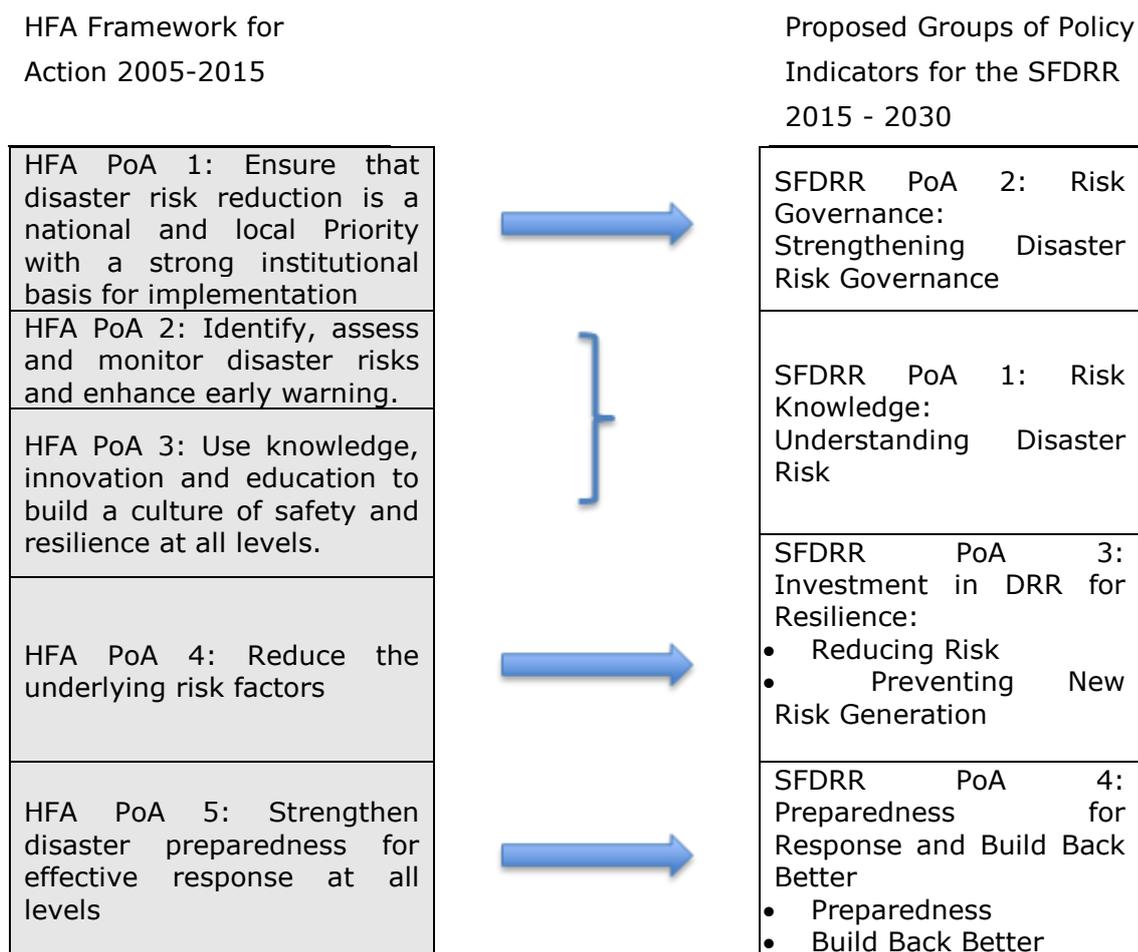
In addition, linkages between disaster risk reduction priorities as outlined in the five Priorities for Actions provided in the Hyogo Framework for Action (HFA) and the four priorities for Action provided in the Sendai Framework for Disaster Risk Reduction (SFDRR) is provided. Sendai Framework elaborated indicators into **input, output and outcome** categories, as indeed articulated in the background documents to the SFDRR. In developing the above linkages, the following reference document was used "*Considerations on Developing A system of Indicators Based on the Sendai Framework for Disaster Risk Reduction 2015 – 2030: A Proposal for Monitoring Progress, Draft to support the process for discussing on indicators, follow up and review process for the Sendai Framework for DRR, UNISDR, Geneva, July 2015*".

In this context, it should be emphasized that this document is a summary of the gaps and strengthening recommendations that are thoroughly elaborated and articulated in the above mentioned two reports, and as such, this document must be read in conjunction with the reports.

II. Linkages between Hyogo Framework for Action and Sendai Framework for Disaster Risk Reduction

The proposed set of indicators and Priority for Action (PoA) in the SFDRR incorporate all core indicators from the HFA, thereby ensuring continuity with the existing HFA framework as elaborated in Figure 1 below.

Figure 1 Mapping between HFA and SFDRR PoA and Associated indicators



III. Proposed additional activities and linkages to be reflected in the Arab Strategy for Disaster Risk Reduction in view of Sendai Framework for Disaster Risk Reduction (SFDRR)

SFDRR Priority for Action 1: Understanding Disaster Risk

Ensure that efforts for 1) understanding risk and its effects, 2) improving the science policy interface, 3) building capacities for DRR and 4) raising awareness on DRR issues at the regional, national, local and sectoral levels account for:

- The views of different stakeholders, including those most vulnerable to disaster risk, and attempt to capture and understand the variation of exposure, vulnerability, risk and disaster losses with sex, age, socio-economic backgrounds, and ability.
- Intensive and extensive risk and challenges to meet every day needs.
- The social, economic, institutional, natural and physical factors contributing to vulnerability and risk accumulation.
- Risk created outside of government control (informal settlements and the informal livelihoods sector).
- Societal concerns and apprehensions.
- Interactions with the main disaster risk drivers (poverty, weak governance and risk governance, environmental degradation and unchecked, rapid urban expansion).
- Interactions with climate change and sustainable development goals.

SFDRR Priority for Action 2: Risk Governance

Ensure that efforts for 1) delineating DRM legislation, 2) strengthening DRM institutions, 3) improving implementation of DRM strategies and policies, and 4) improving access and accountability of the DRM decision-making process at the regional, national, local and sectoral levels identify and account for:

- The financial gap and needs for disaster risk reduction programs at the national, local and sectoral levels.
- Sources for financing DRM policies, from the public and private sectors.
- Existing risk and new risk.
- The superposition of intensive risk on extensive risk, and in turn both types of risk on the challenges faced by communities to meet their everyday needs in terms of shelter, food, education, jobs, health and a decent living.
- Financial incentives to invest in DRM.
- A risk governance framework at all stages in the risk management process (namely risk framing stage, technical and societal risk assessment stage, risk evaluation stage and risk management stage).
- The three main roles of the government in DRM, namely the regulatory role (to protect individual citizens and sectors from risk created by other citizens and sectors), the stewardship role (to protect citizens and sectors against external threats and hazards) and managerial role (to empower the government to carry out its above two roles)
- Practical ways to enhance accountability for risk construction and the transfer of risk between citizens and sectors, including malicious risk construction and risk transfer.
- Interactions between governance challenges in 1) climate change risk construction and adaptation, 2) sustainable development, 3) poverty reduction and 4) disaster risk management.

SFDRR Priority for Action 3: Investing in DRR for Resilience

Ensure that efforts for resilience building and vulnerability reduction programs at the regional, national, local and sectoral levels account for the following:

- All critical national infrastructure including cultural heritage and collection facilities, work places and the education sector.
- The financial needs for implementation, and options to address them, as part of long-term, multi-year sustainable financing strategies.
- Reducing existing risks and preventing new risks.
- Structural and non-structural measures.
- The economic, social, institutional, physical and natural measures to reduce vulnerability and risk.
- Supply chain dynamics and its linkages to the protection of livelihoods and investments in the wake of disasters.
- Rural development policies, challenges and needs.
- The need in vulnerable communities, households and businesses for improved access to micro-finance and micro insurance schemes.
- Tracing public and private expenditure on DRR.
- Differential needs, vulnerabilities and capacities of the population, including those with life threatening diseases.
- Stresses arising from disaster induced human mobility.
- Interaction with vulnerability due to climate change and weak development achievements, irrespective of the growth rate in the region.
- Promote regional cooperation to produce coherent strategies for addressing common and inter-related challenges facing the region including poverty, unemployment, disaster risk, climate change, and water, food and energy insecurity.

SFDRR Priority for Action 4: Preparedness for Response and Build Back Better

Ensure that efforts for 1) preparedness to respond, 2) early warning, 3) response, and 4) recovery, at the regional, national, local and sectoral levels adopt and account for:

- A participatory, people-centred approach that makes use of social technologies and incorporate the concerns and apprehensions of all.
- The resilience of basic and essential services, and continuity of operations, as part of the sectoral resilience building programs.
- The development of procedures and capacities for psycho-social support for affected people and communities.
- Development of recovery plans, separate from response plans, to ensure that the reconstruction of the built environment, livelihoods and businesses will not reintroduce risk but rather will be based on the principle of "Build-Back-Better".
- Best practices at the international, regional and sub-regional levels, including on using recovery plans to avoid reintroducing risk.
- Building back better by avoiding reintroducing risk due to natural hazards and climate change, while promoting the sustainable use of energy, food and water resources.

IV. Indicators' architecture as a tool for decision makers with respect to disaster risk reduction

The proposed indicators in the SFDRR form an effective tool for monitoring progress in the implementation of the SFDRR, as indeed they were for the HFA. However, these indicators may also act as a management tool for decision makers in the fields of DRM, sustainable development, poverty reduction and climate change adaptation.

In order to do so, it is necessary to realign indicators, and activities, so that progress can be monitored not only at the level of inputs (i.e. strategies, policies and legislations developed) but also at the level of Outputs and Outcomes. In this manner, it becomes easier to identify and strengthen linkages between poverty reduction, sustainable development, climate change adaptation and disaster risk reduction; thereby highlighting the importance of these linkages for the policy makers; and allowing the general public an opportunity to hold decision makers accountable for their corresponding decisions.

To elaborate this concept further, the following discussion on input, output and outcome is provided:

- Input: with activities under the four SFDRR PoAs, namely Risk Knowledge (SFDRR PoA 1), Risk Governance (SFDRR PoA 2), Investing in DRR for Resilience (SFDRR PoA 3), and Preparedness for Response and Build Back Better(SFDRR PoA 4).
- The expected output of the activities under the above input headlines would be 1) reduced risk, 2) improved social and economic resilience, 3) strengthened resilience against disasters and 4) reduction of the underlying disaster risk drivers (namely a reduction in the following disaster risk drivers: a) poverty and abject poverty, b) unchecked urban expansion and informal settlements, c) environmental degradation and d) weak governance and weak risk governance in particular).
- The expected outcome from achieving the above outputs is a decrease in the level of disaster losses a country experiences, with impact on improved social and economic resilience, which in the medium to long term would also improve a country's economy (GDP) and development (reduce inequality and poverty).

While the above has been elaborated in the SFDRR background document referred to earlier, the eventual ownership of disaster risk reduction efforts in any Arab country, and by the League of Arab States as a whole, is through the adoption of a proper monitoring framework for the Arab Strategy for Disaster Risk Reduction, where inputs, outputs and outcomes are clearly elaborated.

Finally, it must be recognized by decision makers that the Arab region and governments within it are at a crossroad. Either effectively embark on the implementation of the SFDRR as elaborated in this document, or continue on a path towards the accumulation of disaster losses expected to accentuate due to climate change, leading to an increase in disaster risk drivers which will increase risk and decrease social and economic resilience – thereby further weakening governance and risk governance and increasing and prolonging conflicts.

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A preliminary analysis of existing gaps in the Arab Strategy for Disaster Risk Reduction (ASDRR) and recommendations for strengthening it in view of the Sendai Framework for Disaster Risk Reduction (SFDRR)

Introduction

Background

As various Arab countries continue to strive to meet development goals, and embark on a path towards sustainable development, it becomes crucial to comprehend the multi-faceted manner in which disaster risk interacts with the development and climate change processes including the complex phenomena of weak risk governance, environmental degradation, rapid urbanization and poverty which is leading to an increase in the frequency and intensity of disaster risk thereby hindering the chances of sustainable development. Indeed, it is based on an increased recognition of the importance of this interaction that current international initiatives on climate change adaptation and development are being reviewed to strengthen linkages between disaster risk management, climate change adaptation and sustainable development initiatives.

This worldwide phenomenon has recently culminated in a review of the Hyogo Frame for Action (HFA) for Disaster Risk Reduction [1] and the development and adoption of the Sendai Framework for Disaster Risk Reduction (SFDRR) [2] at the Third United Nations World Conference on Disaster Risk Reduction in Japan in March 2015.

To this end, this report was commissioned by the UNISDR to analyse gaps in the Arab Strategy for Disaster Risk Reduction (ASDRR) [3], and to identify areas for strengthening the ASDRR in view of the SFDRR [2].

Objectives

The principal objective of this study is to undertake an analysis of the ASDRR, which helps to strengthen linkages with existing and proposed international and regional initiatives on sustainable development and climate change adaptation. To achieve the above objective, the following tasks will be carried out [4]:

- a. Gap analysis of the ASDRR in view of the SFDRR [2], Aqaba [5] and Sharm El Sheikh [6] Declarations and Recommendations for the Post 2015 DRR Agenda.
- b. Recommendations on areas which need strengthening in the ASDRR [3] in view of point (a.)
- c. Review existing linkages and propose recommendations for strengthening linkages with the Sustainable Development Goals [7], Climate Change Adaptation Arab Plan [8], and other regional policies and strategies.
- d. Financing mechanisms for implementation.
- e. A proposal of a revised Regional Action plan for Implementation, based on all the above, to be shared and consulted with regional technical working group of governments and partners and to be further contextualized taking into account sub-regional and national specificities.

This report summarises tasks (a) and (b) above while future reports will address the remaining tasks.

Scope and Layout

1.1.1 Scope of Hazards

The focus of this report is on disaster risk management arising from natural hazards. However, the HFA and indeed the SFDRR and the ASDRR also identified the need to

include technological hazards arising from natural hazards, while the SFDRR attached greater importance to health hazards.

1.1.2 Scope of Risks

Both the HFA and the SFDRR refer to both intensive and extensive risks. Definitions of these terms are shown below, based on the terminology developed by the United Nations International Strategy for Disaster Reduction (UNISDR) [9]:

Extensive Risk: The widespread risk associated with the exposure of dispersed populations to repeated or persistent hazard conditions of low or moderate intensity, often of a highly localized nature, which can lead to debilitating cumulative disaster impacts. Extensive risk takes a special importance in the development process because it is usually a characteristic of rural areas and urban margins where communities are exposed to, and vulnerable to, recurring highly localised floods, landslides, storms or drought. Extensive risk is often associated with poverty, weak risk governance, unchecked / rapid urbanisation and environment degradation.

Intensive Risk: The risk associated with the exposure of large concentrations of people and economic activities to intense hazard events, which can lead to potentially catastrophic disaster impacts involving high mortality and asset loss. Intensive risk is mainly a characteristic of large cities or densely populated areas that are not only exposed to intense hazards such as strong earthquakes, active volcanoes, heavy floods, tsunamis or major storms but also have high levels of vulnerability to these hazards.

The thresholds that separate extensive and intensive risk are shown in Table 1. Under these criteria, any hazardous event that includes 30 or more people killed or 600 or more houses destroyed is considered corresponding to an intensive risk.

Table 1 *Extensive versus Intensive Disaster Loss Threshold*

Threshold Type	Threshold Limit
Mortality threshold	30 people killed
Houses Destroyed Threshold	600 houses destroyed

1.1.3 Layout

The remainder of this report is divided into five main sections. Section 2 provides a brief overview of the methodology adopted in this study. In Section 3, a mapping between the ASDRR [3] and the SFDRR [2] is carried out. Section 4 provides an analysis of the gaps in the ASDRR [3] in view of the SFDRR [2] and the Sharm El Sheikh [6] and Aqaba [5] Declarations for Disaster Risk Reduction. Finally Section 5 provides recommendations for strengthening the ASDRR [3].

In the context of this study, and for purposes of succinctness, the term disaster risk management is used to imply all the phases related to disaster risk reduction which includes: prevention, reduction, mitigation, rehabilitation, reconstruction and relief, as well as the capacities, skills and institutions necessary for carrying out disaster risk reduction activities.

Limitations

It should be recognized that this study is being carried out based on the best available data and information on disaster risk management. Notwithstanding the above, the following limitations should be recognized:

1. The ASDRR [3] is being reviewed and assessed even though it is yet to be implemented. This may be an advantage to ensure efforts are aligned with state of the art international frameworks such as the SFDRR [2]. However, it also implies that the original ASDRR [3] is yet to be tested in order to identify any challenges in implementation and ownership by various national authorities and regional bodies.
2. The report reviews linkages and gaps with the Aqaba [5] and the Sharm El Sheikh [6] Declarations for Disaster Risk Reduction, even though countries and cities are not submitting reports on implementation of activities under these declarations.
3. The report reviews the ASDRR [3] in view of the SFDRR [2] which has identified national and regional activities; however, countries are yet to start implementation of the SFDRR [2] during which challenges in implementation and ownership may be identified.

2 Methodology

Introduction

The methodology adopted in this study is as follows:

- Compare the ASDRR [3] with the SFDRR [2] to carry out a mapping between the respective activities.
- Compare the ASDRR [3] with the Aqaba [5] and Sharm El Sheikh [6] Declaration and Recommendations for the Post 2015 DRR Agenda to identify any missing activities.
- Compare the approaches to involving stakeholders in all initiatives and declarations.
- Compare the approaches to intensive and extensive risk.
- Compare the approaches to corrective, prospective and compensatory risk management.
- Compare the approaches to enhancing the accountability for the accumulation of risk and transfer of risk between sectors.

Reference Documents and Guidelines

The above comparisons between the ASDRR [3] and SFDRR [2] Frameworks, and the Aqaba [5] and Sharm El Sheik [6] Declarations and Recommendations on the Post 2015 Agenda for DRR, were informed by various reference documents including successive GAR reports [10], [11], [12] and [13] (particularly in intensive and extensive risk and a balanced portfolio of DRM strategies) and the risk governance framework [14] (regarding accountability of risk construction and transfer of risk as well as the relationship between uncertainty in frequency, severity and consequences of hazards and the participation of stakeholders in the decision making process) that set the work for subsequent publications ,on risk governance and risk governance deficits, produced by the International Risk Governance Council (IRGC).

3 Mapping of Proposed Activities in the ASDRR and SFDRR

Introduction

For each of the four SFDRR [2] priorities, and proposed activities within, a mapping will be carried out to compare against corresponding activities in the ASDRR [3] in order to identify any gaps or areas where further elaboration and effort must be directed. It should be recognized that gaps in the ASDRR are identified in two ways:

- Activities in the SFDRR with no direct corresponding activity in the ASDRR. These gaps are identified in Tables 3, 5, 7 and 9 for the national and local levels, and Tables 4, 6, 8 and 10 for the regional and international levels.
- Activities in the SFDRR with emphasis on DRR related issues not sufficiently highlighted in corresponding ASDRR activities. These can be inferred from an examination of the SFDRR and corresponding ASDRR activities, as outlined in Tables 3 through to 10. Furthermore, these issues are summarised and discussed in more details in Chapters 4 and 5.

It should be recognized that within the SFDRR capacity building has now been incorporated in the main priorities rather than remain as a stand-alone priority. Other new developments in the SFDRR include additional importance being attached to the health sector and health hazards, risk governance, accountability for the construction and transfer of risk, and the clear separation of response and recovery plans. Furthermore, the SFDRR now separates between activities at the national and local levels, versus activities at the regional and international levels. This separation is not explicitly present in the ASDRR and as such in some instances regional activities in the SFDRR may have been mapped to corresponding national activities in the ASDRR. However, this issue is addressed in Chapter 5 which recommends specific regional activities for the ASDRR.

Table 2 summarises the mapping between activities in the SFDRR [2] and ASDRR [3], identifying the different priorities in the ASDRR [3] corresponding to each of the SFDRR [2] priorities.

Table 2 Summary of Mapping between SFDRR and Corresponding ASDRR Activities

SFDRR Priority	ASDRR Priority
SFDRR Priority 1 Understanding Disaster Risk	<u>National Level</u>
	ASDRR Priority 2 Develop Capacities to Identify, Assess and Monitor Disaster Risks
	ASDRR Priority 3 Build Resilience Through Knowledge, Advocacy, Research and Trainings
	ASDRR Priority 5 Integrate Disaster Risk Reduction into Emergency Response, Preparedness and Recovery
	<u>Regional Level</u>
	ASDRR Priority 1 Strengthen Commitment for Comprehensive Disaster Risk Reduction Across Sectors
SFDRR Priority 2 Strengthening Disaster Risk Governance to Manage Disaster Risk	ASDRR Priority 2 Develop Capacities to Identify, Assess and Monitor Disaster Risks
	ASDRR Priority 3 Build Resilience Through Knowledge, Advocacy, Research and Trainings
	ASDRR Priority 5 Integrate Disaster Risk Reduction into Emergency Response, Preparedness and Recovery
	<u>National Level</u>
	ASDRR Priority 1 Strengthen Commitment for Comprehensive Disaster Risk Reduction Across Sectors
	ASDRR Priority 3 Build Resilience Through Knowledge, Advocacy, Research and Trainings
SFDRR Priority 2 Strengthening Disaster Risk Governance to Manage Disaster Risk	<u>Regional Level</u>
	ASDRR Priority 2 Develop Capacities to Identify, Assess and Monitor Disaster Risks

SFDRR Priority	ASDRR Priority
SFDRR Priority 3 Investing in Disaster Risk Reduction for Resilience	<u>National Level</u> ASDRR Priority 4 Improve Accountability for Disaster Risk Management at Sub National and Local Level ASDRR Priority 5 Integrate Disaster Risk Reduction into Emergency Response, Preparedness and Recovery <u>Regional Level</u> ASDRR Priority 4 Improve Accountability for Disaster Risk Management at Sub National and Local Level
SFDRR Priority 4 Enhancing Disaster Preparedness for Effective Response and to "Build Back Better" in Recovery, Rehabilitation and Reconstruction	<u>National Level</u> ASDRR Priority 3 Build Resilience Through Knowledge, Advocacy, Research and Trainings ASDRR Priority 4 Improve Accountability for Disaster Risk Management at Sub National and Local Level ASDRR Priority 5 Integrate Disaster Risk Reduction into Emergency Response, Preparedness and Recovery <u>Regional Level</u> ASDRR Priority 2 Develop Capacities to Identify, Assess and Monitor Disaster Risks ASDRR Priority 3 Build Resilience Through Knowledge, Advocacy, Research and Trainings

SFDRR Priority 1 Understanding Disaster Risk

Table 3 and Table 4 below summarises the SFDRR Priority 1 activities with corresponding ASDRR activities at both national and local levels, and regional and international levels respectively.

Table 3 *Mapping of SFDRR Priority 1 activities at National and Local Levels with corresponding ASDRR Activities*

SFDRR 24 (a): Promote the collection, analysis, management and use of relevant data and practical information. Ensure its dissemination, taking into account the needs of different categories of users, as appropriate;
ASDRR 3.3.3 (a): Ensure that relevant information on disaster risks and events in accessible and available at all levels, to all stakeholders (through networks, development of information sharing systems, regional databases, etc.) and especially in relevant local languages.
SFDRR 24 (b): Encourage the use of and strengthening of baselines and periodically assess disaster risks, vulnerability, capacity, exposure, hazard characteristics and their possible sequential effects at the relevant social and spatial scale on ecosystems, in line with national circumstances.
ASDRR 3.3.2 (a): Ensure national and local multi-hazard risk assessments are periodically made available and include risk assessments for key sectors with specific regard to urban settlements.
SFDRR 24 (c): Develop, periodically update and disseminate, as appropriate, location-based disaster risk information, including risk maps, to decision makers, the general public and communities at risk of exposure to disaster in an appropriate format by using, as applicable, geospatial information technology.
ASDRR 3.3.2 (b): Ensure capacities and systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities at the regional, national and local level.
SFDRR 24 (d): Systematically evaluate, record, share and publicly account for disaster losses and understand the economic, social, health, education, environmental and cultural heritage impacts, as appropriate, in the context of event-specific hazard-exposure and vulnerability information.
ASDRR 3.3.5(g): Ensure institutional and surge capacities for conducting damage and loss

assessments

ASDRR 3.3.2 (a): Ensure national and local multi-hazard risk assessments are periodically made available and include risk assessments for key sectors with specific regard to urban settlements.

SFDRR 24 (e): Make non-sensitive hazard exposure, vulnerability, risk, disaster and loss-disaggregated information freely available and accessible, as appropriate.

ASDRR 3.3.2 (c): Ensure inclusion of gender disaggregated data for risk assessments.

ASDRR 3.3.2 (b): Ensure capacities and systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities at the regional, national and local level.

SFDRR 24 (f): Promote real-time access to reliable data, make use of space and in situ information, including geographic information systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis and dissemination of data.

No Directly Corresponding ASDRR Activity

SFDRR 24 (g): Build the knowledge of government officials at all levels, civil society, communities and volunteers, as well as the private sector, through sharing experiences, lessons learned, good practices and training and education on disaster risk reduction, including the use of existing training and education mechanisms and peer learning.

ASDRR 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the participation of women.

ASDRR 3.3.3 (b): Ensure use of up-to-date educational materials, curricula and approaches that account for emerging national and local risk contexts/ realities.

