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**Economic and Social Commission for Western Asia (ESCWA)**

**REPORT**

**EXPERT GROUP MEETING ON OVERCOMING POPULATION VULNERABILITY  
TO WATER SCARCITY IN THE ARAB REGION  
BEIRUT, 1 AND 2 APRIL 2015**

**Summary**

The Economic and Social Commission of Western Asia (ESCWA) held an expert group meeting on the theme “Overcoming population vulnerability to water scarcity in the Arab region” at the United Nations house in Beirut, on 1 and 2 April 2015.

The meeting was held within the framework of preparations for the seventh issue of the Population and Development Report, which focuses on population vulnerability to water scarcity in the Arab region. The objective of the publication is to draw specific recommendations on policy measures that are likely to reduce vulnerability to water scarcity and enhance the resilience of populations. The meeting was divided into two parts covering the following: population vulnerability to water scarcity in the Arab region and case studies on overcoming population vulnerability to water scarcity in the Arab region. The meeting sessions focused on discussing population dynamics and water resources in the Arab region; conceptual and measurement frameworks; regional perspectives on population vulnerability to water scarcity; and the proposed case studies on Egypt, Jordan and Yemen. It concluded with a set of recommendations to guide the report drafting and finalization process.

The present report reviews the meeting proceedings and discussions and presents the main conclusions and recommendations.

## CONTENTS

	<i>Paragraphs</i>	<i>Page</i>
Introduction .....	1-4	3
<i>Chapter</i>		
<b>I. TOPICS OF DISCUSSION</b> .....	5-76	3
A. Population vulnerability to water scarcity in the Arab region .....	6-48	3
B. Case studies on overcoming population vulnerability to water scarcity in the Arab region .....	49-75	9
C. Conclusions and recommendations .....	76	13
<b>II. ORGANIZATION OF THE MEETING</b> .....	77-80	14
A. Venue and date .....	77	14
B. Opening .....	78-80	14
<i>Annex.</i> List of participants .....		15

## **Introduction**

1. The Population and Social Development Section of the Social Development Division of the Economic and Social Commission for Western Asia (ESCWA) held an expert group meeting on the theme “Overcoming population vulnerability to water scarcity in the Arab region”, at the United Nations House in Beirut, from 1 to 2 April 2015, to review the draft of the seventh issue of the Population and Development Report, which focuses on overcoming population vulnerability to water scarcity in the Arab region.
2. The Report addresses the issue of mounting water scarcity and how it affects different socio-demographic groups in the region, focusing, where possible, on variances at the subgroup level within the same socio-demographic group. It promotes addressing water scarcity through a sustainable development framework that integrates population dynamics to enhance population resilience to this environmental stressor.
3. The meeting undertook an expert review of Part I of the report, which was produced in-house and provides an overview of the water and demographic situation in the region, the conceptual and measurement frameworks that form the basis for analysis and country profiles focusing on populations at risk; and Part II, composed of three cases studies, prepared by consultants on Egypt, Jordan and Yemen, aimed at providing evidence to support and strengthen the Report’s arguments. The ultimate objective of the meeting was to develop a set of recommendations on how to enhance the first draft and support the finalization process.
4. The sessions of the meeting focused on reviewing the draft chapters of the Report as follows: review of chapter I.1 on population dynamics and water resources in the Arab region; review of chapter I.2 on conceptual and measurement frameworks; review of chapter I.3 that provides a regional perspective on population vulnerability to water scarcity; review of three case studies focusing on small farmers in the Nile Delta and Valley in Egypt, rural to urban migrants to Sana’a in Yemen and populations vulnerable to water scarcity in the Mafrq Governate and Jordan Valley in Jordan; and key conclusions and recommendations.

## **I. TOPICS OF DISCUSSION**

5. The meeting was organized into seven sessions. However, participants agreed that it would be more useful for the discussions to merge the first and second sessions as they were interrelated. The ESCWA Population and Social Development Section team provided brief presentations on the first two chapters of Part I, and comments and feedback were provided by participants.

### **A. POPULATION VULNERABILITY TO WATER SCARCITY IN THE ARAB REGION**

#### *1. Review of chapters 1 and 2 of Part I*

6. The first and second sessions of the meeting were chaired by Ms. Karima El Korri, Chief of the ESCWA Population and Social Development Section.
7. Ms. Rouba Arja, First Population Affairs Officer at the ESCWA Population and Social Development Section, provided an overview of the background of the Report, particularly in the context of the ongoing debate to shape the post-2015 global development agenda. She also presented the Report structure, composed of two main parts, and its main objective: to identify the determinants of population vulnerability to water scarcity in the region and to draw recommendations on how to reduce population vulnerability and enhance resilience. The Report stated that water scarcity had a differentiated impact on different population groups and advocated for a population-centred approach to ensure the well-being of all. The first chapter consisted of an overview of the region, with a specific focus on its population and water resources, and set the research questions and assumptions.
8. The second chapter outlined the conceptual and measurement frameworks that could be used to help identify socio-demographic groups at risk. She said that the chapter argued for the integration of population

dynamics into the sustainable development framework in an effort to reduce population vulnerability and explored the interrelation between the sustainable development pillars and population dynamics, on the one hand, and the elements of vulnerability, on the other.