SFDRR 24 (h): Promote and improve dialogue and cooperation among scientific and technological communities, other relevant stakeholders and policymakers in order to facilitate a science-policy interface for effective decision-making in disaster risk management.

No Directly Corresponding ASDRR Activity

SFDRR 24 (i): Ensure the use of traditional, indigenous and local knowledge and practices, as appropriate, to complement scientific knowledge in disaster risk assessment and the development and implementation of policies, strategies, plans and programmes of specific sectors, with a cross-sectoral approach, which should be tailored to localities and to the context.

ASDRR 3.3.2 (a): Ensure national and local multi-hazard risk assessments are periodically made available and include risk assessments for key sectors with specific regard to urban settlements.

SFDRR 24 (j): Strengthen technical and scientific capacity to capitalize on and consolidate existing knowledge and to develop and apply methodologies and models to assess disaster risks, vulnerabilities and exposure to all hazards.

ASDRR 3.3.2 (b): Ensure capacities and systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities at the regional, national and local level.

SFDRR 24 (k): Promote investments in innovation and technology development in long-term, multi-hazard and solution-driven research in disaster risk management to address gaps, obstacles, interdependencies and social, economic, educational and environmental challenges and disaster risks.

No Directly Corresponding ASDRR Activity

SFDRR 24 (l): Promote the incorporation of disaster risk knowledge, including disaster prevention, mitigation, preparedness, response, recovery and rehabilitation, in formal and non-formal education, as well as in civic education at all levels, as well as in professional education and training.

ASDRR 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).

SFDRR 24 (m): Promote national strategies to strengthen public education and awareness in disaster risk reduction, including disaster risk information and knowledge, through campaigns, social media and community mobilization, taking into account specific audiences and their needs.

ASDRR 3.3.3 (b): Ensure use of up-to-date educational materials, curricula and approaches that

account for emerging national and local risk contexts/ realities.
ASDRR 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).

SFDRR 24 (n): Apply risk information in all its dimensions of vulnerability, capacity and exposure of persons, communities, countries and assets, as well as hazard characteristics, to develop and implement disaster risk reduction policies.

ASDRR 3.3.2 (a): Ensure national and local multi-hazard risk assessments are periodically made available and include risk assessments for key sectors with specific regard to urban settlements.

SFDRR 24 (o): Enhance collaboration among people at the local level to disseminate disaster risk information through the involvement of community-based organizations and non-governmental organizations.

No Directly Corresponding ASDRR Activity

Table 4 Mapping of SFDRR Priority 1 activities at Regional and International Levels with corresponding ASDRR Activities

SFDRR 25 (a): Enhance the development and dissemination of science-based methodologies and tools to record and share disaster losses and relevant disaggregated data and statistics, as well as to strengthen disaster risk modelling, assessment, mapping, monitoring and multi-hazard early warning systems.

No Directly Corresponding ASDRR Activity

SFDRR 25 (b): Promote the conduct of comprehensive surveys on multi-hazard disaster risks and the development of regional disaster risk assessments and maps, including climate change scenarios.

ASDRR 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

ASDRR 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

SFDRR 25 (c): Promote and enhance, through international cooperation, including technology transfer, access to and the sharing and use of non-sensitive data and information, as appropriate, communications and geospatial and space-based technologies and related services; maintain and strengthen in situ and remotely-sensed earth and climate observations; and strengthen the utilization of media, including social media, traditional media, big data and mobile phone networks, to support national measures for successful disaster risk communication, as appropriate and in accordance with national laws.

No Directly Corresponding ASDRR Activity

SFDRR 25 (d): Promote common efforts in partnership with the scientific and technological community, academia and the private sector to establish, disseminate and share good practices internationally.

ASDRR 3.3.2 (b): Ensure capacities and systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities at the regional, national and local level.

SFDRR 25 (e): Support the development of local, national, regional and global user-friendly systems and services for the exchange of information on good practices, cost-effective and easy-to-use disaster risk reduction technologies and lessons learned on policies, plans and measures for disaster risk reduction.

ASDRR 3.3.2 (b): Ensure capacities and systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities at the regional, national and local level.

ASDRR 3.3.5 (e): Ensure that sub national and local coordination procedures are in place to exchange critical and timely information during hazard events and disasters, also with a view to undertake post-event reviews.

SFDRR 25 (f): Develop effective global and regional campaigns as instruments for public awareness and education, building on the existing ones (for example, the "One Million Safe Schools and Hospitals" initiative, the "Making Cities Resilient: my city is getting ready!"

campaign, the United Nations Sasakawa Award for Disaster Reduction and the annual United Nations International Day for Disaster Reduction), to promote a culture of disaster prevention, resilience and responsible citizenship, generate understanding of disaster risk, support mutual learning and share experiences; and encourage public and private stakeholders to actively engage in such initiatives and to develop new ones at the local, national, regional and global levels.

ASDRR 3.3.3 (e): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).

SFDRR 25 (g): Enhance the scientific and technical work on disaster risk reduction and its mobilization through the coordination of existing networks and scientific research institutions at all levels and in all regions, with the support of the UNISDR Scientific and Technical Advisory Group, in order to: strengthen the evidence-base in support of the implementation of this Framework; promote scientific research on disaster risk patterns, causes and effects; disseminate risk information with the best use of geospatial information technology; provide guidance on methodologies and standards for risk assessments, disaster risk modelling and the use of data; identify research and technology gaps and set recommendations for research priority areas in disaster risk reduction; promote and support the availability and application of science and technology to decision-making; contribute to the update of the publication "2009 UNISDR Terminology on Disaster Risk Reduction"; use post-disaster reviews as opportunities to enhance learning and public policy; and disseminate studies.

ASDRR 3.3.3 (e): Secure flow of resources to support continual scientific research geared for devising solutions that can be especially implemented in the short – medium term.

SFDRR 25 (h): Encourage the availability of copyrighted and patented materials, including through negotiated concessions, as appropriate.

No Directly Corresponding ASDRR Activity

SFDRR 25 (i): Enhance access to and support for innovation and technology, as well as in long-term, multi-hazard and solution-driven research and development in the field of disaster risk management.

No Directly Corresponding ASDRR Activity

SFDRR Priority 2 Strengthening Disaster Risk Governance to Manage Disaster Risk

Table 5 and Table 6 below summarises the SFDRR Priority 2 activities with corresponding ASDRR activities at both national and local levels and regional and international levels respectively.

Table 5 *Mapping of SFDRR Priority 2 activities at National and Local Levels with corresponding ASDRR Activities*

SFDRR 27 (a): Mainstream and integrate disaster risk reduction within and across all sectors and review and promote the coherence and further development, as appropriate, of national and local frameworks of laws, regulations and public policies, which, by defining roles and responsibilities, guide the public and private sectors in: (i) addressing disaster risk in publically owned, managed or regulated services and infrastructures; (ii) promoting and providing incentives, as relevant, for actions by persons, households, communities and businesses; (iii) enhancing relevant mechanisms and initiatives for disaster risk transparency, which may include financial incentives, public awareness-raising and training initiatives, reporting requirements and legal and administrative measures; and (iv) putting in place coordination and organizational structures.

ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development.

SFDRR 27 (b): Adopt and implement national and local disaster risk reduction strategies and

plans, across different timescales, with targets, indicators and time frames, aimed at preventing the creation of risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.

ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development.

SFDRR 27 (c): Carry out an assessment of the technical, financial and administrative disaster risk management capacity to deal with the identified risks at the local and national levels.

No Directly Corresponding ASDRR Activity

SFDRR 27 (d): Encourage the establishment of necessary mechanisms and incentives to ensure high levels of compliance with the existing safety-enhancing provisions of sectoral laws and regulations, including those addressing land use and urban planning, building codes, environmental and resource management and health and safety standards, and update them, where needed, to ensure an adequate focus on disaster risk management.

No Directly Corresponding ASDRR Activity

SFDRR 27 (e): Develop and strengthen, as appropriate, mechanisms to follow up, periodically assess and publicly report on progress on national and local plans. Promote public scrutiny and encourage institutional debates, including by parliamentarians and other relevant officials, on progress reports of local and national plans for disaster risk reduction.

ASDRR 3.3.3 (f): Develop standardized tools and commonly accepted indicators for tracking progress in risk reduction and demonstrating the cost-benefit ratio of investment in this area.

SFDRR 27 (f): Assign, as appropriate, clear roles and tasks to community representatives within disaster risk management institutions and processes and decision-making through relevant legal frameworks and undertake comprehensive public and community consultations during the development of such laws and regulations to support their implementation.

No Directly Corresponding ASDRR Activity

SFDRR 27 (g): Establish and strengthen government coordination forums composed of relevant stakeholders at the national and local levels, such as national and local platforms for disaster risk reduction, and a designated national focal point for implementing the Sendai Framework for Disaster Risk Reduction. It is necessary for such mechanisms to have a strong foundation in national institutional frameworks with clearly assigned responsibilities and authority to, inter alia, identify sectoral and multisectoral disaster risk, build awareness and knowledge of disaster risk through sharing and dissemination of non-sensitive disaster risk information and data, contribute to and coordinate reports on local and national disaster risk, coordinate public awareness campaigns on disaster risk, facilitate and support local multisectoral cooperation (e.g. among local governments) and contribute to the determination of and reporting on national and local disaster risk management plans and all policies relevant for disaster risk management. These responsibilities should be established through laws, regulations, standards and procedures.

ASDRR 3.3.1 (d): Ensure that national multi-sectoral platforms take account of underlying risk factors, while prioritizing high-risk areas and most vulnerable populations/ groups (especially in conflict zones and urban settlements).

SFDRR 27 (h): Empower local authorities, as appropriate, through regulatory and financial means to work and coordinate with civil society, communities and indigenous peoples and migrants in disaster risk management at the local level.

ASDRR 3.3.1 (c): Ensure decentralization of dedicated and adequate resources, community participation and collaboration with civil society groups and the private sector during all planning and implementation efforts for disaster management and risk reduction.

SFDRR 27 (i): Encourage parliamentarians to support the implementation of disaster risk reduction by developing new or amending relevant legislation and setting budget allocations.

No Directly Corresponding ASDRR Activity

SFDRR 27 (j): Promote the development of quality standards, such as certifications and awards for disaster risk management, with the participation of the private sector, civil society,

professional associations, scientific organizations and the United Nations.

No Directly Corresponding ASDRR Activity

SFDRR 27 (k): Formulate public policies, where applicable, aimed at addressing the issues of prevention or relocation, where possible, of human settlements in disaster-risk-prone zones, subject to national law and legal systems.

No Directly Corresponding ASDRR Activity

Table 6 *Mapping of SFDRR Priority 2 activities at Regional and International Levels with corresponding ASDRR Activities*

SFDRR 28 (a): Guide action at the regional level through agreed regional and sub-regional strategies and mechanisms for cooperation for disaster risk reduction, as appropriate, in the light of this Framework, in order to foster more efficient planning, create common information systems and exchange good practices and programmes for cooperation and capacity development, in particular to address common and transboundary disaster risks.

No Directly Corresponding ASDRR Activity

SFDRR 28 (b): Foster collaboration across global and regional mechanisms and institutions for the implementation and coherence of instruments and tools relevant to disaster risk reduction, such as for climate change, biodiversity, sustainable development, poverty eradication, environment, agriculture, health, food and nutrition and others, as appropriate.

ASDRR 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climate change.

SFDRR 28 (c): Actively engage in the Global Platform for Disaster Risk Reduction, the regional and sub-regional platforms for disaster risk reduction and the thematic platforms in order to forge partnerships, periodically assess progress on implementation and share practice and knowledge on disaster risk-informed policies, programmes and investments, including on development and climate issues, as appropriate, as well as to promote the integration of disaster risk management in other relevant sectors. Regional intergovernmental organizations should play an important role in the regional platforms for disaster risk reduction.

No Directly Corresponding ASDRR Activity

SFDRR 28 (d): Promote trans-boundary cooperation to enable policy and planning for the implementation of ecosystem-based approaches with regard to shared resources, such as within river basins and along coastlines, to build resilience and reduce disaster risk, including epidemic and displacement risk.

No Directly Corresponding ASDRR Activity

SFDRR 28 (e): Promote mutual learning and exchange of good practices and information through, inter alia, voluntary and self-initiated peer reviews among interested States.

No Directly Corresponding ASDRR Activity

SFDRR 28 (f): Promote the strengthening of, as appropriate, international voluntary mechanisms for monitoring and assessment of disaster risks, including relevant data and information, benefiting from the experience of the Hyogo Framework for Action Monitor. Such mechanisms may promote the exchange of non-sensitive information on disaster risks to the relevant national Government bodies and stakeholders in the interest of sustainable social and economic development.

ASDRR 3.3.2 (b): Ensure capacities and systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities at the regional, national and local level.

SFDRR Priority 3 Investing in Disaster Risk Reduction for Resilience

Table 7 and Table 8 below summarises the SFDRR Priority 3 activities with corresponding ASDRR activities at both national and local levels and regional and international levels respectively.

Table 7 *Mapping of SFDRR Priority 3 activities at National and Local Levels with corresponding ASDRR Activities*

SFDRR 30 (a): Allocate the necessary resources, including finance and logistics, as appropriate, at all levels of administration for the development and the implementation of disaster risk reduction strategies, policies, plans, laws and regulations in all relevant sectors.
ASDRR 3.3.4 (a): Ensure that sub national and local risk reduction strategies involve a long-term capacity development plan matched by dedicated and adequate allocation of budgets.
SFDRR 30 (b): Promote mechanisms for disaster risk transfer and insurance, risk-sharing and retention and financial protection, as appropriate, for both public and private investment in order to reduce the financial impact of disasters on governments and societies, in urban and rural areas.
ASDRR 3.3.4 (e): Analyze existing and emerging financial mechanisms for disaster reduction while identifying and developing the most adequate risk transfer and risk finance instruments.
SFDRR 30 (c): Strengthen, as appropriate, disaster resilient public and private investments, particularly through: structural, non-structural and functional disaster risk prevention and reduction measures in critical facilities, in particular schools and hospitals and physical infrastructures; building better from the start to withstand hazards through proper design and construction, including the use of the principles of universal design and the standardization of building materials; retrofitting and rebuilding; nurturing a culture of maintenance; and taking into account economic, social, structural, technological and environmental impact assessments.
No Directly Corresponding ASDRR Activity
SFDRR 30 (d): Protect or support the protection of cultural and collecting institutions and other sites of historical, cultural heritage and religious interest.
No Directly Corresponding ASDRR Activity
SFDRR 30 (e): Promote the disaster risk resilience of workplaces through structural and non-structural measures.
No Directly Corresponding ASDRR Activity
SFDRR 30 (f): Promote the mainstreaming of disaster risk assessments into land-use policy development and implementation, including urban planning, land degradation assessments and informal and non-permanent housing, and the use of guidelines and follow-up tools informed by anticipated demographic and environmental changes.
No Directly Corresponding ASDRR Activity
SFDRR 30 (g): Promote the mainstreaming of disaster risk assessment, mapping and management into rural development planning and management of, inter alia, mountains, rivers, coastal flood plain areas, dry-lands, wetlands and all other areas prone to droughts and flooding, including through the identification of areas that are safe for human settlement, and at the same time preserving ecosystem functions that help reduce risks.
No Directly Corresponding ASDRR Activity
SFDRR 30 (h): Encourage the revision of existing or the development of new building codes and standards and rehabilitation and reconstruction practices at the national or local levels, as appropriate, with the aim of making them more applicable within the local context, particularly in informal and marginal human settlements, and reinforce the capacity to implement, survey and enforce such codes through an appropriate approach, with a view to fostering disaster-resistant structures.
ASDRR 3.3.4 (d): Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.
ASDRR 3.3.4 (c): Institute legislation and assessment procedures to assess the disaster risk impacts of major development projects, especially large infrastructure projects.
SFDRR 30 (i): Enhance the resilience of national health systems, including by integrating disaster risk management into primary, secondary and tertiary health care, especially at the local level; developing the capacity of health workers in understanding disaster risk and applying and implementing disaster risk reduction approaches in health work; promoting and enhancing the training capacities in the field of disaster medicine; and supporting and training community health groups in disaster risk reduction approaches in health programmes, in collaboration with other sectors, as well as in the implementation of the International Health Regulations (2005) of

the World Health Organization.

ASDRR 3.3.5 (c): Establish emergency health support systems that offer free health care to victims and help address psychological (and other long term) health impacts of disasters

SFDRR 30 (j): Strengthen the design and implementation of inclusive policies and social safety-net mechanisms, including through community involvement, integrated with livelihood enhancement programmes, and access to basic health-care services, including maternal, newborn and child health, sexual and reproductive health, food security and nutrition, housing and education, towards the eradication of poverty, to find durable solutions in the post-disaster phase and to empower and assist people disproportionately affected by disasters.

ASDRR 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others)

SFDRR 30 (k): People with life threatening and chronic disease, due to their particular needs, should be included in the design of policies and plans to manage their risks before, during and after disasters, including having access to life-saving services.

No Directly Corresponding ASDRR Activity

SFDRR 30 (l): Encourage the adoption of policies and programmes addressing disaster-induced human mobility to strengthen the resilience of affected people and that of host communities, in accordance with national laws and circumstances.

No Directly Corresponding ASDRR Activity

SFDRR 30 (m): Promote, as appropriate, the integration of disaster risk reduction considerations and measures in financial and fiscal instruments.

No Directly Corresponding ASDRR Activity

SFDRR 30 (n): Strengthen the sustainable use and management of ecosystems and implement integrated environmental and natural resource management approaches that incorporate disaster risk reduction.

No Directly Corresponding ASDRR Activity

SFDRR 30 (o): Increase business resilience and protection of livelihoods and productive assets throughout the supply chains, ensure continuity of services and integrate disaster risk management into business models and practices.

No Directly Corresponding ASDRR Activity

SFDRR 30 (p): Strengthen the protection of livelihoods and productive assets, including livestock, working animals, tools and seeds.

No Directly Corresponding ASDRR Activity

SFDRR 30 (q): Promote and integrate disaster risk management approaches throughout the tourism industry, given the often heavy reliance on tourism as a key economic driver.

No Directly Corresponding ASDRR Activity

Table 8 *Mapping of SFDRR Priority 3 activities at Regional and International Levels with corresponding ASDRR Activities*

SFDRR 31 (a): Promote coherence across systems, sectors and organizations related to sustainable development and to disaster risk reduction in their policies, plans, programmes and processes.

No Directly Corresponding ASDRR Activity

SFDRR 31 (b): Promote the development and strengthening of disaster risk transfer and sharing mechanisms and instruments in close cooperation with partners in the international community, business, international financial institutions and other relevant stakeholders.

ASDRR 3.3.4 (e): Analyze existing and emerging financial mechanisms for disaster reduction while identifying and developing the most adequate risk transfer and risk finance instruments

SFDRR 31 (c): Promote cooperation between academic, scientific and research entities and networks and the private sector to develop new products and services to help reduce disaster risk, in particular those that would assist developing countries and their specific challenges.

No Directly Corresponding ASDRR Activity

SFDRR 31 (d): Encourage the coordination between global and regional financial institutions with

a view to assessing and anticipating the potential economic and social impacts of disasters.

No Directly Corresponding ASDRR Activity

SFDRR 31 (e): Enhance cooperation between health authorities and other relevant stakeholders to strengthen country capacity for disaster risk management for health, the implementation of the International Health Regulations (2005) and the building of resilient health systems.

No Directly Corresponding ASDRR Activity

SFDRR 31 (f): Strengthen and promote collaboration and capacity-building for the protection of productive assets, including livestock, working animals, tools and seeds.

No Directly Corresponding ASDRR Activity

SFDRR 31 (g): Promote and support the development of social safety nets as disaster risk reduction measures linked to and integrated with livelihood enhancement programmes in order to ensure resilience to shocks at the household and community levels.

No Directly Corresponding ASDRR Activity

SFDRR 31 (h): Strengthen and broaden international efforts aimed at eradicating hunger and poverty through disaster risk reduction.

No Directly Corresponding ASDRR Activity

SFDRR 31 (i): Promote and support collaboration among relevant public and private stakeholders to enhance the resilience of business to disasters.

No Directly Corresponding ASDRR Activity

SFDRR Priority 4 Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction

Table 9 and Table 10 below summarises the SFDRR Priority 4 activities with corresponding ASDRR activities at both national and local levels and regional and international levels respectively.

Table 9 *Mapping of SFDRR Priority 4 activities at National and Local Levels with corresponding ASDRR Activities*

SFDRR 33 (a): Prepare or review and periodically update disaster preparedness and contingency policies, plans and programmes with the involvement of the relevant institutions, considering climate change scenarios and their impact on disaster risk, and facilitating, as appropriate, the participation of all sectors and relevant stakeholders.

ASDRR 3.3.5 (a): Establish strong policy, technical and institutional capacities and mechanisms for disaster management that include risk reduction perspectives.

ASDRR 3.3.5 (b): Establish disaster preparedness plans, contingency plans, recovery and reconstruction plans at all administrative levels with the participation of women, the aged, children, IDPs and people with special needs.

SFDRR 33 (b): Invest in, develop, maintain and strengthen people-centred multi-hazard, multisectoral forecasting and early warning systems, disaster risk and emergency communications mechanisms, social technologies and hazard-monitoring telecommunications systems. Develop such systems through a participatory process. Tailor them to the needs of users, including social and cultural requirements, in particular gender. Promote the application of simple and low-cost early warning equipment and facilities and broaden release channels for natural disaster early warning information.

No Directly Corresponding ASDRR Activity

SFDRR 33 (c): Promote the resilience of new and existing critical infrastructure, including water, transportation and telecommunications infrastructure, educational facilities, hospitals and other health facilities, to ensure that they remain safe, effective and operational during and after disasters in order to provide life-saving and essential services.

No Directly Corresponding ASDRR Activity

SFDRR 33 (d): Establish community centres for the promotion of public awareness and the stockpiling of necessary materials to implement rescue and relief activities.

ASDRR 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices among communities at risk

(i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).

SFDRR 33 (e): Adopt public policies and actions that support the role of public service workers to establish or strengthen coordination and funding mechanisms and procedures for relief assistance and plan and prepare for post-disaster recovery and reconstruction.

ASDRR 3.3.4 (f): Ensure that disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation processes.

SFDRR 33 (f): Train the existing workforce and voluntary workers in disaster response and strengthen technical and logistical capacities to ensure better response in emergencies.

ASDRR 3.3.5 (f): Incorporate international quality standards in disaster response (SPHERE, IASC guidelines).

ASDRR 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the participation of women.

SFDRR 33 (g): Ensure the continuity of operations and planning, including social and economic recovery, and the provision of basic services in the post-disaster phase.

No Directly Corresponding ASDRR Activity

SFDRR 33 (h): Promote regular disaster preparedness, response and recovery exercises, including evacuation drills, training and the establishment of area-based support systems, with a view to ensuring rapid and effective response to disasters and related displacement, including access to safe shelter, essential food and non-food relief supplies, as appropriate to local needs.

ASDRR 3.3.5 (d): Ensure that national/local financial reserves and contingency mechanisms are in place and well understood by all stakeholders to ensure effective response and recovery when required.

SFDRR 33 (i): Promote the cooperation of diverse institutions, multiple authorities and related stakeholders at all levels, including affected communities and business, in view of the complex and costly nature of post-disaster reconstruction, under the coordination of national authorities.

No Directly Corresponding ASDRR Activity

SFDRR 33 (j): Promote the incorporation of disaster risk management into post-disaster recovery and rehabilitation processes, facilitate the link between relief, rehabilitation and development, use opportunities during the recovery phase to develop capacities that reduce disaster risk in the short, medium and long term, including through the development of measures such as land use planning, structural standards improvement and the sharing of expertise, knowledge, post-disaster reviews and lessons learned and integrate post-disaster reconstruction into the economic and social sustainable development of affected areas. This should also apply to temporary settlements for persons displaced by disasters.

ASDRR 3.3.4 (f): Ensure that disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation processes.

SFDRR 33 (k): Develop guidance for preparedness for disaster reconstruction, such as on land use planning and structural standards improvement, including by learning from the recovery and reconstruction programmes over the decade since the adoption of the Hyogo Framework for Action, and exchanging experiences, knowledge and lessons learned.

ASDRR 3.3.5 (b): Establish disaster preparedness plans, contingency plans, recovery and reconstruction plans at all administrative levels with the participation of women, the aged, children, IDPs and people with special needs.

SFDRR 33 (l): Consider the relocation of public facilities and infrastructures to areas outside the risk range, wherever possible, in the post-disaster reconstruction process, in consultation with the people concerned, as appropriate.

No Directly Corresponding ASDRR Activity

SFDRR 33 (m): Strengthen the capacity of local authorities to evacuate persons living in disaster-prone areas.

No Directly Corresponding ASDRR Activity

SFDRR 33 (n): Establish a mechanism of case registry and a database of mortality caused by disaster in order to improve the prevention of morbidity and mortality.

No Directly Corresponding ASDRR Activity

SFDRR 33 (o): Enhance recovery schemes to provide psychosocial support and mental health services for all people in need.

No Directly Corresponding ASDRR Activity

SFDRR 33 (p): Review and strengthen, as appropriate, national laws and procedures on international cooperation, based on the guidelines for the domestic facilitation and regulation of international disaster relief and initial recovery assistance.

ASDRR 3.3.5 (h): Address national trans-boundary cooperation on disaster response, preparedness and recovery among Arab states.

Table 10 *Mapping of SFDRR Priority 4 activities at Regional and International Levels with corresponding ASDRR Activities*

SFDRR 34 (a): Develop and strengthen, as appropriate, coordinated regional approaches and operational mechanisms to prepare for and ensure rapid and effective disaster response in situations that exceed national coping capacities.

No Directly Corresponding ASDRR Activity

SFDRR 34 (b): Promote the further development and dissemination of instruments, such as standards, codes, operational guides and other guidance instruments, to support coordinated action in disaster preparedness and response and facilitate information sharing on lessons learned and best practices for policy practice and post-disaster reconstruction programmes.

No Directly Corresponding ASDRR Activity

SFDRR 34 (c): Promote the further development of and investment in effective, nationally-compatible, regional multi-hazard early warning mechanisms, where relevant, in line with the Global Framework for Climate Services, and facilitate the sharing and exchange of information across all countries.

ASDRR 3.3.2 (e): Establish regional early warning systems and networks to monitor multiple hazards affecting the region.

SFDRR 34 (d): Enhance international mechanisms, such as the International Recovery Platform, for the sharing of experience and learning among countries and all relevant stakeholders.

No Directly Corresponding ASDRR Activity

SFDRR 34 (e): Support, as appropriate, the efforts of relevant United Nations entities to strengthen and implement global mechanisms on hydro meteorological issues in order to raise awareness and improve understanding of water-related disaster risks and their impact on society, and advance strategies for disaster risk reduction upon the request of States.

No Directly Corresponding ASDRR Activity

SFDRR 34 (f): Support regional cooperation to deal with disaster preparedness, including through common exercises and drills.

No Directly Corresponding ASDRR Activity

SFDRR 34 (g): Promote regional protocols to facilitate the sharing of response capacities and resources during and after disasters.

No Directly Corresponding ASDRR Activity

SFDRR 34 (h): Train the existing workforce and volunteers in disaster response.

ASDRR 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the participation of women.

4 Identification of Gaps in the ASDRR in view of the SFDRR

Introduction

This chapter summarises the main gaps in the ASDRR [3] in view of the SFDRR [2], the Aqaba [5] and the Sharm El Sheikh [6] declarations, under the following SFDRR Priority related headings:

- Understanding Disaster Risk.
- Strengthening Disaster Risk Governance to Manage Disaster Risk.
- Investing in Disaster Risk Reduction for Resilience.
- Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction.

In addition, gaps under the following two additional cross-cutting headlines are discussed:

- Guidance and Capacity Building.
- Stakeholder Participation.

Understanding Disaster Risk

The following gaps are identified in relation to the proposed activities at the national and local levels of the ASDRR, as per Table 2, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the Arab region [xv]:

- SFDRR 24 (f): Promote real-time access to reliable data, make use of space and in situ information, including geographic information systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis and dissemination of data. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks disaggregated data on many important indicators related to disaster risk management, sustainable development and climate change adaptation. However, before investing significant resources in this activity there is a need to ensure that 1) the public sector relevant agency is capable of leading this effort in terms of receiving / collating, updating and using the data; 2) the data is linked to the decision making process which currently uses less accurate data; 3) the dissemination of data is under a much broader two-way communication umbrella that promotes disaster risk governance centred around involving all relevant stakeholders in all stages of the DRM cycle (as will be discussed in the Section on disaster risk governance); 4) based on the above point, the identification of the needed data and levels of disaggregation should be determined in a participatory manner where the views of all relevant stakeholders are accounted for. Indeed this is reflected in Article 2 of the Sharm El Sheikh declaration and recommendations for the post 2015 DRR Agenda on DRR [6] which calls for practical guidance that helps save and protect lives.*
- SFDRR 24 (h): Promote and improve dialogue and cooperation among scientific and technological communities, other relevant stakeholders and policymakers in order to facilitate a science-policy interface for effective decision-making in disaster risk management. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region which is in a dire need to improve its science policy interface. However, in this regard, it should be recognized that the “science” in the science-policy interface refers to both natural and social sciences, where only with the latter it is possible to identify (and then mitigate) the social, economic and institutional factors that contribute to increased vulnerability and risk. It is envisaged that the adoption of a disaster risk governance framework will ensure participation of all relevant stakeholders which in turn will ensure that the social, economic and institutional factors contributing to risk and vulnerability are accounted for. Indeed this is*

reflected in Article 2 of the Sharm El Sheikh declaration and recommendations for the post 2015 DRR Agenda on DRR [6] which calls for practical guidance that helps save and protect lives.

- SFDRR 24 (k): Promote investments in innovation and technology development in long-term, multi-hazard and solution-driven research in disaster risk management to address gaps, obstacles, interdependencies and social, economic, educational and environmental challenges and disaster risks. **Discussion on Relevance and Prioritisation:** *This is very important to the region which registers some of the lowest rates, worldwide, in terms of investments in innovation and technology and as such this need was recognized in Article 6 of the Sharm El Sheikh Declaration [6]. While technology transfer mechanisms should be promoted, there is a need to ensure that technologies capable of identifying and analysing the region-specific gaps, obstacles, interdependencies and challenges related to vulnerability and risk accumulation (economic, social, environmental and educational) are being developed.*
- SFDRR 24 (o): Enhance collaboration among people at the local level to disseminate disaster risk information through the involvement of community-based organizations and non-governmental organizations. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, is yet to adopt a decentralised system of government. In such a situation, collaboration at the local involvement (albeit through the communities) becomes even more important. However, as mentioned above, dissemination of risk information should form the basis of a broader two-way risk communication umbrella with established and institutionalised mechanisms to ensure that the views and apprehensions of communities, including those disproportionately affected by disasters, are being accounted for.*

In addition, the following gaps are identified in relation to the proposed activities at the regional and international levels of the ASDRR, as per the Table 3, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the region [xv]:

- SFDRR 25 (a): Enhance the development and dissemination of science-based methodologies and tools to record and share disaster losses and relevant disaggregated data and statistics, as well as to strengthen disaster risk modelling, assessment, mapping, monitoring and multi-hazard early warning systems. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region where the science-policy interface needs urgent improvement. However, as mentioned earlier, the "science" in the science policy interface is often still understood in the limited context of natural and physical sciences addressing the natural and physical factors contributing to vulnerability. Such a narrow approach is unable to identify and address the social, economic and natural factors contributing to vulnerability and risk which in some cases are the main disaster risk drivers.*
- SFDRR 25 (c): Promote and enhance, through international cooperation, including technology transfer, access to and the sharing and use of non-sensitive data and information, as appropriate, communications and geospatial and space-based technologies and related services; maintain and strengthen in situ and remotely-sensed earth and climate observations; and strengthen the utilization of media, including social media, traditional media, big data and mobile phone networks, to support national measures for successful disaster risk communication, as appropriate and in accordance with national laws. **Discussion on Relevance and Prioritisation:** *This is very important to the region at the regional and national levels in order to improve the science-policy interface. However, in order to "support national measures for disaster risk communication" as stated above there is a need to ensure that 1) national governments have the mechanisms to act on regional*

information and contextualise it as necessary, 2) disaster risk communication should be a two way process and part of a risk governance framework at both regional and local levels. It would be counterproductive to engage in a one way communication at the regional level while calling for a two way communication at the national level. In both cases communication should be two-way and accounts for the views of all stakeholders, through their participation, in the form of governments, local governments, communities, NGOs, CSOs and productive sectors.

- SFDRR 25 (h): Encourage the availability of copyrighted and patented materials, including through negotiated concessions, as appropriate. **Discussion on Relevance and Prioritisation:** *This is important worldwide, including in the region; however, care should be taken that it does not impede technology transfer particularly in Arab Least Developed Countries and Small Island Developing States.*
- SFDRR 25 (i): Enhance access to and support for innovation and technology, as well as in long-term, multi-hazard and solution-driven research and development in the field of disaster risk management. **Discussion on Relevance and Prioritisation:** *This is very important to the region, especially since research and development in the field of DRM still focuses on natural and physical sciences only. Notwithstanding the importance of the latter, there is a need to direct and expand research efforts to include the social, economic and institutional factors that can contribute to risk and vulnerability and holistic solutions that can reduce them.*

Strengthening Disaster Risk Governance to Manage Disaster Risk

The following gaps are identified in relation to the proposed activities at the national and local levels of the ASDRR, as per the Table 4, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the Arab region [xv]:

- SFDRR 27 (c): Carry out an assessment of the technical, financial and administrative disaster risk management capacity to deal with the identified risks at the local and national levels. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region especially since one of the main challenges is allocating resources for the implementation of DRM strategies, policies and programs which was highlighted in Article 6 of the Sharm El Sheik Recommendations for the post 2015 Agenda for DRR [6]. In this sense there is a need to assess the financial and technological gaps which need to be addressed in order to successfully reduce disaster risk to tolerable levels. This assessment should be carried out in an institutionalised manner, while simultaneously developing the necessary administrative and institutional capacities. The effort in its entirety should form part of a participatory risk governance framework which accounts for the views of all relevant stakeholders (as indeed highlighted in Article 13 of the Sharm El Sheikh Declaration [6] regarding the Arab region recommendation for the post 2015 Agenda on DRR) at the risk framing, technical and societal assessment, evaluation and risk management stages.*
- SFDRR 27 (d): Encourage the establishment of necessary mechanisms and incentives to ensure high levels of compliance with the existing safety-enhancing provisions of sectoral laws and regulations, including those addressing land use and urban planning, building codes, environmental and resource management and health and safety standards, and update them, where needed, to ensure an adequate focus on disaster risk management. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region as compliance with laws continues to be a major issue and contributor to risk accumulation as highlighted by Article II and Article X of the Aqaba Declaration [5]. However additional contextualisation is required, where the following should be accounted for 1) in many instances codes and laws are referring to new constructions without attempting to address existing development and construction, 2) very limited financial incentives in terms of micro finance and micro insurance are available to the most vulnerable communities where risk levels are*

highest, 3) risk is often accumulated outside the control of the governments in informal settlements and informal livelihood sectors where the risk is highest and where, more often than not, there are no plans to address and reduce these risks.

- SFDRR 27 (f): Assign, as appropriate, clear roles and tasks to community representatives within disaster risk management institutions and processes and decision-making through relevant legal frameworks and undertake comprehensive public and community consultations during the development of such laws and regulations to support their implementation. **Discussion on Relevance and Prioritisation:** *Community and public consultations should begin from the risk framing stage to ensure that the views of the public and the communities on both intensive and extensive risks are accounted for. Furthermore this consultation process should continue up to the recovery stage to ensure that all stakeholders are participating in the debate, and are monitoring the rehabilitation and reconstruction process to avoid reconstructing risk in the wake of disasters.*
- SFDRR 27 (i): Encourage parliamentarians to support the implementation of disaster risk reduction by developing new or amending relevant legislation and setting budget allocations. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region, especially since in many countries draft DRM laws were developed several years ago but are yet to be endorsed by parliaments as highlighted by Article II of the Aqaba Declaration [5]. More importantly it is important to ensure that the drafted laws account for the multi-faceted role of governments in DRM; namely the stewardship role (to protect citizens and sectors against external threats), regulatory role (to protect citizens and sectors from risks arising from the actions of other citizens and sectors) and managerial role (to empower the government to carry out and implement and finance its above two roles). Alas, in most situations, laws, when passed, are focused on the stewardship and managerial role while not sufficiently addressing the governments' regulatory role. This has a direct impact on one of the main challenges encountered in the implementation of the HFA, which is the limited accountability for risk construction and the transfer of risk between sectors and/or individuals. Indeed this limitation, and the need to address it, was recognized in Article 6 of the SFDRR [2]. Furthermore the legislation should explicitly refer to the need to address both extensive and intensive risks as highlighted in the SFDRR and the HFA, especially in view of the fact that several consultant-driven and international-agency-driven earthquake master plans for cities in the regions were not implemented partly because no account and/ or linkages were made with extensive risks and challenges in meeting everyday needs. Furthermore, legislation should explicitly state that there is a need to identify and address the social, economic and institutional factors that contribute to vulnerability. There is an equally important need to ensure that there is legislation calling for the development of recovery plans a priori of disasters to avoid the reconstruction of risk.*
- SFDRR 27 (j): Promote the development of quality standards, such as certifications and awards for disaster risk management, with the participation of the private sector, civil society, professional associations, scientific organizations and the United Nations. **Discussion on Relevance and Prioritisation:** *Quality standards are very relevant; however, there is a need to adopt a contextualised phased approach based on an understanding of the existing levels of risk and the socio-economic situation of the country under consideration. Furthermore, there is a need to ensure that initiatives to engage the private sector include the private sector at the local, especially in a region where in many cases micro, small and medium enterprises form the bulk of private sector companies.*
- SFDRR 27 (k): Formulate public policies, where applicable, aimed at addressing the issues of prevention or relocation, where possible, of human settlements in disaster-risk-prone zones, subject to national law and legal systems. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region. However, sub-regional differences should be recognized where in some cases due to land shortages and high population concentration, relocation is not possible and prevention is the main way forward in order to reduce fatalities. In both cases*

however, the issue of informal settlements referred to above must be addressed. Furthermore, the rather limited success in previous efforts may be attributed to the fact that intensive risk was assumed to occur in a vacuum and citizens / businesses were encouraged to address intensive risk without giving sufficient attention to extensive risk and everyday needs. This should be explicitly reflected in strategies and policies.

In addition, the following gaps are identified in relation to the proposed activities at the regional and international levels of the ASDRR, as per the Table 5, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the region [xv]:

- SFDRR 28 (a): Guide action at the regional level through agreed regional and sub-regional strategies and mechanisms for cooperation for disaster risk reduction, as appropriate, in the light of this Framework, in order to foster more efficient planning, create common information systems and exchange good practices and programmes for cooperation and capacity development, in particular to address common and transboundary disaster risks. **Discussion on Relevance and Prioritisation:** *There is a need to develop a regional risk governance framework to ensure that all activities at the regional level are accounting for the needs, vulnerabilities, apprehensions and views of sub-regions, and the different stakeholders within them. In this context, common risks encompass not only common hazards but also common physical, economic, social and institutional factors contributing to vulnerability.*
- SFDRR 28 (c): Actively engage in the Global Platform for Disaster Risk Reduction, the regional and sub-regional platforms for disaster risk reduction and the thematic platforms in order to forge partnerships, periodically assess progress on implementation and share practice and knowledge on disaster risk-informed policies, programmes and investments, including on development and climate issues, as appropriate, as well as to promote the integration of disaster risk management in other relevant sectors. Regional intergovernmental organizations should play an important role in the regional platforms for disaster risk reduction. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region, where there is a need to promote at the regional level a holistic approach that looks at both intensive and extensive risks, and the social, economic, natural, physical and natural factors that contribute to risk and vulnerability specific to the region, and promote regional best practices in addressing these, while benefiting from international best practice.*
- SFDRR 28 (d): Promote trans-boundary cooperation to enable policy and planning for the implementation of ecosystem-based approaches with regard to shared resources, such as within river basins and along coastlines, to build resilience and reduce disaster risk, including epidemic and displacement risk. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region which has large coastlines and river basins affected by other countries within the Arab region and beyond (e.g. Ethiopia, Iran, South Sudan and Turkey regarding the building of dams and the Israeli government regarding the diversion and pollution of water resources of neighbouring Arab states). In this sense there is a need for the regional risk governance framework to have a proposed regional regulatory role to monitor and manage the risks on citizens and sectors within one state arising from the actions of citizens and sectors in another state (whether inside or outside the Arab region).*
- SFDRR 28 (e): Promote mutual learning and exchange of good practices and information through, inter alia, voluntary and self-initiated peer reviews among interested States. **Discussion on Relevance and Prioritisation:** *The promotion of regional best practices is very important to the region which has specific characteristics, as highlighted by Article XV of the Aqaba Declaration [5]. In this context, there may be an added value in also promoting sub-regional best practices*

especially for Arab Least Developed Countries and Arab Small Island Developing States in addition to sub-regional best practices according to governance, development and political-economy characteristics.

Investing in Disaster Risk Reduction for Resilience

The following gaps are identified in relation to the proposed activities at the national and local levels of the ASDRR, as per the Table 6, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the Arab region [xv]:

- SFDRR 30 (c): Strengthen, as appropriate, disaster resilient public and private investments, particularly through: structural, non-structural and functional disaster risk prevention and reduction measures in critical facilities, in particular schools and hospitals and physical infrastructures; building better from the start to withstand hazards through proper design and construction, including the use of the principles of universal design and the standardization of building materials; retrofitting and rebuilding; nurturing a culture of maintenance; and taking into account economic, social, structural, technological and environmental impact assessments. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region, where there is a need to adopt sectoral resilience building programs for national critical infrastructure. While there is currently significant effort targeted at new construction there is an urgent need to extend this effort to reduce the risk in existing developments and investments, as indeed highlighted in Article 1 and Article 12 of the Sharm El Sheikh Declaration [6] regarding the Arab region recommendations for the post 2015 Agenda on DRR. In this context the importance of the development and implementation of National School Safety Programs and National Hospital Safety Programs should be highlighted and promoted. Such programs should start by carrying out a qualitative risk assessment for the prioritisation of risk in various sectorial installations. A second related step should be to assess the financial needs for implementing the sectoral resilience building programs over a period of 10, 15 and 20 years. In turn this will countries to strengthen linkages with sustainable development goals which also calls for the assessment of the financial gap for sustainable development. Accounting for non-structural measures is extremely important as it allows for an understanding, and effective addressing, of the social, economic and institutional factors that contribute to risk and vulnerability.*
- SFDRR 30 (d): Protect or support the protection of cultural and collecting institutions and other sites of historical, cultural heritage and religious interest. **Discussion on Relevance and Prioritisation:** *This is very relevant for the region, where countries have a diverse, multi ethnic and multi religious heritage as also highlighted by article XIV of the Aqaba declaration [5]. In addition, several fundamentalist "religious" practices, past and present, promote the destruction of such heritage due to a deadly combination of ignorance and religious bigotry. Hence the promotion of policies for the protection of cultural heritage should also assess the social, cultural and economic and institutional factors that threaten this heritage.*
- SFDRR 30 (e): Promote the disaster risk resilience of workplaces through structural and non-structural measures. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region where there is a need to provide incentives for the private sector (at the local and national levels) to invest in DRR. Furthermore, there is a need to protect the public sector work places (in a region where the public sector continues to be the main employer in several countries) including those of primary response agencies which are not always protected against major hazards and corresponding intensive risks including earthquakes. Furthermore, effort is required to ensure that the informal sector will be included in these efforts, particularly as it represents a large percentage of total employment in some countries.*
- SFDRR 30 (f): Promote the mainstreaming of disaster risk assessments into land-use policy development and implementation, including urban planning, land degradation assessments and informal and non-permanent housing, and the use of guidelines and

follow-up tools informed by anticipated demographic and environmental changes. **Discussion on Relevance and Prioritisation:** *This is a very relevant issue to the region, particularly due to the significant presence of informal and non permanent housing and limited availability of risk-informed land use planning. An important challenge though is that often these initiatives are being taken by private sector consultancies, with funding from donor and external agencies, without the ability of the relevant public sector agency to oversee the work in order to update it, improve ownership and manage a participatory and transparent stakeholder consultation process.*

- SFDRR 30 (g): Promote the mainstreaming of disaster risk assessment, mapping and management into rural development planning and management of, inter alia, mountains, rivers, coastal flood plain areas, dry-lands, wetlands and all other areas prone to droughts and flooding, including through the identification of areas that are safe for human settlement, and at the same time preserving ecosystem functions that help reduce risks. **Discussion on Relevance and Prioritisation:** *Mainstreaming DRM into rural development is extremely relevant to the Arab region, where many countries are suffering from unbalanced development between rural and urban areas, where rural to urban ratios can be excessively low in some instances, where climate change adverse effects continue to unfold and significantly and disproportionately affect rural regions. Incorporating DRM into rural development plans would significantly contribute to strengthening linkages with CCA and Sustainable development international, regional and national initiatives and goals.*
- SFDRR 30 (k): People with life threatening and chronic disease, due to their particular needs, should be included in the design of policies and plans to manage their risks before, during and after disasters, including having access to life-saving services. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region which has varying degrees of health services and as such is in need of sub-regional policies and strategies to promote and guide this activity. One issue common to most countries is the lack of gender dis-aggregated response and recovery plans which account for the differential needs and vulnerabilities of citizen as per different need, age, sex, and social and economic categories. In addition, there is a need to ensure (through the National Hospital Safety Programs referred to earlier) that hospitals and equipment within them are capable of withstanding major hazards such as floods and earthquakes without disruption to life threatening services and equipment.*
- SFDRR 30 (l): Encourage the adoption of policies and programmes addressing disaster-induced human mobility to strengthen the resilience of affected people and that of host communities, in accordance with national laws and circumstances. **Discussion on Relevance and Prioritisation:** *This is very important to the Arab region which has the largest percentage of disaster induced human mobility, albeit not due to natural hazards. The resilience of affected people and that of host communities must be linked to resilience building programs at the sectoral level for critical national infrastructure and associated basic services. In this sense aid funds for improving the resilience of affected people and host communities can contribute towards resilience building on national critical infrastructure and there sustainable development and climate change adaptation.*
- SFDRR 30 (m): Promote, as appropriate, the integration of disaster risk reduction considerations and measures in financial and fiscal instruments. **Discussion on Relevance and Prioritisation:** *This is very important to the region which still suffers from minimal representation of the finance and economy ministries in national multi sectoral DRR platforms (when they exist). This need is also evidenced by the inability of most countries to track the resources they allocate to DRM due partly to the latter not being considered as a separate expenditure item within the budget. Furthermore, a limited number of countries have micro finance and micro insurance instruments being promoted by the private or public sectors including incentives for investing in DRR. Progress in this area would address the social and economic*

factors that contribute to vulnerability and as such is envisaged to have a direct impact on the success of reducing existing risk levels.

- SFDRR 30 (n): Strengthen the sustainable use and management of ecosystems and implement integrated environmental and natural resource management approaches that incorporate disaster risk reduction. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region facing inter-related water, food and energy security challenges. Adopting such an approach would strengthen the adoption of a holistic methodology that strengthens linkages with climate change adaptation and sustainable development initiatives.*
- SFDRR 30 (o): Increase business resilience and protection of livelihoods and productive assets throughout the supply chains, ensure continuity of services and integrate disaster risk management into business models and practices. **Discussion on Relevance and Prioritisation:** *This is an area where additional effort should be directed within the region and as such it is relevant. In particular, there is a need to develop resilience building programs based on redundancy, reliability resistance, response and recovery. Furthermore there is a need to raise awareness on the importance of supply chain effects and their particular contextualisation in the region as manifested by the availability of various ports, canals and energy supply routes amongst others.*
- SFDRR 30 (p): Strengthen the protection of livelihoods and productive assets, including livestock, working animals, tools and seeds. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which is facing significant inter-related challenges related of food, water and energy security. Providing programs for the protection of livelihoods and productive assets would strengthen linkages with climate change adaptation and sustainable development initiatives. Furthermore, there is a need to develop separate initiatives for the industrial sector and other subsectors under the productive sectors as relevant.*
- SFDRR 30 (q): Promote and integrate disaster risk management approaches throughout the tourism industry, given the often heavy reliance on tourism as a key economic driver. **Discussion on Relevance and Prioritisation:** *This is very relevant to the tourism industry in the Arab region, where there is a need to include the tourism sector as a national critical infrastructure sector and apply to it the recommendations of resilience sectorial buildings as referred to above in this section.*

In addition, the following gaps are identified in relation to the proposed activities at the regional and international levels of the ASDRR, as per the Table 7, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the region [xv]:

- SFDRR 31 (a): Promote coherence across systems, sectors and organizations related to sustainable development and to disaster risk reduction in their policies, plans, programmes and processes. **Discussion on Relevance and Prioritisation:** *This is particularly important for the region as the water, food and energy security challenges facing the region can be best addressed through the promotion of coherent regional sustainable development policies that account for disaster risk management considerations. Indeed this was highlighted in Article 4 and Article 5 of the Sharm El Sheikh Declaration and recommendations for the post 2015 Agenda for DRR [6].*
- SFDRR 31 (c): Promote cooperation between academic, scientific and research entities and networks and the private sector to develop new products and services to help reduce disaster risk, in particular those that would assist developing countries and their specific challenges. **Discussion on Relevance and Prioritisation:** *This is particularly important to the region with several least developed countries and low and middle income countries. In this context, it is necessary to understand the full set of factors that contribute to risk and vulnerability in order to rationalise cooperation and ensure that relevant stakeholders, practitioners and academics are*

not excluded from the debate and from ensuing funding to produce products and services to help reduce risks.

- SFDRR 31 (d): Encourage the coordination between global and regional financial institutions with a view to assessing and anticipating the potential economic and social impacts of disasters. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region which is envisaged to have a significant financing gap to ensure implementation of DRM strategies and sustainable development goals. This cooperation would be significantly enhanced and lobbying for it would become more effective if and when countries develop sectoral resilience building programs for national critical infrastructure with associated funding needs. In this manner funding agencies, and their corresponding donor tax-payers, can ensure that their funds are going towards sustainable development that accounts for DRM considerations.*
- SFDRR 31 (e): Enhance cooperation between health authorities and other relevant stakeholders to strengthen country capacity for disaster risk management for health, the implementation of the International Health Regulations (2005) and the building of resilient health systems. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region where in several countries there is a need for regional and international support to develop and implement National Hospital and Health Safety Programs to address important cross sectoral issues including medical waste, safety of life threatening equipment and the building of resilient health sectors in general.*
- SFDRR 31 (f): Strengthen and promote collaboration and capacity-building for the protection of productive assets, including livestock, working animals, tools and seeds. **Discussion on Relevance and Prioritisation:** *This is very relevant particularly for livestock, working animals and seeds and tools as the region faces common problems in terms of climate change, food, and water and energy security.*
- SFDRR 31 (g): Promote and support the development of social safety nets as disaster risk reduction measures linked to and integrated with livelihood enhancement programmes in order to ensure resilience to shocks at the household and community levels. **Discussion on Relevance and Prioritisation:** *This is very important due to the widespread presence of poverty in some countries in particular, and in the region as a whole, as per various UN statistics. It is equally very important as statistics show that if the poverty line is changed from 1.25\$ per person per day to \$2 and 2.75 dollars then the % of poverty would change from 14% to 19% and 40% respectively. Such a change may reflect what happens in case of another food crisis, as happened in the recent decade, and which may happen again soon due to various reasons including major hazards or wars. Indeed this was reflected in Article 9 and Article 10 of the Sharm El Sheikh Declaration and recommendations for the post 2015 Agenda for DRR [6].*
- SFDRR 31 (h): Strengthen and broaden international efforts aimed at eradicating hunger and poverty through disaster risk reduction. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region which has several least developed and low income countries. It is also relevant as the region has significant inter related challenges in food, water and energy security. In this context the absolute poverty line of \$1.25 a day leads to a poverty rate of 14%. However, as mentioned above, efforts to eliminate hunger should account for the increase in % of people living under 2\$ or \$2.75 per day which may correspond to an inability to meet basic food needs in case of a food crisis as happened in the last decade. Indeed this was reflected in Article 9 and Article 10 of the Sharm El Sheikh Declaration and recommendations for the post 2015 Agenda for DRR [6].*
- SFDRR 31 (i): Promote and support collaboration among relevant public and private stakeholders to enhance the resilience of business to disasters. **Discussion on Relevance and Prioritisation:** *This is a very relevant issue which must be carried*

out in a transparent and accountable manner, especially in view of the weak governance (and associated risk governance practices in the region) as indeed evidenced by various governance indicators developed by various international agencies including the World Bank and Transparency International, which in turn leads to a situation where the separation between the private and public sectors is blurred at best.

Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction

The following gaps are identified in relation to the proposed activities at the national and local levels of the ASDRR, as per the Table 8, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the Arab region [xv]:

- SFDRR 33 (b): Invest in, develop, maintain and strengthen people-centred multi-hazard, multisectoral forecasting and early warning systems, disaster risk and emergency communications mechanisms, social technologies and hazard-monitoring telecommunications systems. Develop such systems through a participatory process. Tailor them to the needs of users, including social and cultural requirements, in particular gender. Promote the application of simple and low-cost early warning equipment and facilities and broaden release channels for natural disaster early warning information. **Discussion on Relevance and Prioritisation:** *In view of the fact that the Arab Region is amongst the worst affected by Climate Change, the development of early warning systems is very much needed. Two important aspects of the above activity which need contextualisation and detailing for the Arab region is 1) the issue of social technologies and 2) the development of a participatory approach. This in turn is directly related to the development of low-cost early warning equipment and facilities where the latter will be guaranteed if the whole process is driven from the demand side by the needs of the people rather than from the supply side by risk management consultancies and equipment manufacturers.*
- SFDRR 33 (c): Promote the resilience of new and existing critical infrastructure, including water, transportation and telecommunications infrastructure, educational facilities, hospitals and other health facilities, to ensure that they remain safe, effective and operational during and after disasters in order to provide life-saving and essential services. **Discussion on Relevance and Prioritisation:** *This is very relevant to the disaster risk realities of the Arab region, where risk has accumulated for decades due to public sector development and private sector investment which did not sufficiently account for disaster risk management consideration. This needs further contextualisation however in terms of 1) the sectors that are critical to the country under consideration, 2) securing services during disasters should not be seen as a replacement but rather complimentary to the adoption of long term programs for preventing new risk and reducing existing levels of risk where only a long term planned approach can address the latter. These resilience building programs (e.g. the National School Safety Program referred to in earlier sections) should include an element of response and recovery where the sector is designed and managed to ensure it can fulfil its role during the response stage and promptly recover from it to expedite the recovery process as a whole.*
- SFDRR 33 (g): Ensure the continuity of operations and planning, including social and economic recovery, and the provision of basic services in the post-disaster phase. **Discussion on Relevance and Prioritisation:** *This is very relevant to the region, particularly in the absence so far of a priori plans for recovery including economic and social aspects of recovery. In turn this is leading to a situation where risk is being reintroduced in the process of reconstruction in the wake of a disaster.*
- SFDRR 33 (i): Promote the cooperation of diverse institutions, multiple authorities and related stakeholders at all levels, including affected communities and business, in view of the complex and costly nature of post-disaster reconstruction, under the coordination of national authorities. **Discussion on Relevance and Prioritisation:** *This is very relevant especially in the absence of existing recovery plans, which in*

turn is an opportunity to ensure any recovery plans are participatory and account for the views of all relevant stakeholders and communities. This is particularly important as resources are limited and the allocation of funding towards certain communities and or sectors should be subject to the scrutiny of all stakeholders, sectors and the community at large.

- SFDRR 33 (l): Consider the relocation of public facilities and infrastructures to areas outside the risk range, wherever possible, in the post-disaster reconstruction process, in consultation with the people concerned, as appropriate. **Discussion on Relevance and Prioritisation:** *Again this is relevant and must be considered as an option, on a national level, during the development of the participatory a priori recovery plans referred to earlier. These plans must be developed a priori otherwise the consultation and participation process will be abandoned under the pretext of the need to rebuild promptly rather than rebuilding better.*
- SFDRR 33 (m): Strengthen the capacity of local authorities to evacuate persons living in disaster-prone areas. **Discussion on Relevance and Prioritisation:** *This is particularly important and must be directly related to efforts for collating losses on extensive risks (including affected people), disaggregated according to gender considerations. Such efforts and initiatives are currently lacking in most countries in the region.*
- SFDRR 33 (n): Establish a mechanism of case registry and a database of mortality caused by disaster in order to improve the prevention of morbidity and mortality. **Discussion on Relevance and Prioritisation:** *This is significantly relevant to the region in the absence of national databases which must account for mortality and morbidity for both intensive and extensive risks. Furthermore, it should also account for slowly unfolding (e.g. drought) and / or indirect effects where households undergo shocks and as a result of which are unable to allocate funds for food and health thereby leading to an increase in mortality and morbidity.*
- SFDRR 33 (o): Enhance recovery schemes to provide psychosocial support and mental health services for all people in need. **Discussion on Relevance and Prioritisation:** *This is particularly relevant to the region which currently has few NGOs providing psycho social support and mental health services but not as part of any recovery schemes and not necessarily in adherence to international regulations, guidelines and practices.*

In addition, the following gaps are identified in relation to the proposed activities at the regional and international levels of the ASDRR, as per the Table 9, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the region [xv]:

- SFDRR 34 (a): Develop and strengthen, as appropriate, coordinated regional approaches and operational mechanisms to prepare for and ensure rapid and effective disaster response in situations that exceed national coping capacities. **Discussion on Relevance and Prioritisation:** *This is particularly relevant to the region as several of the hazards will affect more than one country in the region with varying degrees of response capacities and resources. Indeed this was reflected in Article 8 of the Sharm El Sheikh Declaration and recommendations for the post 2015 Agenda for DRR [6].*
- SFDRR 34 (b): Promote the further development and dissemination of instruments, such as standards, codes, operational guides and other guidance instruments, to support coordinated action in disaster preparedness and response and facilitate information sharing on lessons learned and best practices for policy practice and post-disaster reconstruction programmes. **Discussion on Relevance and Prioritisation:** *This is particularly relevant to the region as several of the hazards will affect more than one country in the region with varying degrees of response capacities and resources. Efficient and prompt regional response mechanisms will depend on the use of common approaches and standards across the region so*

various response agencies can better coordinate their actions. This is particularly true as in some instances relevant agencies follow different standards (e.g. British versus French dating back from the mandate period, or U.S versus Soviet dating back from the cold war period).

- SFDRR 34 (d): Enhance international mechanisms, such as the International Recovery Platform, for the sharing of experience and learning among countries and all relevant stakeholders. **Discussion on Relevance and Prioritisation:** *This is particularly relevant due to the absence of recovery plans at this stage. Another international mechanisms and guidelines include those of the international risk governance council. This should help governments plan ahead the competing needs of different sectors and stakeholders and allocate funds in a participatory, accountable and transparent manner.*
- SFDRR 34 (e): Support, as appropriate, the efforts of relevant United Nations entities to strengthen and implement global mechanisms on hydro meteorological issues in order to raise awareness and improve understanding of water-related disaster risks and their impact on society, and advance strategies for disaster risk reduction upon the request of States. **Discussion on Relevance and Prioritisation:** *This is particularly relevant to the region which is significantly affected by climate change which in turn is increasing the severity and frequency of hydro meteorological hazards and related issues. In this sense there is a need to raise awareness and improve understanding of the various factors that contribute to water related disaster risks as indeed pioneered by some UN agencies including the UNISDR. Indeed this was reflected in Article 8 of the Sharm El Sheikh Declaration and recommendations for the post 2015 Agenda for DRR [6].*
- SFDRR 34 (f): Support regional cooperation to deal with disaster preparedness, including through common exercises and drills. **Discussion on Relevance and Prioritisation:** *This is particularly relevant to the region as several of the hazards will affect more than one country in the region which may require assistance from neighbouring countries. The presence of a priori exercises and drills will facilitate communication and expedite assistance during disaster situations.*
- SFDRR 34 (g): Promote regional protocols to facilitate the sharing of response capacities and resources during and after disasters. **Discussion on Relevance and Prioritisation:** *This is particularly relevant to the region as several of the hazards will affect more than one country in the region with varying degrees of response capacities and resources (e.g. floods or earthquakes which threaten several neighbouring countries with different levels of development such as Saudi Arabia, Jordan and Yemen).*

Guidance and Capacity Building

Many of the activities above, call for capacity building under different priority areas. However, to ensure that the capacity development will be relevant and its effects sustainable, the following issues must be addressed:

- The type of capacity building is driven by the need of the public sector rather than the vested interests of risk management consultancies focusing solely on natural and physical factors contributing to vulnerability. In this sense it is envisaged that capacity building should first be focused at developing long term programs for reducing existing risk levels, which necessitate a need to build capacities in developing qualitative risk assessments as a first step to prioritise risk according to different risk categories. At a later stage when these resilience building programs are functional, and risk has been categorised according to qualitative risk assessment techniques, it becomes both useful and necessary to build capacities in quantitative risk assessments.

- The capacity building programs should be part of national DRM strategies and policies where capacities are being built to develop, update and implement these strategies and policies.
- Guidance should reflect the current capacities, and socio economic development of countries. In this regard different guidance may be required for least developed countries, small island developing states, low income countries, middle income countries, mixed economy countries and oil producing countries.

Stakeholder Participation

The issue of stakeholder participation has been given significant prominence in the SFDRR as is reflected in several of the activities proposed by the SFDRR and discussed above. However, this should not be confused with dissemination of information, which is also referred to in the above framework sometimes in reference to open, accessible and useful data. In order to avoid the pitfalls made during the implementation of the HFA, it is necessary to provide guidelines and further delineate and highlight the differences between data dissemination and stakeholder participation. In particular, stakeholder participation should be ensured at the following stages within the disaster risk management process, as indeed recognised by international guidance on risk governance [14]:

- Risk framing where the views of all stakeholders are taken into account when the hazards to be addressed, the factors contributing to vulnerability and the methodologies for their assessment are being identified and selected.
- Risk assessment where it is decided whether both technical (and the type of technical i.e. qualitative vs. quantitative assessment) and societal assessments are carried out.
- Risk evaluation where decisions are made regarding the tolerable and unacceptable levels of risk.
- Risk management stage where decisions are taken regarding the development and implementation of strategies and policies for reducing risks to acceptable levels and for building sectoral resilience building programs.

It is clear that in the absence of sound stakeholder representation and participation in all the decisions related to the above four stages, skewed decisions may be taken favouring one sector over another (e.g. real estate versus industry or agriculture) and one region over another (e.g. the capital versus remote regions) and one socio economic category over another (e.g. the very wealthy vs. the poorest living under 1.25\$ a day which constitute 14% of people living in the Arab region).

5 Recommendations for Strengthening the ASDRR

Introduction

Notwithstanding the relevance of the ASDRR, a comparison with the SFDRR reveals several areas where additional effort should be directed and where further activities should be proposed and elaborated. To facilitate discussion and modification, these areas have been categorised under the four SFDRR priorities for action:

- Understanding Disaster Risk.
- Strengthening Disaster Risk Governance to Manage Disaster Risk.
- Investing in Disaster Risk Reduction for Resilience.
- Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction.

The analysis, in chapters 3 and 4, identified several areas where additional effort and activities should be directed. Some of these areas are already addressed in the ASDRR; however, there is added value in their further elaboration. Other areas have not been explicitly referred to in the ASDRR. Both these categories of gaps are categorised under the following cross-sectoral headings:

- The need to ensure that the understanding of risk (i.e. risk assessment) accounts for the social, economic, natural, physical and institutional factors that contribute to vulnerability.
- The need to ensure that the risk assessment process is done in a participatory, transparent and accountable manner, with the participation of all relevant stakeholders.
- The need to ensure that risk assessment, and subsequent risk reduction and risk management processes, accounts for both intensive and extensive risks.
- The need to enhance accountability for risk construction and the transfer of risk between sectors.
- The need to develop and implement long term sectoral resilience building programs for various critical national infrastructure sectors which should first be identified on a national level. This must include, but not be limited to, the sectors of health, education, tourism, cultural heritage and collection facilities, and work places.
- The need to integrate DRM considerations into rural development strategies, thereby increasing linkages with climate change adaptation and sustainable development initiatives.
- The need to ensure that national, local and sectoral policies and programs for disaster risk reduction have 1) identified the financial gaps / needs for their implementation and 2) identified options for financing from both the private and public sectors.
- The need to develop specific recovery plans as separate from response plans to improve efforts for “building back better”.
- The need to invest in science and technology for developing context specific solutions for disaster risk reduction.
- The need to elaborate and delineate in more detail activities to be carried out at the regional level to aid both national and international initiatives and activities, including the development of sub-regional programs and policies.

The above issues have been embedded in different activities categorised under each of the SFDRR priorities with the corresponding ASDRR priority shown in parenthesis at the end of each paragraph.

Understanding Disaster Risk

Based on the mapping of activities between the ASDRR [3] and the SFDRR [2], and on the linkages with the Aqaba [5] and the Sharm El Sheikh [6] Declarations and Recommendations for the Post 2015 Agenda on DRR, the following additional activities are proposed:

- Ensure that efforts for understanding risk and its effects, including disaster losses, hazard, vulnerabilities and risks extends to both intensive and extensive risk as highlighted in various articles in the SFDRR [2] (under Section 3.3.2 of the ASDRR [3]).
- Ensure that efforts for understanding risk and its effects (at the national and local levels) include understanding the social, economic and institutional factors contributing to vulnerability and risk accumulation in addition to the natural and physical factors often focused upon by geologists and engineers respectively in risk management consultancies (under Section 3.3.2 of the ASDRR [3]).
- Ensure that efforts for understanding risk and its effects at the sectoral levels include understanding the social, economic and institutional factors contributing to sectoral vulnerability and risk accumulation in addition to the natural and physical factors often focused upon by geologists and engineers respectively in risk management consultancies (under Section 3.3.2 of the ASDRR [3]).
- Strengthen the science-policy interface, and ensure that the “science” in the science policy interface accounts for the social, economic and institutional factors contributing to vulnerability (under Section 3.3.2 of the ASDRR [3]).
- Ensure that risks that are created outside of government control (whether in informal settlements and/or informal livelihood sector) are being addressed by all DRM activities (under Section 3.3.2 of the ASDRR [3]).
- Ensure that all the above is carried out with participation of all relevant stakeholders during the risk framing stage when the hazards under consideration are being identified, the geographical scope determined, and the options for risk assessment are being determined and decided upon - i.e. qualitative then quantitative risk assessment, and the inclusion of all factors affecting vulnerability in the risk assessment to ensure the adoption of a holistic approach capable of representing reality as far as reasonably practicable. (under Section 3.3.2 of the ASDRR [3]).
- Ensure that all the above is carried out with participation of all relevant stakeholders during the technical and societal risk assessment stage when the frequency and severity of hazards is categorized (using qualitative then quantitative methods), vulnerability is determined and risk is prioritised; and where societal concerns are accounted for through the participation of all relevant stakeholders in the risk assessment process (under Section 3.3.2 of the ASDRR [3]).
- Ensure investment in science, technology and innovation to understand the specificities at the local, national and regional level on how the various factors contributing to vulnerability (social, economic, natural, physical and institutional) interact with the main disaster risk drivers (poverty, weak governance and risk governance, environmental degradation and unchecked and/or rapid urban expansion) - (under Section 3.3.3 of the ASDRR [3]).
- Ensure that capacity building efforts to achieve the above tasks are based on the needs required for the development and implementation of national strategies for DRM and sectoral resilience building programs for national critical infrastructure (under Section 3.3.3 of the ASDRR [3]).
- Ensure that awareness raising campaigns are based on multi hazard and risk assessments and as such raise awareness on 1) extensive and intensive risk specific to country, 2) social, economic, natural, physical and natural factors specific to country, and 3) disaster risk drivers specific to country. Finally ensure that these awareness raising campaigns are part of national strategies, are led by the public sector (taking the lead in carrying out the risk assessment as elaborated in points above) and as such are both relevant and sustainable (under Section 3.3.3 of the ASDRR [3]).

- Ensure exchange of information, capacities and resources at regional and international level is informed by the needs at the national level as identified by national strategies and sectoral resilience building programs (under Section 3.3.2 of the ASDRR [3]).
- Ensure exchange of information at the international level to empower the public sector at the national level to lead a participatory, transparent and accountable risk framing, and risk assessment (both technical and societal) processes (under Section 3.3.2 of the ASDRR [3]).

Strengthening Disaster Risk Governance to Manage Disaster Risk

Based on the mapping of activities between the ASDRR [3] and the SFDRR [2], and on the linkages with the Aqaba [5] and the Sharm El Sheikh [6] Declarations and Recommendations for the Post 2015 Agenda on DRR, the following additional activities are proposed:

- Ensure that the financial gap and needs for disaster risk reduction programs at the national, local and sectoral levels has been assessed (under Section 3.3.4 of the ASDRR [3]).
- Ensure that options for addressing the financial gaps and needs for the implementation of DRM strategies and policies are identified, including financing from both the public and private sectors. Furthermore, ensure that this process is carried out in a participatory and transparent manner with the engagement of all relevant stakeholders.
- Ensure that efforts to pass legislation for DRM refer to both existing and new risks (under Section 3.3.1 of the ASDRR [3]).
- Ensure that efforts to pass legislation for DRM include financial incentives to invest in DRM for both the private sector and vulnerable populations and communities (under Section 3.3.1 of the ASDRR [3]).
- Ensure that legislation for DRM recognizes the three main roles of the government in DRM, namely the regulatory role (to protect individual citizens and sectors from risk created by other citizens and sectors), the stewardship role (to protect citizens and sectors against external threats and hazards) and managerial role (to empower the government to carry out its above two roles) - (under Section 3.3.1 of the ASDRR [3]).
- Ensure that there is a risk governance framework in place, at all stages in the risk management process (namely risk framing stage, technical and societal risk assessment stage, risk evaluation stage and risk management stage) in order to ensure that all relevant stakeholders have access to the DRM decision making process and actually do participate in the decisions (under Section 3.3.4 of the ASDRR [3]).
- Ensure that risk communication, including risk assessment dissemination, forms part of the above mentioned risk governance framework and as such risk communication is two-ways and is informed by the views of all stakeholders (under Section 3.3.4 of the ASDRR [3]).
- Ensure that strategies and policies for intensive risk (e.g. earthquake master plans) recognize that the intensive risk under consideration is superimposed on extensive risk and everyday needs and risks of sectors, communities and citizens and as such creates the necessary linkages with these needs and risks, including the social and economic requirements and implications for the implementation of these plans. This is also directly applicable for efforts for the prevention and / or relocation of human settlements (under Section 3.3.1 of the ASDRR [3]).
- Ensure that quality standards and codes are contextualised and account for the local, national and regional specificities in the interaction between the social, economic,

physical, natural and institutional factors that contribute to vulnerability on the one hand and the main disaster risk drivers (poverty, poor environmental degradation, weak governance and risk governance and unchecked and rapid urban expansion) on the other hand (under Section 3.3.4 of the ASDRR [3]).

- Enhance accountability for risk construction and the transfer of risk between citizens and sectors where applicable, which in turn is directly related to strengthening the regulatory role of the state in disaster risk management (under Section 3.3.1 of the ASDRR [3]).
- Promote research and innovation in developing guidelines for regional (and sub-regional) risk governance frameworks accounting for extensive and intensive risk, factors contributing to vulnerability and main disaster risk drivers, while ensuring participation of all relevant stakeholders in the risk framing, technical and societal risk assessment, risk evaluation and risk management stages (under Section 3.3.3 of the ASDRR [3]).
- Promote accountability in risk construction between countries where the actions of certain countries within or outside the Arab region affect the water resources of other countries in the region (e.g. Ethiopia and the Nile river, Turkey and the Euphrates River, Iran and the Tigris and Alwand rivers, Israel and water resources in Palestine and occupied Arab territories) - (under Section 3.3.4 of the ASDRR [3]).
- Promote international, regional and sub-regional best practices in order to improve disaster risk governance (under Section 3.3.3 of the ASDRR [3]).

Investing in Disaster Risk Reduction for Resilience

Based on the mapping of activities between the ASDRR [3] and the SFDRR [2], and on the linkages with the Aqaba [5] and the Sharm El Sheikh [6] Declarations and Recommendations for the Post 2015 Agenda on DRR, the following additional activities are proposed:

- Ensure that economic and sectoral policies and programs to reduce vulnerability and risks are inclusive of all critical national infrastructure including cultural heritage and collection facilities, work places and the education sector) - (under Section 3.3.4 of the ASDRR [3]).
- Ensure sectoral resilience building programs to reduce vulnerability and risks referred to in the point above have 1) identified the financial needs and gaps for implementation, 2) options to address the financial gaps and needs, 3) refers to existing risks and new risks, 4) include structural and non-structural measures, 5) address the economic, social, institutional, physical and natural measures to reduce vulnerability and risk, and 6) are realistic and long term (e.g. extending over a 15 to 20 year period) - (under Section 3.3.4 of the ASDRR [3]).
- The sectoral resilience programs of the productive sectors should include a component of supply chain dynamics and its linkages to the protection of livelihoods and businesses in the wake of disasters (under Section 3.3.4 of the ASDRR [3]).
- Incorporate DRM into rural development policies, thereby creating new and strengthening existing linkages with climate change adaptation and sustainable development (under Section 3.3.1 of the ASDRR [3]).
- Ensure that vulnerable communities, households and businesses have access to micro-finance and micro insurance schemes to help implement DRM strategies that reduce risks (under Section 3.3.4 of the ASDRR [3]).
- Improve the ability of national and local governments to trace expenditure on DRR through modification of budget lines to explicitly account for disaster risk reduction (under Section 3.3.4 of the ASDRR [3]).

- Ensure that all DRM strategies and national critical infrastructure resilience programs account for the differential needs, vulnerabilities and capacities of the population, including those with life threatening diseases (under Section 3.3.4 of the ASDRR [3]).
- Ensure that sectoral resilience building programs account for stresses arising from disaster induced human mobility (under Section 3.3.4 of the ASDRR [3]).
- Promote regional cooperation to produce coherent strategies for addressing common and inter-related challenges facing the region including water, food and energy security especially in view of climate change and sustainable development challenges, where the latter may not be possible to address at an individual level without coordination and integration at the regional level (under Section 3.3.3 of the ASDRR [3]).
- Enhance cooperation at the regional level in ending hunger and poverty, providing social safety nets and improving health resilience of the population partly through aid and assistance (under Section 3.3.1 of the ASDRR [3]).
- Develop contextualised regional and sub-regional capacity building programs for disaster risk reduction which accounts for the various factors that contribute to vulnerability and their interaction with the main disaster risk drivers at the national, sub-regional and regional levels (under Section 3.3.3 of the ASDRR [3]).

Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction

Based on the mapping of activities between the ASDRR [3] and the SFDRR [2], and on the linkages with the Aqaba [5] and the Sharm El Sheikh [6] Declarations and Recommendations for the Post 2015 Agenda on DRR, the following additional activities are proposed:

- Ensure that early warning systems have been developed in a participatory manner, account for social technologies, incorporate the concerns and apprehensions of all stakeholders and are people centred (under Section 3.3.5 of the ASDRR [3]).
 - Ensure the resilience of basic and essential services, and continuity of operations, during and in the wake of disasters through the development and implementation of sectoral resilience building programs as elaborated in the sections above (under Section 3.3.4 of the ASDRR [3]).
 - Ensure that response and immediate recovery plans include the development of procedures and capacities for psycho-social support for affected people and communities (under Section 3.3.4 of the ASDRR [3]).
 - Develop a priori recovery plans, separate from response plans, to ensure that the reconstruction of the built environment, livelihoods and businesses will not reintroduce risk. These plans must be developed with all relevant stakeholders and sectors and must adopt a holistic approach for recovery that is pillared on the principle of “building back better” lives, livelihoods and the built environment (under Section 3.3.4 of the ASDRR [3]).
 - Promote and adopt the use of common standards guidelines and codes to support 1) combined drills, 2) coordinated action in the wake of disasters, and to 3) facilitate the exchange of resources and capacities (under Section 3.3.5 of the ASDRR [3]).
 - Encourage sharing experiences and best practices at the international, regional and sub-regional levels including on the development of recovery plans before disasters to avoid reintroducing risk (under Section 3.3.3 of the ASDRR [3]).
 - Engage strongly in UN and international agency efforts on improving the understanding of the social and economic effects of hydro-meteorological hazards especially in view of the unfolding effects of climate change in the region. (under Section 3.3.3 of the ASDRR [3])
-

A preliminary analysis of existing gaps in the Arab Strategy For Disaster Risk Reduction (ASDRR) and recommendations for strengthening it in view of the Arab Sustainable Development Report (ASDR) and the Arab Plan of Action on Climate Change (APACC)

6. Introduction

Background

The increased recognition of the importance of the interaction disaster risk management, climate change adaptation and development and sustainable development initiatives; has recently culminated in the development of the Arab Sustainable Development Report (ASDR) [16] and the Arab Plan of Action to Deal with Climate Change (APACC) [8], which necessitates a review of the ASDRR in view of the above two documents.

To this end, this report was commissioned by the UNISDR to analyse gaps in the Arab Strategy for Disaster Risk Reduction (ASDRR) [3], and to identify areas for strengthening the ASDRR in view of the ASDR [16] and the APACC [8]

Objectives

As stated earlier, the principal objective of this study is to undertake an analysis of the ASDRR, to strengthen linkages with existing and proposed international and regional initiatives on sustainable development and climate change adaptation. In particular, the following tasks will be carried out [4]:

- a. Gap analysis of the ASDRR in view of the Sendai Framework for Disaster Risk Reduction (SFDRR) [2].
- b. Recommendations on areas which need strengthening in the ASDRR [3] in view of point (a.)
- c. Review existing linkages and propose recommendations for strengthening linkages with the Sustainable Development Goals [7] and ASDR [16], Arab Plan of Action to Deal with Climate Change [8], and other regional policies and strategies.
- d. Financing mechanisms for implementation.
- e. A proposal of a revised Regional Action plan for Implementation, based on all the above, to be shared and consulted with regional technical working group of governments and partners and to be further contextualized taking into account sub-regional and national specificities.

This report summarises tasks (c) and (d) above.

Scope and Layout

Scope of Hazards

The focus of this report is on disaster risk management arising from natural hazards. However, the HFA [1] and indeed the Sendai Framework [2] and the ASDRR [3] also identified the need to include technological hazards arising from natural hazards. In addition, the Sendai Framework [2] attached greater importance to the resilience of the health sector and associated health hazards, in comparison to what originally existed in the HFA [1]. Finally, the ASDR [16] focused on the interaction between conflict, peace, development and refugees – all of which interact with disaster risk management.

Layout

The remainder of this report is divided into four main sections. Section 7 provides a brief overview of the methodology adopted in this study. In Section 8, a mapping between the ASDR [16] and the ASDRR [3] is carried out. In Section 9 a mapping between the APACC [8] and the ASDRR [3] is carried out. Finally, Section 10 provides recommendations for strengthening the linkages of the ASDRR [3] with the ASDR [16] and the APACC [8], based on the mapping in the previous two sections.

Limitations

It should be recognized that this study is being carried out based on the best available data and information on disaster risk management. Notwithstanding the above, the following limitations should be recognized:

4. The ASDRR [3] is being reviewed and assessed even though it is yet to be implemented. This may be an advantage to ensure efforts are aligned with state-of-the-art international and regional frameworks such as the ASDR [16] and APACC [8]. However, it also implies that the original ASDRR [3] is yet to be tested in order to identify any challenges in implementation and ownership by various national authorities and regional bodies.
5. The report reviews linkages with the ASDR [16]; however, countries are yet to start implementation of the ASDR [16] during which challenges in implementation and ownership may be identified.
6. The report reviews linkages with the APACC [8]; however, countries are yet to start implementation of the APACC [8] during which challenges in implementation and ownership may be identified.

7. Methodology

Introduction

The methodology adopted in this study is as follows:

- Compare the ASDR [16] with the ASDRR [3] to carry out a mapping between the respective activities.
- Compare the APACC [8] with the ASDRR [3] to carry out a mapping between the respective activities.

While carrying out the above, the study will account for: differences in:

- Approaches to involving stakeholders in all initiatives and declarations.
- Approaches to intensive and extensive risk.
- Approaches to corrective, prospective and compensatory risk management.
- Approaches to enhancing the accountability for the accumulation of risk and transfer of risk between sectors.
- Approaches to implementation of action plans and corresponding activities.

Reference Documents and Guidelines

The above comparisons between the ASDR [16], the APACC [8] and the ASDRR [3], were informed by various reference documents including successive GAR reports [10], [11], [12] and [13]; and the risk governance framework [14] all of which set the work for subsequent publications, on risk governance and risk governance deficits, produced by the International Risk Governance Council (IRGC). Furthermore, the ASDR [16], the APACC [8] have been cross referenced against the following:

- The Arab Regional Strategy for Sustainable Consumption and Production (ARSSCP) [17]
- The Arabic Strategic Framework for Sustainable Development (ASFSD). [18]
- Preparatory Stakeholder Analysis (PSA) [19].

8. Mapping of Proposed Activities in the ASDRR and ASDR

Introduction

For each of the four ASDR [16] priorities, and proposed activities within, a mapping will be carried out to compare against corresponding activities in the ASDRR [3] in order to identify any gaps or areas where further elaboration and effort must be directed. It should be recognized that gaps in the ASDRR are identified in two ways:

- Activities in the ASDR [16] with no direct corresponding activity in the ASDRR.
- Activities in the ASDR [16] with linkages to DRR related issues not sufficiently highlighted in the corresponding ASDRR activities. These can be inferred from an examination of the ASDR and corresponding ASDRR activities, as outlined in Tables 12 through to 19. Furthermore, these issues are summarised and discussed in more details in Section 10.

Table 11 presents a summary of the mapping between goals in the ASDR [16] and priorities in the ASDRR [3], where it can be seen that each of the goals and associated subthemes of the ASDR [16] has the potential to create linkages with all the ASDRR priorities.

Table 11 Summary of Mapping between ASDR and Corresponding ASDRR Activities

ASDR Goals	ASDRR Priority
Goal 1: End poverty in all its forms everywhere; Sub-Theme 1: Income Poverty.	3.3.1 Strengthen commitment for comprehensive disaster risk reduction across sectors. 3.3.2 Develop capacities to identify, assess and monitor disaster risks. 3.3.3 Build resilience through knowledge, advocacy, research and trainings. 3.3.4 Improve accountability for disaster risk management at sub national and local level. 3.3.5 Integrate disaster risk reduction into
Goal 2: End hunger, achieve food security & improved nutrition, & sustainable agriculture; Sub-Theme 2: Agriculture.	
Goal 3: Ensure healthy lives and promote well-being for all at all ages; Sub-Theme 3: Mortality, Sub-Theme 4: Health Delivery, Sub-theme 5: Nutritional Status, Sub-Theme 6: Demographics Population.	
Goal 4: Ensure inclusive and equitable quality education and promote life-long opportunities for all; Sub-Theme 7: Educational Level, Sub-Theme 8: Literacy.	
Goal 5: Achieve gender equality and empower all women and girls; Sub-Theme 9: Women in Politics, Sub-Theme 10: Literacy, Sub-Theme 11: Employment.	
Goal 6: Ensure availability and sustainable management of water and sanitation for all; Sub-Theme 12: Drinking Water, Sub-Theme 13: Sanitation, Sub-Theme 14: Availability of Water, Sub-Theme 15: Water Demand / Efficiency, Sub-Theme 16: Water Management.	
Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all; Sub-Theme 17: Energy Use, Sub-Theme 18: Access Energy.	
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; Sub-Theme 19: Macroeconomic Performance, Sub-Theme 20: Sustainable Public Finance, Sub-Theme 21: Employment.	
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; Sub-Theme 22: ICT.	
Goal 10: Reduce inequality within and among countries; Sub-Theme 23: Income Inequality.	
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable; Sub-Theme 24: Disaster Preparedness and Response, Sub-Theme 25: Air quality.	
Goal 12: Ensure sustainable consumption and production patterns; Sub-Theme 26: Waste, Sub-Theme 27: Transportation.	
Goal 13: Take urgent action to combat climate change and its impact; Sub-Theme 28: Climate Change Mitigation.	

ASDR Goals	ASDRR Priority
Goal 14: Conserve and sustainably use the oceans, seas and marine resources; Sub-Theme 29: Coastal Degradation, Sub-Theme 30: Marine Health.	emergency response, preparedness and recovery.
Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss; Sub-Theme 31: Ecosystem, Sub-Theme 32: Species.	
Goal 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; Sub-Theme 32: Displaced people.	
Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development; Sub-Theme 33: External Financing, Sub-Theme 34: Trade.	

ASDR Inter-Related Priority 1 Human Dignity, Rights and Wellbeing

Table 12 below summarise the ASDR [16] inter-related priority 1 activities with corresponding ASDRR [3], activities, where it can be seen that in many instances there is no one to one correspondence as the ASDRR [3], originally based on the HFA[1], did not go into detail in creating linkages on access and sufficiency of basic services related to water, sanitation, health, energy and food. However, regarding health in general, it can be recognized that ASDRR 3.3.5 (c) called to *establish emergency health support systems that offer free health care to victims and help address psychosocial (and other long term) health impacts of disasters.*

Table 12 *Mapping of ASDR Inter-Related Priority 1.1. Access and Sufficiency: Water, Sanitation, Health, Energy, Food / Nutrition, Housing with corresponding ASDRR Activities*

ASDR Goal 2, A 2.1: Arable and Permanent Crop Land Area (cumulative total). This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Agriculture, Rural Livelihoods and Food Security.
No Directly Corresponding ASDRR Activity
ASDR Goal 2: End hunger. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme The Water-Energy-Food Nexus as a Framework for Planning and Monitoring.
No Directly Corresponding ASDRR Activity
ASDR Goal 2: Achieve food security and improved nutrition. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme The Water-Energy-Food Nexus as a Framework for Planning and Monitoring.
No Directly Corresponding ASDRR Activity
ASDR Goal 3, A 3.1: Mortality Rate under 5 Years Old
No Directly Corresponding ASDRR Activity
ASDR Goal 3, A 3.2: Contraceptive Prevalence Rate (NC). This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting and On-Going Challenges, Sub-Theme Population and Health.
No Directly Corresponding ASDRR Activity
ASDR Goal 3, A 3.3: Immunization Against Infectious Childhood Diseases.
ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: combating disease and public health challenges
ASDR Goal 3, A 3.4 a: Nutritional Status of Children – Percentage of Underweight children
No Directly Corresponding ASDRR Activity
ASDR Goal 3, A 3.4 b: Nutritional Status of Children – Percentage of Obese children

No Directly Corresponding ASDRR Activity

ASDR Goal 3, A 3.5: Population Growth Rate – Urban. This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting and On-Going Challenges, Sub-Theme Population and Health.

No Directly Corresponding ASDRR Activity

ASDR Goal 3, A 3.5: Population Growth Rate – Rural. This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting and On-Going Challenges, Sub-Theme Population and Health.

No Directly Corresponding ASDRR Activity

ASDR Goal 3, A 3.6: Percent of Urban Population from Total

No Directly Corresponding ASDRR Activity

ASDR Goal 3, A 3.7: Percent of Rural Population from Total

No Directly Corresponding ASDRR Activity

ASDR Goal 3, A 3.8: Dependency Ratio (Young and Old).

No Directly Corresponding ASDRR Activity

ASDR Goal 6, A 6.1: Proportion of Population with Access to Safe Drinking Water. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme The Water-Energy-Food Nexus as a Framework for Planning and Monitoring.

No Directly Corresponding ASDRR Activity

ASDR Goal 6, A 6.2: Proportion of Population with Access to Improved Sanitation

No Directly Corresponding ASDRR Activity

ASDR Goal 6, A 6.4: Annual Utilization or Withdrawals of Water – Demand, All Types

No Directly Corresponding ASDRR Activity

ASDR Goal 6, A6.5 - Waste Water Treatment by Category

No Directly Corresponding ASDRR Activity

ASDR Goal 7, A 7.3: Percentage of Population with Access to Electricity. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme The Water-Energy-Food Nexus as a Framework for Planning and Monitoring.

No Directly Corresponding ASDRR Activity

ASDR Goal 8, A 8.1: GDP per Capita

No Directly Corresponding ASDRR Activity

Based on the above, it can be seen that there is a need to improve linkages between disaster losses and provision of basic services, and between sectoral resilience building programs and access and sufficiency of basic services, as will be further elaborated in Section 10.

Table 13 below summarise the ASDR [16] inter-related priority 1 activities with corresponding ASDRR [3] activities, where it can be seen that in many instances there is no one to one correspondence as the ASDRR [3], originally based on the HFA[1], did not go into detail in creating linkages with matters related to equity and opportunity particularly related to inclusive growth, poverty, income, gender, decent work, education, and equality. However, regarding gender and education in general, it should be recognized that ASDRR 3.3.2 (c) called to *ensure inclusion of gender disaggregated data for risk assessments*, and ASDRR 3.3.3 (b) called to *ensure use of up-to-date educational materials, curricula and approaches that account for emerging national and local risk contexts/ realities*.

Table 13 *Mapping of ASDR Inter-Related Priority 1.2 Equity and Opportunity: Inclusive Growth, poverty, Income, Gender, Decent Work, Education, Equality with corresponding ASDRR Activities*

ASDR Goal 1, A 1.1: Percentage of Population Below 1.25\$ (PPP) Per Day. This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting and On-Going Challenges, Sub-Theme Poverty Alleviation, Employment and Inequalities.

ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing

poverty, promoting livelihood diversification in peri-urban and rural centres.
ASDR Goal 1, A 1.2: A1.2 - Percentage of Population Living Below National Poverty Line
No Directly Corresponding ASDRR Activity
ASDR Goal 4, A 4.1: Net Enrolment Rate in Primary Education. This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting and On-Going Challenges, Sub-Theme Education, Illiteracy Eradication, and Public Awareness.
ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: provision of universal primary education
ASDR Goal 4, A 4.2: Gross Intake into Last Year of Primary Education
No Directly Corresponding ASDRR Activity
ASDR Goal 4, A 4.3: Adult Literacy Rate (Total). This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting and On-Going Challenges, Sub-Theme Education, Illiteracy Eradication, and Public Awareness.
No Directly Corresponding ASDRR Activity
ASDR Goal 4, A 4.3: Adult Literacy Rate (Male)
No Directly Corresponding ASDRR Activity
ASDR Goal 4, A 4.3: Adult Literacy Rate (Female)
No Directly Corresponding ASDRR Activity
ASDR Goal 5, A 5.1: Seats held by Women in National Parliaments (%)
No Directly Corresponding ASDRR Activity
ASDR Goal 5, A 8.5 b: Employment to Population Ratio Female (+15)
No Directly Corresponding ASDRR Activity
ASDR Goal 5, A 8.7: Female to Male Ratio in Vulnerable Employment
No Directly Corresponding ASDRR Activity
ASDR Goal 8, A 8.3: Gross Capital Formation (% of GDP). This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting and On-Going Challenges, Sub-Theme Scientific Research & Technology Development and Transfer.
No Directly Corresponding ASDRR Activity
ASDR Goal 8, A 8.4: Inflation
No Directly Corresponding ASDRR Activity
ASDR Goal 8, A 8.5 a: Employment to Population Ratio (Total). This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Poverty Alleviation, Employment and Inequalities.
No Directly Corresponding ASDRR Activity
ASDR Goal 8, A 8.5 b: Employment to Population Ratio Female (+15)
No Directly Corresponding ASDRR Activity
ASDR Goal 8: A 8.5 c: Employment to Population Ratio Males (+15)
No Directly Corresponding ASDRR Activity
ASDR Goal 8: A 8.5 d: Employment to Population Ratio for Youth (15-24 years)
No Directly Corresponding ASDRR Activity
ASDR Goal 8: A 8.6: Vulnerable Employment. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Poverty Alleviation, Employment and Inequalities.
ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups.
ASDRR 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).
ASDR Goal 8: A 8.7: Female to Male Ratio in Vulnerable Employment
No Directly Corresponding ASDRR Activity
ASDR Goal 8, 8.8: Foreign Direct Investment as % of GDP

No Directly Corresponding ASDRR Activity

ASDR Goal 10, A 10.1: Ratio of Share in National Income of Highest to Lowest Quintile

No Directly Corresponding ASDRR Activity

Based on the above, it can be seen that there is a need to improve linkages between disaster losses and poverty reduction programs, and between DRM strategies and programs and equity and opportunity including inclusive growth, poverty reduction, decent employment provision, and gender empowerment, as will be further elaborated in Section 10.

ASDR Inter-Related Priority 2 Prosperous, Sustainable and Resilient Societies

Table 14 below summarise the ASDR [16] inter-related priority 2 activities with corresponding ASDRR [3] activities, where it can be seen that in many instances there is no one to one correspondence as the ASDRR [3], originally based on the HFA[1], did not go into detail in creating linkages with matters related to sustainable natural resource base, particularly related to water, food / land and energy security and Sustainable Consumption and Production Patterns (SCP). However, regarding climate change in general, it should be recognized that ASDRR 3.3.1 called to *integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.*

Table 14 *Mapping of ASDR Inter-Related Priority 2.1: Sustainable Natural Resource Base: Water, Food / Land and Energy Security, SCP with corresponding ASDRR Activities*

ASDR Goal 6, A 6.3: Annual Withdrawals of Ground and Surface Water as a Percent of Available Water. This is also recognized as an important issue in the ARSSCP [17] recommendations for Integrated Management of Water Resources Section 5.2.2 and in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Water Security

No Directly Corresponding ASDRR Activity

ASDR Goal 7, A 7.1: Share of Consumption of Renewable Energy Resources (no hydro). This also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Energy Security

No Directly Corresponding ASDRR Activity

ASDR Goal 7, A 7.2: Annual (commercial) Energy Consumption per Capita

No Directly Corresponding ASDRR Activity

ASDR Goal 12, A 12.1: Generation of Waste.

No Directly Corresponding ASDRR Activity

ASDR Goal 12, A 12.2: Generation of Hazardous Waste.

No Directly Corresponding ASDRR Activity

ASDR Goal 12, A 12.3: Waste Treatment and Disposal (method). This is also recognized as an important issue in the ARSSCP [17] recommendations for Integrated Solid Waste Management Section 5.2.2 and on Section C: Persisting On-Going Challenges, Sub-Theme Management of wastes and Chemicals.

No Directly Corresponding ASDRR Activity

ASDR Goal 12, A 12.4: Passenger Cars Per 1,000 People

No Directly Corresponding ASDRR Activity

Based on the above, it can be seen that there is a need to improve linkages between addressing existing non-sustainable consumption and production patterns, disaster risk drivers and disaster losses, and between DRM strategies, sectoral resilience building programs and water, food and energy security building programs, as will be further elaborated in Section 10.

Table 15 below summarise the ASDR [16] inter-related priority 2 activities with corresponding ASDRR [3] activities, where it can be seen that in many instances there is no one to one correspondence with activities in the ASDR related to resilience to disasters and climate change impacts. However, there are significant ASDRR activities

related to this topic, which have been listed at the end of the table. This shows that the need to improve linkages exist at both ends of the development-DRR spectrum.

Table 15 *Mapping of ASDR Inter-Related Priority 2.2: Resilience to Disasters and Climate Change Impacts with corresponding ASDRR Activities.*

ASDR Goal 11, A 11.1: Human Loss Due to Disasters (cumulative total). This is also recognized as an important issue in the PSA [19] recommendations, Section Emergency Preparedness and Disaster Risk Reduction, Sub-theme Faster Response to Early Warning Signs, and Sub-theme Knowledge and Capacity to Prepare and Respond.
ASDRR 3.3.2 (e): Establish regional early warning systems and networks to monitor multiple hazards affecting the region.
ASDRR 3.3.5 (b): Establish disaster preparedness plans, contingency plans, recovery and reconstruction plans at all administrative levels with the participation of women, the aged, children, IDPs and people with special needs.
ASDRR 3.3.5 (g): Ensure institutional and surge capacities for conducting damage and loss assessments.
ASDR Goal 11, A11.2 Ambient Concentration of Air Pollutants in Urban Areas. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Climate Change.
No Directly Corresponding ASDRR Activity
ASDR Goal 13, A 13.1: Emissions of Greenhouse Gases (per US\$ 1 GDP, PPP, in Kg). This is also recognized in the ASFSD [18] on Section C: Persisting On-Going Challenges, Sub-Theme Urban Planning and Sustainable Cities.
No Directly Corresponding ASDRR Activity
ASDR Goal 13, A 13.2: Emissions of Greenhouse Gases (Per capita in metric tons). This is also recognized in the ASFSD [18] on Section C: Persisting On-Going Challenges, Sub-Theme Urban Planning and Sustainable Cities.
No Directly Corresponding ASDRR Activity
ASDR Goal 13, A 13.3: Emissions of Greenhouse Gases (million metric tons). This is also recognized in the ASFSD [18] on Section C: Persisting On-Going Challenges, Sub-Theme Urban Planning and Sustainable Cities.
No Directly Corresponding ASDRR Activity
ASDRR General Activities related to current ASDR priority
<ul style="list-style-type: none"> • ASDRR 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard. • ASDRR 3.3.2 (a): Ensure national and local multi-hazard risk assessments are periodically made available and include risk assessments for key sectors with specific regard to urban settlements. • ASDRR 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards. • ASDRR 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others). • ASDRR 3.3.4 (c): Institute legislation and assessment procedures to assess the disaster risk impacts of major development projects, especially large infrastructure projects. • ASDRR 3.3.5 (a): Establish strong policy, technical and institutional capacities and mechanisms for disaster management that include risk reduction perspectives. • ASDRR 3.3.5 (f): Incorporate international quality standards in disaster response (SPHERE, IASC guidelines). • ASDRR 3.3.5 (h): Address national trans-boundary cooperation on disaster response, preparedness and recovery among Arab states.

Based on the above, it can be seen that there is a need to improve linkages and efforts to analyse and address dis-aggregated data on disaster losses due to natural hazards and climate change, and their interaction with development and sustainable development.

Table 16 below summarise the ASDR [16] inter-related priority 2 activities with corresponding ASDRR [3] activities, where it can be seen that in many instances there is no one to one correspondence as the ASDR did not go into detail in creating linkages with ASDRR [3] indicators on resilient cities. Indeed it can be seen that while the indicators A9.1 to A9.3 are specifically focused at the ICT sector (as stated by Goal 9 in Table 2), the goal is general enough to recognise the importance of linkages with the ASDRR. Therefore, ASDRR activities related to this have been listed at the end of the table.

Table 16 *Mapping of ASDR Inter-Related Priority 2.3: Economic Prosperity: Innovation, Infrastructure and Sustainable Cities with corresponding ASDRR Activities*

ASDR Goal 9, A 9.1: Internet Users per 100 Population
 ASDR Goal 9, A 9.2: Fixed Telephone Line and Cellular Subscribers per 100 Population (NC)
 ASDR Goal 9, A 9.3: Mobile Cellular Telephone Subscribers per 100 Population.
 This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting On-Going Challenges, Sub-Theme Information and Communication Technologies.

Linkages with ASDR Goal 9 in general

ASDR Goal 9: Build resilient infrastructure and promote inclusive and sustainable industrialization and foster innovation. This is also recognized as an important issue in the ASFSD [18] on Section C: Persisting On-Going Challenges, Sub-Theme Urban Planning and Sustainable Cities.

ASDRR 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).

ASDRR 3.3.4 (c): Institute legislation and assessment procedures to assess the disaster risk impacts of major development projects, especially large infrastructure projects.

ASDRR 3.3.4 (d): Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.

Based on the above, it can be seen that there is a need to improve indicators in the ASDR to link to ASDRR activities related to reducing economic factors contributing to vulnerability and to strengthen linkages to urban resilience building master plans, as will be further elaborated in Section 10.

ASDR Inter-Related Priority 3 Governance and Rule of Law

Table 17 below summarises the ASDR [16] inter-related priority 3 activities with corresponding ASDRR [3] activities, where it can be seen that in many instances there is no one to one correspondence as the ASDRR [3], originally based on the HFA[1], did not go into detail in creating linkages with matters related to governance, social justice and participation, peace and security, sound institutions, and rule of law. However, regarding risk governance in general, the ASDRR has several activities related to this, as listed at the end of Table 17.

Table 17 *Mapping of ASDR Inter-Related Priority 3 Governance, Social Justice and Participation, Peace and Security, Sound Institutions, Rule of Law with corresponding ASDRR Activities*

ASDR Goal 16, A 16.1: Refugee Population by Country of Origin (sum total)
No Directly Corresponding ASDRR Activity
ASDR Goal 16, A 16.2: Refugee Population by Country of Asylum (sum total).
No Directly Corresponding ASDRR Activity
ASDR Goal 16: Inclusive societies for sustainable development. This also recognized as an important issue in the ASFSD [18] on Section A Enabling Environment to Achieve Sustainable Development in the Arab Region, Sub-Theme Peace and Security, Justice and Participation.
No Directly Corresponding ASDRR Activity
ASDR Goal 16: Justice for all. This also recognized as an important issue in the ASFSD [18] on Section A Enabling Environment to Achieve Sustainable Development in the Arab Region, Sub-Theme Peace and Security, Justice and Participation.
No Directly Corresponding ASDRR Activity
ASDR Goal 16: Effective, accountable and inclusive institutions. This also recognized as an important issue in the ASFSD [18] on Section A Enabling Environment to Achieve Sustainable Development in the Arab Region, Sub-Theme Peace and Security, Justice and Participation and Sub-Theme Governance for Sustainable Development.
No Directly Corresponding ASDRR Activity
ASDRR Risk Governance Related Activities
ASDRR 3.3.1 (c): Ensure decentralization of dedicated and adequate resources, community participation and collaboration with civil society groups and the private sector during all planning and implementation efforts for disaster management and risk reduction.
ASDRR 3.3.1 (d): Ensure that national multi-sectoral platforms take account of underlying risk factors, while prioritizing high-risk areas and most vulnerable populations/ groups (especially in conflict zones and urban settlements).
ASDRR 3.3.2 (a): Ensure national and local multi-hazard risk assessments are periodically made available and include risk assessments for key sectors with specific regard to urban settlements.
ASDRR 3.3.4 (c): Institute legislation and assessment procedures to assess the disaster risk impacts of major development projects, especially large infrastructure projects.
ASDRR 3.3.4 (e): Analyse existing and emerging financial mechanisms for disaster reduction while identifying and developing the most adequate risk transfer and risk finance instruments.
ASDRR 3.3.2 (a): Ensure national and local multi-hazard risk assessments are periodically made available and include risk assessments for key sectors with specific regard to urban settlements.

Based on the above, it can be seen that there is a need to improve linkages between DRM initiatives on the one hand and efforts to address weak risk governance and weak governance in general, as the latter hamper DRM and sustainable development efforts, as will be further elaborated in Section 10.

ASDR Inter-Related Priority 4 Means of Implementation, Partnerships and Global Solidarity and Resilience

Table 18 below summarise the ASDR [16] inter-related priority 4 activities with corresponding ASDRR [3] activities, where it can be seen that in many instances there is no one to one correspondence as the ASDRR [3], originally based on the HFA[1], did not go into detail in creating sufficient linkages with all matters related to means of implementation and partnerships: finance, technology, trade, and capacity building, where a particular gap related to financing is apparent. However, regarding capacity

building and awareness raising in general, the ASDRR proposes several activities listed at the end of Table 18.

Table 18 *Mapping of ASDR Inter-Related Priority 4.1: Means of Implementation and Partnerships: Finance, Technology, Trade, and Capacity Building with corresponding ASDRR Activities.*

ASDR Goal 8, A 8.2: Debt to GNP Ratio. This is also recognized as an important issue in the ASFSD [18] on Section D: Means of Implementation, Sub-Theme Finance, Trade and Investment.
No Directly Corresponding ASDRR Activity
ASDR Goal 17, A 17.1: Total ODA Received by Arab Countries, as % of GNI. This is also recognized as an important issue in the ASFSD [18] on Section A: Enabling Environment to Achieve Sustainable Development in the Arab Region, Sub-Theme Global Stability and on Section D: Means of Implementation, Sub-Theme Capacity Building and Cooperation.
ASDRR 3.3.5 (d): Ensure that national/ local financial reserves and contingency mechanisms are in place and understood by all stakeholders to ensure effective response and recovery when required.
ASDR Goal 17, A 17.1: Net ODA Per Capita Received by Arab Countries, in constant 2010 US\$. This is also recognized as an important issue in the PSA [19] recommendations, Section Humanitarian Financing, Sub-theme Mobilize Additional sources and on Section A: Enabling Environment to Achieve Sustainable Development in the Arab Region, Sub-Theme Global Stability in the ASFSD [18].
No Directly Corresponding ASDRR Activity
ASDR Goal 17, A 17.2: Current Account Deficit or Surplus as Percentage of GDP
No Directly Corresponding ASDRR Activity
General ASDRR Activities related to Capacity Building and Partnerships
ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: ensuring partnerships for development.
ASDRR 3.3.2 (b): Ensure capacities and systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities at the regional, national and local level.
ASDRR 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).
ASDRR 3.3.3 (e): Secure flow of resources to support continual scientific research geared for devising solutions that can be especially implemented in the short – medium term.
ASDRR 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the participation of women.
ASDRR 3.3.3 (f): Develop standardized tools and commonly accepted indicators for tracking progress in risk reduction and demonstrating the cost-benefit ratio of investment in this area.
ASDRR 3.3.4 (a): Ensure that sub national and local risk reduction strategies involve a long-term capacity development plan matched by dedicated and adequate allocation of budgets.
ASDRR 3.3.4 (e): Analyse existing and emerging financial mechanisms for disaster reduction while identifying and developing the most adequate risk transfer and risk finance instruments.

Based on the above, it can be seen that there is a need to ensure that DRM strategies are accompanied by time-bound action plans, with identified financial needs and

corresponding sources of financing with linkages to identified financing sources in the public and private sectors available for sustainable development, as will be further elaborated in Section 10.

Table 19 below summarise the ASDR [16] inter-related priority 4 activities with corresponding ASDRR [3], activities, where it can be seen that in many instances there is no one to one correspondence as the ASDRR [3], originally based on the HFA[1], did not go into detail in creating linkages with matters related to global solidarity and resilience: climate, atmosphere, biodiversity and oceans. However, as mentioned earlier regarding climate change in general, ASDRR 3.3.1 called to integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

Table 19 *Mapping of ASDR Inter-Related Priority 4.2: Global Solidarity and Resilience: Climate, Atmosphere, Biodiversity, Oceans with corresponding ASDRR Activities.*

ASDR Goal 14, A 14.1: Percent of Total Population Living in Coastal Areas. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Climate Change and on Section C: Persisting On-Going Challenges, Sub-Theme Others Priorities: Biodiversity and Biosafety and on Sub-Theme Coastal Zones and the Marine Environment.
No Directly Corresponding ASDRR Activity
ASDR Goal 14, A 14.2: Average Annual Fish Catch (metric tons). This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Climate Change.
No Directly Corresponding ASDRR Activity
ASDR Goal 15, A 15.1: Protected Area as a Percent of Total Area. This is also recognized as an important issue in the ASFSD [18] on Section B: Emerging Priorities, Sub-Theme Climate Change and on Section C: Persisting On-Going Challenges, Sub-Theme Others Priorities: Biodiversity and Biosafety and on Sub-Theme Coastal Zones and the Marine Environment
ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: promoting environmental sustainability
ASDR Goal 15, A 15.2: Vegetation Cover
No Directly Corresponding ASDRR Activity
ASDR Goal 15, A 15.3: Percentage of Threatened Species
No Directly Corresponding ASDRR Activity

Based on the above, it can be seen that there is a need to strengthen linkages between direct and indirect disaster loss collation and analysis, environmental degradation, climate change and poverty reduction strategies, as will be further elaborated in Section 10.

9. Mapping of Proposed Activities in the ASDRR and APACC

Introduction

For each of the APACC [8] proposed sectors for intervention, and programs within, a mapping will be carried out to compare against corresponding activities in the ASDRR [3] in order to identify any gaps and areas where further elaboration, linkages and effort must be directed. In this context, it should be recognized that gaps in the ASDRR are identified in two ways:

- Activities in the APACC [8] with no direct corresponding activity in the ASDRR [3].
- Activities in the APACC [8] with emphasis on climate change related issues not sufficiently highlighted in any corresponding ASDRR [3] activities. These can be inferred from an examination of the APACC [8] and corresponding ASDRR [3] activities, as outlined in Table 21 through to Table 34. Furthermore, these issues are summarised and discussed in more detail in Section 10.

Table 20 presents a summary of the mapping between Programs in the APACC [8] and activities in ASDRR [3], where it can be seen that several activities in the ASDRR has direct relevant to climate change mitigation and to a lesser extent adaptation programs proposed under the APACC. Activities in Table 20 are divided into topics and programs. Some of these may be similar, with the main difference being that they refer to adaptation or mitigation programs.

Table 20 Summary of Mapping between APACC Programs and ASDRR Activities

APACC Adaptation Topics and Programs within
Climate: Program 1: Climate Monitoring and Assessment, Program 2: Disaster Risk Reduction (DRR).
Water, Land and Biodiversity: Program 3: Assessment of potential impacts of climate change on water resources, land use and biodiversity, Program 4: Integrated Management for Water Resources, Program 5: Integrated Management for Lands, Program 6: Biodiversity conservation.
Agriculture and Forestry: Program 7: Development of technologies for Arab agriculture, Program 8: Developing Management Systems for Natural and Agricultural Resources of Environment, Program 9: Integrated pest management (IPM).
Economic Diversity: Program 10: Economic Diversity
Construction: Program 11: Sustainable Construction and Building.
Tourism: Program 12: Development of Ecotourism.
Population and Human Settlements: Program 13: Creating living conditions to adapt to climate change.
Health: Program 14: Improving health systems.
Seas and Coastal Areas: Program 15: Monitoring national and regional marine environment
APACC Additional Mitigation Topics and / or Additional Mitigation Programs
Water, Land and Biodiversity: Program 16: Integrated Management for Water Resources, land and biodiversity.
Agriculture and Forestry: Program 17: Development of technologies for Arab agriculture, Program 18: Developing Management Systems for Natural and Agricultural Resources of Environment.
Sustainable Industry: Program 19: Development of Sustainable Industry
Energy: Program 20: Improving energy efficiency, Rationalizing consumption and developing renewable energy applications, Program 21: Application of advanced fossil fuel and cleaner fuels technologies.
Transportation: Program 22: Checking, adjustment, and maintenance of engines, Program 23: Improving the quality of fuel and using cleaner fuels.
Construction and Building: Program 24: sustainable Construction and Building.
APACC Cross-Cutting Programs

Program 25: Promotion of environmental awareness.

Program 26: Promotion of women participation in climate change issues.

Implementation

ASDRR Priorities and Activities

ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development

ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

ASDRR, 3.3.1 (d): Ensure that national multi-sectoral platforms take account of underlying risk factors, while prioritizing high-risk areas and most vulnerable populations/ groups (especially in conflict zones and urban settlements).

ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others)

Climate and Biodiversity

Table 21, Table 22 and Table 230 below summarise the APACC [8] programs with corresponding ASDRR [3] activities. It should be noted that in Table 21 through to Table 34, the ASDRR [3] activities indirectly related to the APACC [8] activities are shown in *italic* font-type, while proposed modification to strengthen linkages to climate change are shown in **bold** font-type.

Table 21 *Mapping of APACC Climate Activities with corresponding ASDRR Activities*

Adaptation activities

APACC, Program 1, (1): Supporting Arab national and regional climate centres to assess and monitor climate within the Global Framework for Climate Services (GFCS).

ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

APACC, Program 2, (1): Using DRR mechanisms and capacities in the Adaptation Program planning and implementing

ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development.

ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

Based on the above, it can be seen that there is a need to improve linkages between disaster risk and climate change losses and between their respective risk drivers, as will be further elaborated in Section 10.

Table 22 *Mapping of APACC Water, Land and Biodiversity Activities with corresponding ASDRR Activities*

Adaptation Activities
APACC Program 3 (1): Developing scenarios and methodologies for studying the impact of climate change on water resources in the Arab region.
ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards. <i>ASDRR, 3.3.4 (c): Institute legislation and assessment procedures to assess the disaster risk impacts and climate change impacts of major development projects, especially large infrastructure projects</i>
APACC Program 3 (2): Developing climate – agricultural maps at the level of Arab region that contributes directly to support the decision-making process in order to counter climate change effects on the Arab region
ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards. ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).
APACC Program 3 (3): Development of monitoring systems for water resources.
<i>ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).</i>
APACC Program 3 (4): Developing methodologies for controlling land degradation at national and regional levels.
ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development. ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.
APACC Program 4 (1): Reassessing the available water resources under the influence of regional scenarios of climate change.
ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.
APACC Program 4 (2): Setting the methodologies of integrated management for water resources and developing water policies based on the principle of integrated management for water resources.
No Directly Corresponding ASDRR Activity
APACC Program 4 (3): Improving the efficiency of water use in irrigation, industry and household purpose.
ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).
APACC Program 4 (4): Maintaining the water resources from pollution and processing it by low-cost technology. This is also recognized as an important issue in the ARSSCP

[17] recommendations for Integrated Management of Water Resources Section 5.2.2.
No Directly Corresponding ASDRR Activity
APACC Program 5 (1): Preparing an integrated methodology for the application of rainwater harvesting technologies.
No Directly Corresponding ASDRR Activity
APACC Program 5 (2): Preparing methodologies of sustainable integrated management for land based on maps of soil, vegetation and optimal use.
No Directly Corresponding ASDRR Activity
APACC Program 5 (3): Developing vegetation and organizing pasture.
No Directly Corresponding ASDRR Activity
APACC Program 5 (4): Developing the low-quality water use in irrigation.
No Directly Corresponding ASDRR Activity
APACC Program 6 (1): Expansion in the establishment of nature reserves.
No Directly Corresponding ASDRR Activity
APACC Program 6 (2): Establishment of banks for saving the germplasm of plant varieties in the Arab region.
No Directly Corresponding ASDRR Activity
APACC Program 6 (3): Increasing the area of forest and nature reserves and preventing deforestation and timber cutting.
No Directly Corresponding ASDRR Activity
APACC Program 6 (4): Take appropriate precautions and measures in the most vulnerable areas of the threat of forest fires, as well as natural pastures dry.
<i>ASDRR, 3.3.1 (d): Ensure that national multi-sectoral platforms take account of underlying risk factors, while prioritizing high-risk areas and most vulnerable populations/ groups (especially in conflict zones and urban settlements).</i>
Mitigation Activities
APACC Program 16 (1): Using the most secure systems with environment, which reduce the use of machinery, maintain the land fertility, and increase carbon storage in the soil.
No Directly Corresponding ASDRR Activity
APACC Program 16 (2): Providing guidance and awareness among farmers.
<i>ASDRR, 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices and climate change impacts among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).</i>
APACC Program 16 (3): Application of appropriate agricultural cycles.
<i>ADRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).</i>
APACC Program 16 (4): Expanding the use of renewable energies in lifting water and irrigating crops.
No Directly Corresponding ASDRR Activity
APACC Program 16 (5): Conservation and development of important marine and coastal environments to absorb carbon dioxide from the air.
No Directly Corresponding ASDRR Activity

Based on the above, it can be seen that there is a need to improve linkages between disaster loss collation, water and land degradation, loss of biodiversity and poverty reduction. There is also a need to improve linkages in resilience building activities against both disaster risk and climate change, as will be further elaborated in Section 10.

Table 23 Mapping of APACC Seas and Coastal Areas Activities with corresponding ASDRR Activities

Adaptation activities
APACC Program 15 (1): Developing the Arab Network for monitoring programs for national and sub-regional marine environment, exchange and analyse monitoring information to deepen understanding of the change patterns at regional scope.
<i>ASDRR, 3.3.2 (a): Ensure national and local multi-hazard risk assessments and climate change assessments are periodically made available and include risk and climate change assessments for key sectors with specific regard to urban settlements.</i>
APACC Program 15 (2): Strengthening the linking networks and data exchange between the Arab Network, marine monitoring programs, the Global Sea Level Observing System (GLOSS), and the Intergovernmental Panel on Climate Change (IPCC).
<i>ASDRR, 3.3.3 (a): Ensure that relevant information on disaster risks, climate change and events is accessible and available at all levels, to all stakeholders (through networks, development of information sharing systems, regional databases, etc.) and especially in relevant local languages.</i>
<i>ASDRR, 3.3.5 (e): Ensure that sub national and local coordination procedures are in place to exchange critical and timely information during hazard events, and disasters,</i>
APACC Program 15 (3): Support and develop systems of observation and early warning for marine and coastal environment.
<i>ASDRR, 3.3.2 (e): Establish regional early warning systems and networks to monitor multiple hazards affecting the region.</i>
APACC Program 15 (4): The inclusion of disaster risks related to climate change in emergency plans and disaster management in coastal areas.
<i>ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.</i>

Based on the above, it can be seen that there is a need to improve linkages between disaster loss collation, seas and coastal areas degradation and loss of biodiversity and poverty reduction in coastal areas. There is also a need to improve linkages in resilience building activities against both disaster risk and climate change, in coastal areas, as will be further elaborated in Section 10.

Agriculture and Forestry

Table 24 below summarises the APACC [8] programs activities with corresponding ASDRR [3] activities.

Table 24 Mapping of APACC Agriculture and Forestry Activities with corresponding ASDRR Activities

Adaptation Activities
APACC Program 7 (1): Development of technologies for the production of plant varieties and animal breeds.
<i>ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: promoting environmental sustainability.</i>
APACC Program 7 (2): Development of farming technologies and systems.
No Directly Corresponding ASDRR Activity
APACC Program 7 (3): Development of technologies for the use of agricultural waste.
No Directly Corresponding ASDRR Activity
APACC Program 8 (1): Organizing the management of pastoral forestry and forest resources.
<i>ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: promoting environmental sustainability</i>
APACC Program 8 (2): Conservation of resources and germplasm.

No Directly Corresponding ASDRR Activity
APACC Program 8 (3): Rehabilitation of degraded forests and grasslands.
<i>ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: promoting environmental sustainability</i>
APACC Program 9 (1): Studying and assessing the kinetics (dynamics) of diseases and pests, insects and weeds associated with climate change.
<i>ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: promoting environmental sustainability</i>
Mitigation Activities
APACC, Program 17 (1): Development of technologies for the use of agricultural waste.
<i>ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).</i>
APACC, Program 17 (2): Rationalizing the consumption of fertilizers in agriculture
No Directly Corresponding ASDRR Activity
APACC, Program 17 (3): Reducing the reliance on pesticides and herbicides in agricultural and forest systems.
No Directly Corresponding ASDRR Activity
APACC, Program 18 (1): Expansion of afforestation and greening areas.
No Directly Corresponding ASDRR Activity
APACC, Program 18 (2): Reforestation of degraded forests.
<i>ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: promoting environmental sustainability</i>
APACC, Program 18 (3): Developing strategies to combat forest fires.
No Directly Corresponding ASDRR Activity

Based on the above, it can be seen that there is a need to improve efforts to collate direct and indirect dis-aggregated data on disaster losses in the agriculture sector due to disaster risk and climate change and bad practices in the management of agricultural waste. There is also a need to understand how the above interacts with poverty reduction efforts in rural areas in order to arrive at a resilient agriculture sector, as will be further elaborated in Section 10.

Sustainable Consumption and Production

Table 25, Table 26, Table 27, Table 28, Table 29 and Table 30 below summarise the APACC [8] programs activities with corresponding ASDRR [3] activities.

Table 25 *Mapping of APACC Economic Diversity Activities with corresponding ASDRR Activities*

Adaptation Activities
APACC Program 10 (1): Development an economic strategy to encourage taking adaptation measures in the industrial sector and diversifying business.
<i>ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).</i>
APACC Program 10 (2): Integration of economic diversity within the national plans and strategies of the Arab countries.
<i>ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism,</i>

shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).

Based on the above, it can be seen that there is a need to ensure that strategies, policies and program to reduce the economic factors contributing to vulnerability against disaster risk account for and link to climate change adaptation and mitigation efforts, as will be further elaborated in Section 10.

Table 26 Mapping of APACC Construction and Building Activities with corresponding ASDRR Activities

Adaptation Activities
APACC Program 11 (1): Developing the capacities of professionals and people involved in construction sector to counter climate change impacts.
<i>ASDRR, 3.3.4 (d): Planning and management of human settlements incorporate disaster risk reduction elements and climate change, including enforcement of building codes.</i>
APACC Program 11 (2): Using geographic information systems to optimize the use of resources and land.
<i>ASDRR, 3.3.3 (e): Secure flow of resources to support continual scientific research including applied research geared for devising solutions that can be especially implemented in the short – medium term.</i>
APACC Program 11 (3): Setting Arab unified standards for Green Building.
No Directly Corresponding ASDRR Activity
APACC Program 11 (4): Developing skills of research and development to achieve the sustainable building and construction.
<i>ASDRR, 3.3.4 (d): Planning and management of human settlements incorporate disaster risk reduction elements and climate change, including enforcement of building codes.</i>
<i>ASDRR, 3.3.3 (e): Secure flow of resources to support continual scientific research including applied research geared for devising solutions that can be especially implemented in the short – medium term.</i>
Mitigation Activities
APACC Program 24 (1): Rationalizing the use of energy and reducing the heat load in facilities through using advanced technologies appropriate for lighting, heating, cooling and ventilation.
No Directly Corresponding ASDRR Activity
APACC Program 24 (2): Redevelopment of the facilities in old and traditional quarters by using advanced technologies to achieve thermal insulation and rationalizing the use of energy and water.
No Directly Corresponding ASDRR Activity
APACC Program 24 (3): Developing urban planning methodologies.
<i>ASDRR, 3.3.4 (d): Planning and management of human settlements incorporate disaster risk reduction elements and climate change, including enforcement of building codes.</i>
<i>ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development.</i>
APACC Program 24 (4): Development of methodologies for the design of road networks within the city, the suburbs and new towns in a way that suits the prevailing climatic conditions.
No Directly Corresponding ASDRR Activity
APACC Program 24 (5): Expanding the use of renewable energy in heating and lighting.
No Directly Corresponding ASDRR Activity
APACC Program 24 (6): Dissemination and adoption of cleaner production technologies

in the industry of cement and building materials.

ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others)

No Directly Corresponding ASDRR Activity

Based on the above, it can be seen that there is a need to ensure that resilience building programs in the housing and infrastructure sector account for climate change adaptation and mitigation. There is also a need to ensure that disaster loss collation and analysis in these sectors account for direct and indirect damages due to climate change, as will be further elaborated in Section 10.

Table 27 Mapping of APACC Tourism Activities with corresponding ASDRR Activities

Adaptation Activities

APACC Program 12 (1): Conducting studies for the development of tourist areas to be more resilient and preparedness for climate change impacts.

ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).

APACC Program 12 (2): Conducting studies to develop the areas of alternative tourism (cultural, conference tourism etc.).

ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others)

Based on the above, it can be seen that there is a need to ensure that resilience building programs in the tourism sector account for climate change adaptation and mitigation. There is also a need to ensure that disaster loss collation and analysis in this sector account for direct and indirect damages due to climate change, as will be further elaborated in Section 10.

Table 28 Mapping of APACC Sustainable Industry Activities with corresponding ASDRR Activities

Mitigation Activities

APACC Program 19 (1): Rationalizing the energy consumption in factories. This is also recognized as an important issue in the ARSSCP [17] recommendations for Economic and Sustainable Management of the Energy Section 5.1.2.

No Directly Corresponding ASDRR Activity

APACC Program 19(2): Improving the efficiency of energy use in factories. This is also recognized as an important issue in the ARSSCP [17] recommendations for Economic and Sustainable Management of the Energy Section 5.1.2.

No Directly Corresponding ASDRR Activity

APACC Program 19 (3): The use of cleaner energy alternatives in new projects. This is also recognized as an important issue in the ARSSCP [17] recommendations for Economic and Sustainable Management of the Energy Section 5.1.2.

No Directly Corresponding ASDRR Activity

APACC Program 19 (4): Replacing energy sources with less polluting ones in existing plants.

No Directly Corresponding ASDRR Activity

APACC Program 19 (5): Addressing attempts to transfer polluting industries and pollution-intensive equipment to Arab countries.

No Directly Corresponding ASDRR Activity

APACC Program 19 (6): Developing control and self-monitoring systems for pollutants in industrial plants.

No Directly Corresponding ASDRR Activity

APACC Program 19 (7): Supporting environmental compliance and monitoring the observing of environmental conditions in industrial plants.

No Directly Corresponding ASDRR Activity

APACC Program 19 (8): Recycling and reuse of industrial waste water.

No Directly Corresponding ASDRR Activity

APACC Program 19 (9): Using less-water consumption industries.

No Directly Corresponding ASDRR Activity

General ASDRR Activities

ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).

Based on the above, it can be seen that there is a need to ensure that resilience building programs in the industrial sector account for climate change adaptation and mitigation. There is also a need to ensure that disaster loss collation and analysis in this sector account for direct and indirect damages due to climate change, as will be further elaborated in Section 10.

Table 29 Mapping of APACC Energy Activities with corresponding ASDRR Activities

Mitigation Activities

APACC Program 20 (1): Adopting and developing advanced technologies and methods to enhance oil extraction, including the capture and storage of carbon dioxide.

No Directly Corresponding ASDRR Activity

APACC Program 20 (2): Reducing the losses of oil and gas.

No Directly Corresponding ASDRR Activity

APACC Program 20 (3): Raising the energy efficiency and consumption rationalization in producing and refining oil and in processing and purifying natural gas. This is also recognized as an important issue in the ARSSCP [17] recommendations for Economic and Sustainable Management of the Energy Section 5.1.2.

No Directly Corresponding ASDRR Activity

APACC Program 20 (4): Increasing reliance on natural gas to produce electricity rather than liquid fuels.

No Directly Corresponding ASDRR Activity

APACC Program 20 (5): Developing the uses of and depending gradually on renewable energy sources, especially wind farms and solar thermal systems, in the production of high capacity electricity. This is also recognized as an important issue in the ARSSCP [17] recommendations for Economic and Sustainable Management of the Energy Section 5.1.2.

No Directly Corresponding ASDRR Activity

APACC Program 20 (6): Improving the efficiency of thermal insulation, preventing leaks and applying thermal energy efficiency in buildings.

No Directly Corresponding ASDRR Activity

APACC Program 21 (1): Expand the use of natural gas in energy-consuming sectors, especially electricity, industry and transportation.

No Directly Corresponding ASDRR Activity

APACC Program 21 (2): Developing techniques of oil refineries and increasing the

conversion and processing processes of oil and its derivatives.

No Directly Corresponding ASDRR Activity

APACC Program 21 (3): Removing lead and reducing sulphur in fuel with the use of fuel additives that raise its environmental specifications.

No Directly Corresponding ASDRR Activity

General ASDRR Activities

ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).

Based on the above, it can be seen that there is a need to ensure that resilience building programs in the energy sector account for climate change adaptation and mitigation. There is also a need to ensure that disaster loss collation and analysis in this sector account for direct and indirect damages due to climate change, as will be further elaborated in Section 10.

Table 30 Mapping of APACC Transportation Activities with corresponding ASDRR Activities

Mitigation Activities

APACC Program 22 (1): Application of standards for checking and settings of vehicles.

No Directly Corresponding ASDRR Activity

APACC Program 22 (2): Developing plans for the maintenance of vehicles which are not in conformity with environmental conditions and the exclusion of invalid ones. This is also recognized as an important issue in the ARSSCP [17] recommendations for Economic and Sustainable Management of the Energy Section 5.1.2.

No Directly Corresponding ASDRR Activity

APACC Program 23 (1): Complete removing of lead from gasoline used for vehicles.

No Directly Corresponding ASDRR Activity

APACC Program 23 (2): Reducing the concentration of sulfur in the diesel consumed in the transport sector.

No Directly Corresponding ASDRR Activity

APACC Program 23 (3): Promoting the use of vehicles operating with natural gas.

No Directly Corresponding ASDRR Activity

General ASDRR Activities

ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

ASDRR, 3.3.4 (b): Implement economic and productive sectoral policies and plans to reduce the vulnerability of economic activities and basic services (addressing tourism, shipping and ports, agriculture, industry, infrastructure especially for securing public health, among others).

Based on the above, it can be seen that there is a need to ensure that resilience building programs in the transportation sector account for climate change adaptation and mitigation. There is also a need to ensure that disaster loss collation and analysis in this sectors account for direct and indirect damages due to climate change, as will be further elaborated in Section 10.

Population and Human Settlements

Table 31 below summarises the APACC [8] programs activities with corresponding ASDRR activities.

Table 31 *Mapping of APACC Population and Human Settlements Activities with corresponding ASDRR Activities*

Adaptation Activities
APACC Program 13 (1): Strengthening the role of existing institutions and structures to counter the negative impacts of climate change on living conditions, the spread of epidemics, pests and diseases and the migration of people from the affected areas to other areas within the state, neighbouring states or other countries.
ASDRR 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development.
ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

Based on the above, it can be seen that there is a need to ensure that risk-sensitive urban master plans and land-use plans account for climate change, as will be further elaborated in Section 10.

Health

Table 32 below summarises the APACC [8] programs activities with corresponding ASDRR [3] activities.

Table 32 *Mapping of APACC Health Activities with corresponding ASDRR Activities*

Adaptation Activities
APACC Program 14 (1): Developing Arab health sectors (infrastructure, early warning, and research on the health effects of climate change) within the system of adaptation to climate change.
ASDRR, 3.3.2 (e): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.
ASDRR, 3.3.5 (c): Establish emergency health support systems that offer free health care to victims and help address psychosocial (and other long term) health impacts of disasters and climate change .

Based on the above, it can be seen that there is a need to ensure that resilience building programs in the health sector account for climate change adaptation and mitigation. There is also a need to ensure that disaster loss collation and analysis in this sector account for direct and indirect damages and diseases due to climate change, as will be further elaborated in Section 10.

Cross-Cutting Programs

Table 33 below summarises the APACC [8] cross-cutting programs activities with corresponding ASDRR [3] activities.

Table 33 *Mapping of APACC Cross-Cutting Activities with corresponding ASDRR Activities*

APACC Program 25 (1): Issuing a documented scientific guide on climate change issues, including the latest scientific developments, international agreements and initiatives, and the potential impacts on the Arab region and means of response.
No Directly Corresponding ASDRR Activity
APACC Program 25 (2): Conducting training workshops on environment for those working in different sectors.
ASDRR 3.3.3 (d): Establish regular opportunities for training and skills development for

administrators, decision makers and community volunteers, while ensuring the participation of women.

APACC Program 25 (3): Maximizing the use of human resources and technical and material capacities of different bodies in raising awareness of climate change.

*ASDRR 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices **and climate change adaptation and mitigation practices** among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).*

ASDRR 3.3.3 (e): Secure flow of resources to support continual scientific research geared for devising solutions that can be especially implemented in the short – medium term.

APACC Program 25 (4): Integrating the private sector in the activities of supporting environmental awareness. This is also recognized as an important issue in the PSA [19] on Section Humanitarian Coordination and Collaboration between International, Regional and Domestic Institutions.

ASDRR 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

APACC Program 25 (5): Dissemination of press releases and talk shows about climate change through printed, audio and visual media and social network to illustrate the personal practices that can be done to contribute in mitigation of climate change.

ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

*ASDRR, 3.3.3 (a): Ensure that relevant information on disaster risks and events **and climate change** is accessible and available at all levels, to all stakeholders (through networks, development of information sharing systems, regional databases, etc.) and especially in relevant local languages.*

*ASDRR, 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices **and climate change adaptation and mitigation practices** among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).*

APACC Program 25 (6): Circulating scientific information on climate change on the national and regional levels through school activities.

ASDRR, 3.3.1 (a): Include risk reduction considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: provision of universal primary education.

ASDRR, 3.3.3 (b): Ensure use of up-to-date educational materials, curricula and approaches that account for emerging national and local risk contexts/ realities.

APACC Program 26 (1): Promoting women's participation in decision-making process, especially in cases of adaptation to climate change and DRR.

*ASDRR, 3.3.2 (c): Ensure inclusion of gender disaggregated data for risk assessments **and climate change impacts**.*

ASDRR, 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the participation of women.

APACC Program 26 (2): Promoting the participation of national committees concerned with women's affairs in climate change programs.

*ASDRR, 3.3.2 (c): Ensure inclusion of gender disaggregated data for risk assessments **and climate change**.*

ASDRR, 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the

participation of women.

APACC Program 26 (3): Integrating climate change into national strategies for women in the Arab countries.

ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

ASDRR, 3.3.1 (d): Ensure that national multi-sectoral platforms take account of underlying risk factors, while prioritizing high-risk areas and most vulnerable populations/ groups (especially in conflict zones and urban settlements).

ASDRR, 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the participation of women.

APACC Program 26 (4): Supporting the involvement of women in teams of adaptation programs, national communications and national committees on climate change

*ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement **(including women)** and public awareness in this regard.*

APACC Program 26 (5): Involvement of women in awareness programs on the importance of changing consumption behaviours and selecting eco-friendly products.

ASDRR, 3.3.3 (c): Promote public awareness, advocacy campaigns/ activities to emphasize disaster risk reduction measures and disaster management practices among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).

APACC Program 26 (6): Strengthening the capacity of local communities to contribute in protecting natural resources, adaptation programs and mitigation of climate change impacts.

ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.

ASDRR, 3.3.2 (d): Intensify efforts to understand and assess the likely impacts of climate change in areas and sectors exposed to risk from climatic hazards.

APACC Program 26 (7): Promoting the participation of women in the Arab delegations to the Conference of the Parties (COP).

*ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement **(including women)** and public awareness in this regard.*

ASDRR, 3.3.3 (d): Establish regular opportunities for training and skills development for administrators, decision makers and community volunteers, while ensuring the participation of women.

Notwithstanding the important linkages between DRM and CCA, which can already be seen from the mapping above, there is a need to ensure that awareness raising campaigns raise awareness on the vulnerabilities and risks specific to the region and that engendering strategies and programs address specific challenges related to the root causes of lack of progress on women empowerment in the Arab region, as will be further elaborated in Section 10.

Implementation

Table 34 below summarises the APACC [8] implementation activities with corresponding ASDRR [3] activities.

Table 34 Mapping of APACC Implementation Activities with corresponding ASDRR Activities

APACC, Timeframe
The time frame for the ASDRR will be set in an action plan with time-bound activities.
APACC, Funding National Sources
ASDRR, 4: Institutional arrangements, capacities and resources made available at the national and local level.
APACC, Funding Regional Sources
ASDRR, 4: Institutional arrangements, capacities and resources made available at the regional level.
APACC, Funding International Sources
No Directly Corresponding ASDRR Activity
APACC, Transfer of technology and modern techniques
No Directly Corresponding ASDRR Activity
Institutional Frameworks and Legislations (IFL)
APACC, IFL (1): Developing the national laws and legislation related to climate change
<i>ASDRR, 3.3.1 (a): Include risk reduction and climate change mitigation and adaptation considerations in national policies, plans and legal frameworks of all critical sectors relevant to achievement of the MDGs: reducing poverty, promoting livelihood diversification in peri-urban and rural centres, provision of universal primary education, addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, combating disease and public health challenges, promoting environmental sustainability, and ensuring partnerships for development.</i>
ASDRR, 3.3.1 (b): Integrate climate change mitigation and adaptation into development strategies while ensuring scientific capacities, resources, stakeholder involvement and public awareness in this regard.
APACC, IFL (2): Providing necessary financial resources to the maximum limits when approving national budgets
<i>ASDRR, 3.3.1 (c): Ensure decentralization of dedicated and adequate resources, community participation and collaboration with civil society groups and the private sector during all planning and implementation efforts for disaster management and risk reduction and climate change adaptation and mitigation.</i>
ASDRR, 4: Incentives for retrofitting, introduction of risk transfer tools, adoption of risk-sensitive development financing, private sector involvement, debt swap to finance disaster reduction measures and linkages with adaptation financing, among others.
ASDRR, 4: Countries in the Arab region currently have access to a range of existing regional financing mechanisms for socio-economic development in addition to dedicated national disaster relief and response budgets. Countries could also assess the possibility of utilizing the existing regional funds and mechanisms by allocating a dedicated budget for disaster risk reduction and recovery activities at the sub regional, national or local level within these Funds.
APACC, IFL (3): Mobilizing human, economic and institutional resources to work on the issues related to adaptation and mitigation. This is also recognized as an important issue in the PSA [19] recommendations, Section Humanitarian Financing, Sub-theme Mobilize Additional sources.
<i>ASDRR, 3.3.1 (c): Ensure decentralization of dedicated and adequate resources, community participation and collaboration with civil society groups and the private sector during all planning and implementation efforts for disaster management and risk reduction and CCA and mitigation.</i>
APACC, IFL (4): Coordinating plans and goals of action programs in similar sectors among Arab countries to benefit from the cumulative effect of the joint action
No Directly Corresponding ASDRR Activity
APACC IFL (5): Developing appropriate legislations and regulatory frameworks that encourage taking proper adaptation measures
No Directly Corresponding ASDRR Activity

APACC IFL (6): Updating environmental laws related to the standards of GHG emissions from various facilities, with due observation to the achievement of harmonization with international standards.

No Directly Corresponding ASDRR Activity

Implementation Structure at National Level (ISNL)

APACC, ISNL (1): Formation of national committees on climate change in the Arab countries

*ASDR, 4: National authorities: will lead the process of developing disaster risk reduction capacities, national platforms and the integration of disaster risk reduction **and climate change** into sustainable development measures. National authorities will ensure the establishment of an enabling environment by adoption of timely and relevant legislation and policies at the national and sub national level.*

Implementation Structure at Regional Level (ISRL)

APACC, ISRL (1): Establishment of an "Arab Coordination Council on Climate Change (ACCC)"

No Directly Corresponding ASDRR Activity

APACC, ISRL (2): Establishment of a consulting subcommittee at the level of Arab countries, international, regional and Arab organizations, private sector and CSOs to assess and follow up the progress and be responsible for coordinating implementation plans and programs.

ASDRR, 4: Regional centres of excellence on DRR: will support the implementation of the ASDRR through capacity development, training and research activities in collaboration with international partners and in response to national needs.

APACC, ISRL (3): ACCC presents progress reports to CAMRE and to Arab Summit.

No Directly Corresponding ASDRR Activity

APACC, ISRL (4): A department will be established in Environment, Housing and Sustainable Development Department in the LAS Economic Sector to follow up climate change issues

No Directly Corresponding ASDRR Activity

Stakeholders Role (SR)

APACC, SR (1): Governments: 1) Forming higher national committees with the required powers and resources. The tasks of such committees are to develop policies and coordinate between governmental and nongovernmental organs with respect to CC issues, 2) Collecting and make available of data related to CC on both national and sectoral levels, 3) Integrating adaptation and mitigation policies in the national sectoral, economic, and social policies, 4) Including projects and programs of climate change in the sectoral and national plans, 5) Implementing the programs and activities through specified timely plans at both sectoral and national levels, 6) Providing political, institutional and financial support for research centres and Arab and national competent bodies, 7) Enhancing and building partnerships with specialized organizations, CSOs and private sector.

No Directly Corresponding ASDRR Activity

APACC, SR (2): International, regional and Arab Organizations: 1) including CC issues within its priorities of regional programs, and preparation of implementation programs and plans, 2) Preparing strategies and studies for the assessment of CC risks and implementing relevant activities each within its respective, 3) Participating in the implementation of national programs, on demand, and coordination between programs in the Arab countries, 4) Facilitating access to funding and technology transfer and localization programs in coordination with international agencies and donor institutions, 5) Developing methodologies and work guides, 6) Capacity Building. This is also recognized as an important issue in the PSA [19] recommendations, Section Humanitarian Financing, Sub-theme Enable Direct Funding for Local Organizations.

*ASDRR, 4: The development partners' assistance will be mainly targeted towards the key sectoral areas based on their comparative advantages. These include, but are not limited to the following areas: capacity development, trainings, knowledge management, risk assessments, integration of **climate change** and disaster risk reduction in the*

*environment, health and education sectors, supporting the coordination and harmonization of disaster risk reduction **and climate change adaptation and mitigation** tools at national and local levels, among others.*

APACC, SR (3): NGOs and CSOs: 1) Raising awareness, culture and mechanisms of addressing the problems resulting from climate change, 2) Participating in the implementation of programs and activities 3) Implementing synergy programs and participating in monitoring and follow up programs, 4) Enhancing community participation in reducing the risks of climate change, 5) Contributing in capacity and partnership building with relevant organizations.

ASDRR, 3.3.1 (c): Ensure decentralization of dedicated and adequate resources, community participation and collaboration with civil society groups and the private sector during all planning and implementation efforts for disaster management and risk reduction **and climate change adaptation and mitigation**.

*ASDRR, 3.3.3 (c): Promote public campaigns/ activities to emphasize disaster risk reduction measures and disaster management awareness, advocacy practices **and climate change** among communities at risk (i.e. through online games; school, educational institutions and hospital preparedness drills; public dissemination of flyers on how to assess and strengthen the structural safety of key buildings, etc.).*

ASDRR, 4: Civil society organizations, including Red Cross and Red Crescent societies: will participate in the development of the ASDRR by collaborating with authorities at the local, national and regional level and provide coordination and implementation support and guidance in niche sectors/ as applicable.

APACC, SR (4): Private Sector: 1) Exchanging data and information, 2) Supporting and cooperating in the implementation of project activities, 3) Informing about the adoption of good practices, 4) Adopting the principle of environmental responsibility, 5) Investing in modern and eco-friendly techniques and technologies.

ASDRR, 4: The private sector will participate in the development of the ASDRR by collaborating with authorities at the local, national and regional level and provide coordination and implementation support and guidance in niche sectors/ as applicable.

APACC, SR (5): Media: 1) Developing a media plan in coordination with relevant authorities, 2) Disseminating and highlighting the pioneering experiences, 3) Simplifying the information related to climate change issues and presenting them in innovative and influential ways. This is also recognized as an important issue in the PSA [19] recommendations, Section Enhancing the Role of Media, Sub-theme Highlighted the Media's often Politicized Affairs.

*ASDRR, 4: print, video and social media will work with all partners to widely disseminate key risk reduction **and climate change adaptation and mitigation** messages, priorities and generate public awareness through open forums and by engaging relevant political and public entities in debates that highlight topical risk issues.*

Notwithstanding the important linkages between DRM and CCA, which can already be seen from the mapping above, there is a need to ensure that DRM and CCA strategies have 1) action plans for implementation, 2) a time schedule for implementation, 3) identified funding needs and gaps, 4) identified corresponding sources of financing from the public and private sectors, as will be further elaborated in Section 10.

10. Identification of Gaps in the ASDRR in view of the ASDR and the APACC

Introduction

This chapter summarises the main gaps in the ASDRR [3] in view of the ASDR [16] and the APACC [8], under the following related headings:

- ASDR 17 Goals
- APACC Programmes.

In addition, gaps under the following cross-cutting headlines are discussed:

- Awareness raising Programs.
- Gender.
- Implementation, with specific challenges to securing financing needs for implementation.

Linkages with ASDR SDG Goals

The following gaps are identified in relation to the proposed activities of the ASDRR, as per Table 12 through to Table 19 together with a discussion on their priority and importance taking into account current challenges in DRM practices in the Arab region [xv]:

- ASDR Goal 1: End poverty in all its forms everywhere; Sub-Theme 1: Income Poverty. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks disaggregated data on the interaction between poverty rates, disaster risk management, sustainable development and climate change adaptation. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) review mandates for collating and analysing disaster loss data to ensure interaction with poverty and poverty reduction, sustainable development and climate change may be captured, 2) ensure that disaster loss collation and analysis extends to economic losses for businesses in the informal sector, 3) ensure that disaster loss collation and analysis extends to housing damage in rural areas and informal settlements in both rural and urban areas, 4) ensure that the analysis of disaster losses extends to the interaction between losses due to extensive risks, poverty, shocks and stresses due to conflict, shocks and stresses due to climate change and associated increased vulnerability to intensive disaster risk, and 5) ensure that the above analysis feeds into poverty reduction strategies and associated policies, programs and projects.*
- ASDR Goal 2: End hunger, achieve food security & improved nutrition, & sustainable agriculture; Sub-Theme 2: Agriculture **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks disaggregated data on many important indicators related to disaster risk management, sustainable development and climate change adaptation including accurate disaster loss data in the agriculture sector and its effect on poverty reduction and hunger. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) improving the collation of disaster losses in the agriculture sector and linking it with hunger and poverty reduction efforts; such data should be disaggregated along gender considerations and should differentiate between weather related hazards and geo-physical hazards in order to examine the effect of climate change 2) linking disaster losses, drought and water scarcity to food prices which in turn will affect poverty and abject poverty as an increase in food prices will directly impact poverty threshold (in terms of income in dollars per person per day) which in turn will directly impact percentage of people under the poverty line 3) linking disaster losses in the agriculture sector (and any associated increase in food prices) to any increase in cases of malnutrition among both adults and children 4) measuring trend in disaster losses in the agriculture sector to assess to what extent sustainable agriculture*

policies being promoted by ASDR and APACC initiatives, amongst others, are truly succeeding in reducing disaster losses and mitigating climate change effects, 5) develop resilience building program for the agriculture sector against disaster risk and climate change, including the reliance on renewable energy and water resources for irrigation, while promoting investment in this sector, thereby promoting pro-poor job-rich economic growth which in turn can reduce unemployment and poverty.

- ASDR Goal 3: Ensure healthy lives and promote well-being for all at all ages; Sub-Theme 3: Mortality, Sub-Theme 4: Health Delivery, Sub-theme 5: Nutritional Status, Sub-Theme 6: Demographics Population **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which is yet to accurately collate and analyse the effect of disasters and climate change on the health sector and basic health services. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collating and analysing disaggregated losses in the health sector facilities (hospitals, clinics, etc) in both rural and urban areas due to disasters arising from natural hazards and climate change, 2) collating and analysing interruption in basic health services, and / or deterioration in the quality of these services, due to disasters arising from natural hazards and also due to climate change 3) monitoring the increase in diseases in the wake of disasters and / or due to climate change, 4) Developing and implementing a medical waste management program, including hazardous medical waste, thereby creating jobs, protecting the environment and reducing harmful health impacts, 5) building the resilience of the health sector against natural hazards and climate change.*
- ASDR Goal 4: Ensure inclusive and equitable quality education and promote life-long opportunities for all; Sub-Theme 7: Educational Level, Sub-Theme 8: Literacy. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which is yet to accurately achieve universal primary education for all and yet to achieve a minimum good quality level education for all. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) review mandates within ministries of education to ensure that the development of a National School Safety Program is explicitly referred to, 2) collate and analyse disaster losses in the education sector due to natural hazards, shocks and stresses due to conflict and climate change; ensure that this is dis-aggregated where applicable between mixed, girls-only and boys-only schools, between rural and urban areas, between religious and non-religious schools and between public and private schools, 3) collate and analyze the effect of disasters, shocks and stresses and climate change on the quality of educational services, and the variation of this quality along gender and socio-economic considerations, 4) ensure that the above extend to both schools, vocational educational establishments and universities in both the public and private sectors, where the latter also include all forms of religious schools, 5) ensure that all the above is reflected in national education strategies and that the results of the above analyses inform these strategies in order to improve the science-policy interface in the educational sector within the different countries in the region*
- ASDR Goal 5: Achieve gender equality and empower all women and girls; Sub-Theme 9: Women in Politics, Sub-Theme 10: Literacy, Sub-Theme 11: Employment. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which has significant gaps and shortages in empowering women and achieving equality between the sexes. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that all disaster losses are dis-aggregated according to gender considerations, as stated earlier, 2) ensure that capacity building campaigns develop capacities for engendering DRM strategies and policies and for assessing variation in exposure, vulnerability, risk and losses according to gender considerations, 3) ensure that awareness raising campaigns on DRM raise awareness*

on variability of exposure, vulnerability, risk and disaster losses with gender considerations and on the importance and opportunities of addressing this inequality, 4) ensure that DRM agencies are adequately staffed with female DRM practitioners, 5) ensure that DRM strategies calls for the engenderment of all national, local and sectoral DRM strategies, policies, programs and projects.

- ASDR Goal 6: Ensure availability and sustainable management of water and sanitation for all; Sub-Theme 12: Drinking Water, Sub-Theme 13: Sanitation, Sub-Theme 14: Availability of Water, Sub-Theme 15: Water Demand / Efficiency, Sub-Theme 16: Water Management. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which has severe challenges in water security, and associated food and energy security [16]. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collate and analyze disaster losses on the water and sanitation infrastructure networks; ensure that the analysis captures the variation of the losses according to socio-economic and gender considerations, 2) analyse the effect of disaster losses, climate change and shocks and stresses due to conflict on the quality of water and sanitation services, 3) develop resilience building programs for the water network, 4) develop resilience building program for the sanitation network, 5) review mandates to ensure that the above is reflected in national and local integrated water management water and associated sanitation strategies and that the results of the above analyses inform these strategies.*
- ASDR Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all; Sub-Theme 17: Energy Use, Sub-Theme 18: Access Energy. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region where many countries have not achieved energy security with minimal reliance on renewable energy, which in turn makes water desalination in various countries in the region non-sustainable, and which in turn diverts important and limited resources away from development, sustainable development and poverty reduction. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collating and analysing disaster losses in the energy sector, 2) analyse the effect of disaster losses, shocks and stresses due to conflict and climate change on the quality and variation in access to energy, 3) develop a resilience building program for the energy sector, 4) ensure that all new strategies for the use and development of renewable energy account for disaster risk management considerations, 5) review mandates to ensure that the above is reflected in national and local energy strategies and that the results of the above analyses inform these strategies*
- ASDR Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; Sub-Theme 19: Macroeconomic Performance, Sub-Theme 20: Sustainable Public Finance, Sub-Theme 21: Employment. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which still have relatively high poverty rates coupled with unemployment, both of which are susceptible to increase dramatically in the wake of crises [16]. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that economic growth policies focus on job-rich pro-poor sectors including the industrial and agriculture sectors (productive sectors), 2) ensure that macro-economic policies are informed by results of analysis of disaster losses due to both extensive and intensive risks, 3) for each of the DRM Strategies, at the national, local and sectoral levels, assess the financial needs for the implementation of these policies, 4) identify and propose sustainable sources for financing the implementation of DRM strategies and policies, by examining a variety of options including public debt, taxation, normal budget lines, ODA and FDI, amongst others 5) ensure that the above is reflected in national and local DRM strategies and mandates.*

- ASDR Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; Sub-Theme 22: ICT. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, is yet to adopt sectoral resilience building programs even for critical national infrastructure sectors. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collating and analysing disaster losses in critical national infrastructure, 2) assessing service disruptions in infrastructure sectors due to disaster losses, 3) development of resilience building programs for selected critical national infrastructure, 4) identification of financial needs for the implementation of critical national infrastructure resilience building programs, and 5) develop a strategy for sustainable **and resilient** industrial sectors.*
- ASDR Goal 10: Reduce inequality within and among countries; Sub-Theme 23: Income Inequality. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, still witnesses significant inequalities related to both income and wealth. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collating and analysing inequality in the distribution of exposure, vulnerability and risk among different income groups, within and between countries in the region, disaggregated also along gender considerations, 2) collate and analyse inequality in the distribution of disaster losses due to extensive risks among different income groups, also disaggregated along gender considerations, 3) collate and analyse inequality in the distribution of exposure and vulnerability due to intensive risks among different income groups, also disaggregated along gender considerations, 4) develop indicators to modify the inequality adjusted Human Development Index so that it accounts for inequality in the distribution of exposure, vulnerability, risks and losses due to intensive and extensive risks, 5) ensure that the above is reflected in regional, national and local DRM strategies and policies, aiming at reducing inequality in exposure, vulnerability, risk and losses due to disaster risk and climate change, and that the results of the above analyses inform these strategies.*
- ASDR Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable; Sub-Theme 24: Disaster Preparedness and Response, Sub-Theme 25: Air quality. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, is yet to develop adequate response and recovery plans in addition to sustainable and resilience cities with risk sensitive land-use and urban planning policies. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that major cities have risk-sensitive urban master plans and land-use plans that also account for challenges within informal settlements, 2) ensure that recovery plans, pillared on the concept of building back better, exist at both the sectoral and city levels, 3) ensure that capacities exist at the local level to carry out the above, 4) ensure that decentralisation is promoted in order to empower local government to carry out the above, 5) ensure that local communities and stakeholders are engaged in the development of the above.*
- ASDR Goal 12: Ensure sustainable consumption and production patterns; Sub-Theme 26: Waste, Sub-Theme 27: Transportation. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, is yet to adopt sustainable consumption and production patterns as evident by many indicators related to renewable energy, renewable water, and food insecurity indicators. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collating and analysing disaster losses in renewable water and energy sectors, 2) ensuring that sustainable consumption and production strategies account*

for DRM considerations, 3) developing national strategies for integrated management of solid waste and hazardous waste that account for DRM considerations, 4) developing sustainable transportation strategies that account for DRM considerations and build resilience in the sector, 5) ensure that the above is reflected in mandates and responsibilities of the relevant agencies and line ministries.

- ASDR Goal 13: Take urgent action to combat climate change and its impact; Sub-Theme 28: Climate Change Mitigation. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which is already experiencing the adverse effects of climate change including drought and increased water scarcity. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collating and analysing data on increased weather related natural hazards due to climate change (i.e. severe storms, winds and heat waves), 2) collating and analysing data on increased disaster losses due to climate change, dis-aggregated according to gender and socio-economic considerations, 3) ensuring that climate change mitigation strategies and measures (both structural and non-structural) account for DRM considerations, 4) ensure that Environmental Impact Assessments of large infrastructure projects also account for DRM considerations, and 5) ensure that the above is reflected in national, local and sectoral DRM and CC mitigation strategies and that these are informed by the results of the analyses referred to above.*
- ASDR Goal 14: Conserve and sustainably use the oceans, seas and marine resources; Sub-Theme 29: Coastal Degradation, Sub-Theme 30: Marine Health. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, has coastal cities, with lack of decentralised DRM institutions at the local level, while being subjected to coastal degradation. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) collating and analysing information on coastal degradation and its interaction with urban development, waste practices, climate change and deforestation, 2) ensure that integrated coastal management strategies are being developed and account for DRM and CCA considerations, 3) determine the financial resources in order to implement the integrated coastal management strategy, 4) identify sources of funding from the public and private sectors that may be harnessed to secure the financial needs, including the reliance on the coastal tourism sector and 5) ensure that the above is reflected in mandates of various relevant institutions and line ministries.*
- ASDR Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss; Sub-Theme 31: Ecosystem, Sub-Theme 32: Species. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, is suffering from land degradation, deforestation, and desertification and biodiversity loss [16]. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that risk-sensitive land-use plans account for the protection of terrestrial ecosystems, deforestation, desertification and biodiversity loss, 2) ensure that collation and analysis of disaster losses account for desertification, deforestation, land-degradation and bio-diversity loss, 3) ensure that resilience building strategies for the agricultural sector account for land degradation, deforestation, desertification and bio-diversity loss, 4) ensure that incentives for investment in a sustainable and resilient agriculture sector account for land degradation, deforestation, desertification and bio-diversity loss 5) ensure that the above is reflected in the mandates of the relevant agencies and line ministries.*
- ASDR Goal 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; Sub-Theme 32: Displaced people. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region whose people bear the brunt of severe governance shortages leading to non-participatory, non-inclusive and unjust societies, which in turn increases the likelihoods of conflict. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that the DRM strategies promote and enable the regulatory role of governments in protecting people and sectors from the actions of other individuals and sectors, 2) ensure that DRM strategies ensure and promote the role of governments in enhancing the accountability of risk construction and malicious risk transfer, 3) ensure that DRM strategies promote the use of a risk governance framework based on a participatory approach which has a risk pre-assessment stage, risk appraisal stage, risk evaluation stage and risk management stage, 4) ensure that risk management strategies are engendered and account for the variability of exposure, vulnerability, risk and disaster losses with sex, age, social background, income brackets and ability, 5) ensure that DRM strategies promote access to the decision making process related to DRM and the accountability of decision makers.*

- ASDR Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development; Sub-Theme 33: External Financing, Sub-Theme 34: Trade. **Discussion on Relevance and Prioritisation:** *This is very relevant to the Arab region which, in many of its countries, DRM strategies are being developed without being implemented. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) estimate the financial gap and needs for the implementation of the cross-sectoral axes within DRM strategies, 2) estimate the financial needs for sectoral resilience building programs at the sectoral level, 3) identify sources of funding from the public and private sector required to address the financial gap of the cross-sectoral recommendations, 4) identify sources of funding from the public and private sectors required to address the financial gap for the sectoral resilience building programs, 5) identify and build the capacities required to implement the cross-sectoral recommendations and the sectoral resilience building programs, 6) ensure that the cross-sectoral and sectoral recommendations and resilience building programs have a time-bound implementation schedule and a corresponding capacity building program, 7) ensure that the above is reflected in the mandates of the relevant agencies and line ministries.*

Arab Plan of Action for Climate Change

The following gaps are identified in relation to the proposed activities of the ASDRR, as per Table 21 through to Table 34 together with a discussion on their priority and importance taking into account current challenges in DRM practices in the Arab region [xv]:

- **Climate: Program 1: Climate Monitoring and Assessment.** **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks disaggregated data on many important indicators related to climate change monitoring and assessment while suffering the consequences of climate change in terms of desertification, drought and deforestation amongst others. Including accurate disaster loss data in the agriculture sector and its effect on poverty reduction and hunger. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that DRM related data on climate change is shared with agencies carrying out work on sustainable development, 2) ensure that DRM related data on climate change is shared with agencies carrying out work on climate change adaptation and mitigation, 3) ensure that CCA and SDG related data on DRM is shared with agencies carrying out work on DRM, 4) ensure that DRM loss data are disaggregated according to weather related and non-weather related hazardous events, 5) ensure that the above is reflected in responsibilities and mandates on sharing of data between and within various agencies.*

- **Climate:** *Program 2: Disaster Risk Reduction (DRR).* **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks disaggregated data on many important indicators related to disaster risk management, sustainable development and climate change adaptation including accurate disaster loss data and its effect on poverty reduction and hunger. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Include risk reduction considerations in national policies, plans and legal frameworks reducing poverty and promoting livelihood diversification in peri-urban and rural centres, 2) provision of universal primary education, while building resilience drop-out from schools due to **both** climate change and disaster risk, 3) addressing the vulnerability of women, children and internally displaced persons (IDPs) and other vulnerable groups, to both climate change and disaster risk, 4) combating disease and public health challenges, due to both climate change and disaster risk, 5) ensure that the above is reflected in the mandates of the relevant agencies and line ministries.*
- **Water, Land and Biodiversity:** *Program 3: Assessment of potential impacts of climate change on water resources, land use and biodiversity.* **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which is, on average, well below the water poverty line and is expected to continue to be severely impacted by the unfolding effects of climate change [16]. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that scenarios and methodologies for studying the impact of climate change on water resources in the Arab region, account for disaster risk considerations including the issue of increased disaster losses, 2) Institute legislation to assess the combined disaster risk impacts and climate change impacts of major development projects, especially large infrastructure projects, 3) ensure that climate – agricultural maps at the level of Arab region, that contributes directly to support the decision-making process in order to counter climate change effects on the Arab region, are informed by dis-aggregated disaster loss data in the agriculture sector, 4) ensure that risk-sensitive land-use maps are informed by the results of climate change impacts on land use and on water resources, 5) ensure that the above is reflected in the mandates and data sharing mechanisms of the various agencies and relevant line ministries.*
- **Water, Land and Biodiversity:** *Program 4: Integrated Management for Water Resources and Program 16: Integrated Management for Water Resources, land and biodiversity.* **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which is suffering from desertification, drought and climate change. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Reassessing the available water resources under the influence of regional scenarios of climate change, while accounting for increased weather related disaster losses, 2) Setting the methodologies of integrated management for water resources and developing water policies based on the principle of integrated management for water resources, that accounts for DRM, CCA and sustainable development, 3) Improving the efficiency of water use in irrigation, industry and household purpose, while accounting for DRM considerations, 4) Maintaining the water resources from pollution and processing it by low-cost technology, while accounting for DRM considerations, 5) ensuring that the above is reflected in the mandates of the relevant agencies and lines ministries.*
- **Water, Land and Biodiversity:** *Program 5: Integrated Management for Lands and Program 6: Biodiversity Conversation.* **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which is undergoing severe pressure on land due to population growth, desertification and drought. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Preparing*

methodologies of sustainable integrated management for land based on maps of soil, vegetation and optimal use, while accounting for DRM considerations, 2) ensure that urban master plans for cities account for CCA and bio-diversity considerations, 3) ensure that risk-sensitive land-use plans account for CCA and bio-diversity considerations, 4) ensure that land-use and urban master plans, as described above, identify the financial needs necessary for their implementation, 5) ensure that the above is reflected in the mandates of agencies and relevant line ministries.

- **Agriculture and Forestry:** Program 7: Development of technologies for Arab agriculture and Program 9: Integrated pest management (IPM). **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which is experiencing food and water insecurity, drought and desertification together with inefficient irrigation methods. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) develop micro-finance schemes for small scale farmers in the agriculture sectors that account for DRM and CCA challenges including the management of agricultural waste, 2) develop micro-insurance schemes for small scale farmers in the agriculture sector that account for DRM and CCA considerations, 3) develop irrigation technologies that take advantage of available options for renewable energies, while accounting for DRM considerations, 4) develop tools that aim at analysing direct and indirect losses in the agriculture sector due to both climate change and DRM, thereby enabling more accurate use of Cost Benefit Analysis (CBA), which in turn would make a stronger case for resilient investments in the agriculture sector, 5) ensure that the above is reflected in the mandates of the relevant agencies and line ministries.*
- **Agriculture and Forestry:** Program 8 and Program 18: Developing Management Systems for Natural and Agricultural Resources of Environment. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks disaggregated data on many important indicators related to disaster risk management, including losses in the agriculture sector and forests due to disaster risk and climate change. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) develop technologies for assessing the cost of direct and indirect damages to forestry, 2) use the above methodologies to analyse disaster losses due to the loss of forest cover in the different Arab states over the last few decades, 3) rehabilitation of degraded forest land while accounting for DRM considerations, 4) Develop strategies to combat natural and man-made forest fires, while accounting for rising challenges due to climate change, 5) ensure that the above is reflected in the mandates of the various agencies and relevant line ministries.*
- **Economic Diversity:** Program 10: Economic Diversity. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region whose different countries either rely on industrial and agricultural practices that are nonsustainable due to water and energy insecurity or on perishable and non-sustainable natural resource production. Therefore, linkages with this Programme (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Development of an economic strategy to encourage accounting for CCA and DRM measures in the industrial sector and diversifying business, 2) Integration of economic diversity within the national plans and strategies of the Arab countries, while accounting for DRM considerations including DRM incentives, 3) Ensure the provision of micro-finance and micro-insurance services to vulnerable livelihoods and sectors, 4) Development of an economic strategy to encourage accounting for CCA and DRM measures in the agricultural sector and diversifying crops, 5) ensure that the above strategies are accompanied by an estimate of financial needs and a prioritised implementation plan with a time schedule.*

- **Construction:** *Program 11: Sustainable Construction and Building. Discussion on Relevance and Prioritisation:* This is relevant to the Arab region which has significant challenges in the development of country specific building and land-use planning codes and its enforcement, together with other challenges related to sustainable water, energy, food and consumption and production patterns in general. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Developing strategies for green and sustainable construction that account for both CCA and DRM challenges, in existing and new constructions, 2) ensure that the above strategies are accompanied with a prioritised action plan, with identified financial needs and potential sources of funding from the public and private sectors, 3) Developing the capacities of professionals and people involved in construction sector in order to implement the above strategies and action plans, 4) Using geographic information systems to optimize the use of resources and land, while accounting for DRM and CCA, 5) ensure that the above is reflected in the mandates of the relevant agencies and line ministries.
- **Tourism:** *Program 12: Development of Ecotourism. Discussion on Relevance and Prioritisation:* This is relevant to the Arab region which relies on the tourism sector in many of its countries, but where this sector does not promote or use sustainable resources and technologies and where the governments do not assess the impact of large investments in this sector on sustainable development. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Develop strategies for the tourist areas to be more resilient against climate change impacts, while accounting for DRM considerations, 2) ensure that new large tourism projects account for both CC impacts and DRM considerations, 3) ensure that existing tourism projects are enhanced, in a gradual manner, to account for and reduce climate change impacts, while accounting for DRM considerations, 4) develop strategies for the development of the areas of alternative tourism (cultural, conference tourism etc.), while accounting for DRM and CCA considerations 5) ensure that the above is reflected in the mandates of the relevant agencies and ministries, who are mandated to developed implementation plans and identify financial needs and corresponding resources.
- **Population and Human Settlements:** *Program 13: Creating living conditions to adapt to climate change. Discussion on Relevance and Prioritisation:* This is relevant to the Arab regions which in many of its countries suffer from rapid urban expansion, a high degree of urbanisation, large slum to urban ratios, together with high exposure and vulnerability to climate change. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Strengthening the role of existing institutions and structures to develop and implement strategies to counter the negative impacts of climate change on living conditions, in poor rural areas and urban slums, while accounting for DRM considerations, 2) develop strategies, and associated prioritised action plans with identified financial needs and corresponding sources of funding, to mitigate climate change effects on living conditions in rural areas, while accounting for DRM considerations and with the necessary linkages to national and regional (sub-national) rural development strategies, 3) develop strategies, and associated prioritised action plans with identified financial needs and corresponding sources of funding, to mitigate climate change effects on living conditions in urban areas (including slums) while accounting for DRM considerations, and with the necessary linkages to new and existing strategies for addressing informal settlements and slums in urban areas, 4) strengthen existing and develop new strategies for building the resilience of informal settlements against natural hazards, while accounting for CCA considerations, 5) ensure that the above is reflected in the mandates of the various agencies and relevant line ministries.

- **Health:** *Program 14: Improving health systems.* **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which, to various degrees, failed to meet then health related Millennium Development Goals, while it is being increasingly exposed to the unfolding effects of climate change, which in turn is expected to accentuate health related development challenges. Indeed, in many countries, it is being increasingly reported that health problems are having a direct effect on poverty, abject poverty and chronic poverty. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that disaster resilience building programs for the health sector at the national and subnational levels, account for CCA and mitigation considerations, 2) ensure that poverty reduction strategies and programs at the national and local level are measuring the combined effects of diseases and injuries in humans due to CCA and DRM in order to address them in a prompt and effective manner, 3) ensure that poverty reduction strategies and program at the national and local levels are measuring the impact of disaster risk and climate change on health of livestock and thereby on poverty indices, and there downstream impact on available funds for allocating to living conditions, 4) ensure that governments have the necessary resources in order to measure the above and the necessary data sharing mechanisms to disseminate the above to the public and to relevant agencies, 5) ensure that the above is reflected in the mandates of various agencies and relevant line ministries.*
- **Seas and Coastal Areas:** *Program 15: Monitoring national and regional marine environment.* **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which has significant coastal areas and cities within, being subjected to varying degrees of degradation of coastal lands and the marine environments and an increase in the vulnerability of livelihoods in these areas. Therefore, linkages with this Programme (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure than land-use and urban plans of coastal areas, where applicable, account for the effect of urbanism on the marine environment, 2) ensure that the collation and analysis of direct and indirect losses in the agriculture and fisheries sector account for changes in the marine environment due to both climate change and more immediate non-sustainable development impacts including waste management practices, 3) ensure that the collation and analysis of disaster losses in the tourism sector account for the impact of the degradation of the marine environment on the sector, 4) Develop coastal disaster response plans that account for disaster risks related to climate change, 5) ensure that the above is reflected in the mandates of various agencies and relevant line ministries.*
- **Sustainable Industry:** *Program 19: Development of Sustainable Industry.* **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which is among the least industrialised in the world and which is increasingly recognizing industrialisation as an opportunity to combat unemployment and poverty [16]. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that poverty reduction plans include investments for investing in a resilient and sustainable industrial sector, 2) ensure the resilience building programs for the industrial sector account for the rationalizing the energy consumption in factories 2) ensure the resilience building programs for the industrial sector account for improving the efficiency of energy use in factories, 3) ensure the resilience building programs for the industrial sector account for the use of cleaner energy alternatives in new projects and for replacing energy sources with less polluting ones in existing plants, 4) ensure the resilience building programs for the industrial sector account for recycling and reuse of industrial waste water and for using less-non-renewable water consumption industries, 5) ensure that the above is reflected in the mandates of the various agencies and relevant line ministries.*

- **Energy:** *Program 20:* Improving energy efficiency, rationalizing consumption and developing renewable energy applications and *Program 21:* Application of advanced fossil fuel and cleaner fuels technologies. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which is among the highest producers of non-renewable energy and the least producer of renewable energies. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that disaster loss collation and analysis extend to disaster losses in the traditional oil and gas sector and the renewable energy sector, 2) Develop resilience building program for the energy sector, while accounting for CCA considerations, 3) ensure that non-renewable energy production, transportation and distribution networks (particularly wind farms and solar thermal systems) account for DRM considerations, 4) ensure that housing strategies and associated building codes promote the principle of thermal energy efficiency in buildings while accounting for DRM considerations, 5) ensure that the above is reflected in the mandates of the various agencies and relevant line ministries.*
- **Transportation:** *Program 22:* Checking, adjustment, and maintenance of engines and *Program 23:* Improving the quality of fuel and using cleaner fuels. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks an effective and resilient transportation sector also lacks plans on improving this sector to address unbalanced development, rural development, poverty reduction and unemployment. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that the resilience building strategy for the transportations sector account for CCA considerations, 2) ensure that the above strategy has a prioritised action plan, with identified financial needs and corresponding sources of funding, 3) Develop methodologies for the design of road networks within the city, the suburbs and new towns that account for both DRM and CCA considerations, 4) ensure that disaster loss collation and analysis in the transportation sector account for the combined effects and interaction between disaster risk and climate change, 5) ensure that the above is reflected in the mandates of the various agencies and relevant line ministries.*
- **Cross-Cutting Programs:** *Program 25:* Promotion of environmental awareness. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which lacks contextualised environmental awareness raising campaigns that account for regional, national and sub-national specificities related to climate change, liquid waste, municipal waste, and hazardous waste management practices and their interaction with disaster risk management practices. Therefore, linkages with this goal (and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) ensure that awareness raising campaign on disaster risk management account for environmental degradation as a main disaster risk driver, together with other disaster risk drivers, 2) ensure that disaster risk management campaigns, while accounting for environmental degradation and protection issues, are tailor made to the specificities of the regional, national and sub-national challenges, 3) ensure disaster loss collation and analysis account for human, economic and environmental damages, both direct and indirect, and due to both intensive and extensive risks, 4) ensure that awareness raising strategies are accompanied with an implementation plan with an associated financial needs and corresponding resources from the public and private sectors 5) ensure that the above is reflected in the mandates of various agencies and relevant line ministries.*
- **Cross-Cutting Programs:** *Program 26:* Promotion of women participation in climate change issues. **Discussion on Relevance and Prioritisation:** *This is relevant to the Arab region which continues to register among the worst indicators related to women rights, empowerment and participation. Therefore, linkages with this goal*

*(and associated indicators) can be strengthened by directing efforts and resources at carrying out the following activities: 1) Promoting women's participation in decision-making process, in all matters related to DRM and CCA, 2) ensure the participation of **independent** national committees concerned with women's affairs in climate change programs, 3) Integrating DRM and CCA into national strategies for women empowerment in the Arab countries, 4), ensure equal and fair representation of women employees and delegates in national institutions and national committees and delegations related to DRM and CCA 5) ensure that the above is reflected in the mandates of various agencies and relevant line ministries.*

Implementation Challenges

The following issues are identified as areas where future effort should be directed in order to expedite efficient and prompt implementation of DRM strategies accounting for sustainable development and climate change nuances and linkages, together with a discussion on their priority and importance taking into account current challenges in DRM practices in the Arab region [xv]:

- **Legislation:** National strategies for DRM, while accounting for sustainable development and CCA, should be adopted through legislation. Furthermore, they should be translated into sectorial and local strategies which in turn should also be adopted through legislation.
- **National platforms for ensuring fair representation during prioritisation of implementation activities:** there is a need to ensure that there are cross-sectoral national platforms (or committees) for DRM with representation from all relevant stakeholders at the national, local and sectorial levels, in the decision making process related to DRM. As a minimum, there is a need to involve all relevant line ministries, affected communities (as shown by DRM and CCA losses), independent women groups, and industrial and agricultural associations.
- **Action Plan Basic Steps and Timeframe:** the above strategies should be translated into action plans with prioritisation of activities and a timeline for the implementation of these activities. Furthermore, as a minimum, there is a need to carry out the following:
 - **Step 1:** collation and analysis of sectorial / local / national disaster losses, as applicable, dis-aggregated according to gender and socio-economic considerations.
 - **Step 2:** carry out a qualitative risk assessments at the national and local and sectorial levels, that enable the arrival at a qualitative risk mapping.
 - **Step 3:** identification of areas and facilities where risk reduction should be a priority.
 - **Step 4:** identification of options for risk reduction.
 - **Step 5:** cost benefit analysis for risk reduction especially accounting for international evidence that when risk reduction is targeted at the worst 20% it becomes extremely cost effective.
- **Funding:** the action plan above should identify the financial needs for implementation over the timeframe under consideration. Furthermore it should also identify sources of funding from both the public and private sector to highlight the feasibility of various sources. As a minimum the feasibility of the following sources should be examined: 1) public sector: public debt, taxes, overseas development aid; 2) private sector: remittances, foreign direct investment,
- **Capacity building and transfer of technologies:** capacities and capacity building strategies, together with the transfer of technologies should be driven by the beneficiaries and based on the necessary capacities, and associated deficiencies, for the prompt, efficient and successful completion of the national, local, and sectorial strategies and associated action plans.

REFERENCES

- 1 Hyogo Framework for Action for Disaster Risk Reduction 2005 – 2015, United Nations, 2005.
- 2 Sendai Framework for Disaster Risk Reduction 2015 – 2030, United Nations, 2015.
- 3 The Arab Strategy for Disaster Risk Reduction 2020, ISDR, LAS, Final version adopted by the Council of Arab Ministers Responsible for the Environment, Resolution number 345, in its 22nd session held in the League of Arab States, 19 – 20 December 2010.
- 4 Terms of Reference for United Nations Job Opening Number 15-United Nations International Strategy for Disaster Reduction Secretariat 44019 – Consultant, 2015.
- 5 Aqaba Declaration on Disaster Risk Reduction in Cities 21 March, 2013, issued at the end of The First Arab Conference for Disaster Risk Reduction, Co-organised by UNISDR, UNDP, the Aqaba Special Economic Zone Authority (ASEZA), the Swiss Agency for Development Cooperation (SDC) and the League of Arab States (LAS), Aqaba, Jordan March 19-21, 2013.
- 6 Sharm El Sheikh Declaration on Disaster Risk Reduction 16 September 2014, issued at the end of The Second Arab Conference on Disaster Risk Reduction , 14-16 September 2014, Co-organized by UNISDR, the Government of the Arab Republic of Egypt and the South Sinai Governorate, Sharm El Sheikh, Egypt.
- 7 Open Working Group proposal for Sustainable Development Goals, United Nations, Full report of the Open Working Group of the General Assembly on Sustainable Development Goals is issued as document A/68/970, United Nations.
- 8 Arab Plan of Action to Deal with Climate Change, December 2012, Adopted by CAMRE, Resolution No. 394, 24th Session.
- 9 2009 UNISDR Terminology on Disaster Risk Reduction, United Nations, 2009.
- 10 Global Assessment Report, UNISDR, UN, 2009.
- 11 Global Assessment Report, UNISDR, UN, 2011.
- 12 Global Assessment Report, UNISDR, UN, 2013.
- 13 Global Assessment Report, UNISDR, UN, 2015.
- 14 An Introduction to the IRGC Risk Governance Framework, International Risk Governance Council, 2005.
- xv A review of the Progress of Arab States in the Implementation of the HFA 2005 – 2015, Fadi Hamdan, UNISDR, 2015.
- 16 Arab Sustainable Development Report, Prototype Edition 2015, Technical Summary.
- 17 Arab Regional Strategy for Sustainable Consumption and Production, Final Draft, 2009
- 18 Arab Strategic Framework for Sustainable Development, 2015 – 2025.

19 Preparatory Stakeholder Analysis, World Humanitarian Summit Regional Consultation for the Middle East and North Africa.