9. The ensuing discussion mainly focused on the structure, flow and focus of the Report, the logic of the arguments, the level of clarity and consistency in the use of terms and the suggested indicators for the analytical framework.

10. Ms. Carole Chouchani, Chief of the ESCWA Water Resources Section, highlighted the importance of approaching water scarcity from a population perspective and noted that the first and second chapters of Part I of the Report included valuable information. She stressed the need to rethink their structure and suggested that the Report should begin with the conceptual framework. She noted that chapter I.1 was very descriptive and too focused on the water scarcity issue and recommended shortening it, examining all the data it presented within the context of the Report's conceptual framework and further focusing on the latter, given that it presented the real added value. Bringing the conceptual framework forward would clarify, from the onset, the objective, scope and substantive contribution of the Report.

11. Mr. Amer Salman, Department of Agricultural Economics and Agribusiness Management at the University of Jordan, raised the data gap problems, particularly when moving from Part I to the case studies in Part II.

12. Ms. Arja clarified that the Report would use and rely on two different sets of data, namely the databases developed by international organizations for data at the national level, adding that part of the required data had already been collected.

13. Ms. Hala Abouali, Faculty of Economics and Political Science at Cairo University, stressed the need to restructure the Report by presenting the indicators at the beginning of Part I. She also noted the need to explain from the start (perhaps in the introduction) what the Report was focusing on, the rationale behind selecting water scarcity and the interest in population vulnerability. She added that climate change had to be considered when talking about water scarcity and that it was important to include different climate change scenarios and how each scenario affected population vulnerability, water scarcity and population exposure and movements, since people were differently affected according to their geographical distribution. For instance, people living in coastal areas were more affected by climate change than those living inland.

14. Ms. Arja explained that detailed comments and suggestions on the contents of the chapters were welcome and should be communicated to ESCWA by electronic mail. Discussions should focus on the approach followed in the Report (i.e. the report structure, the logic of argumentation and the linkages between the elements of vulnerability to the three pillars of sustainable development). She welcomed the suggestion to move the conceptual framework to the beginning of Chapter I.

15. Ms. Nedjma Koval, Chief Executive Officer at Indigenous Solutions, mentioned a 2014 study by the Strategic Foresight Group entitled "The hydro-insecure: crisis of survival in the Middle East", which assessed current and future issues on water availability and supply, including the concept of water vulnerability, and linked water issues to population and development indicators. The study assigned scores to subregions based on their ranking according to each development indicator, enabling comparison between subregions/countries. She suggested that ESCWA might want to do something similar to facilitate linking population dynamics with actual vulnerability to water scarcity. Using available datasets, ESCWA could build a risk factor index to weigh the different indicators and prioritise the most vulnerable Arab countries by giving each one a score, which would help assess the impact of water scarcity on vulnerability and how vulnerable groups were coping.

16. Mr. Salman noted the need to add an indicator on sudden population influxes caused by conflict, not only current but also past conflicts, since they affected countries' water resources over an extended period of

time and contributed to the deterioration of water quantity and quality. He questioned some figures for Jordan in table III of the Report, taken from the Atlas of Our Changing Environment, prepared by the United Nations Environment Programme. He also suggested tackling top environmental issues facing Arab countries and accordingly applying the proposed framework to group countries into clusters, as this would help avoid deviations and variations.

17. Ms. Arja explained that the general framework included general indicators that were largely known to affect vulnerability. The influx of refugees was very specific to Jordan and Lebanon and would thus be addressed in Part II of the Report that tackled specific contexts through case studies.

18. Ms. Raya Mutarak, Research Scholar at the International Institute for Applied Systems Analysis in Austria, noted an overlap between chapters 1 and 2 of Part I of the Report and suggested combining the two chapters. She also recommended restructuring the flow by starting with the research question and then organizing the different factors taken into consideration, such as external, macro-level and demographic factors, in the form of a diagram to facilitate analysis; then further elaborating on defining the concept of vulnerability and its elements; and lastly bringing in the indicators. She said that the Report gave the impression that agriculture was causing water scarcity in the region, highlighting the need to note that agriculture was also connected to food security. The link between population dynamics and water scarcity was not clear, especially in terms of age structure, mainly the ageing population component.

19. Ms. Abouali said that the demographic window of opportunity and how it could be exploited and dealt with given high unemployment rates and plummeting growth rates in the region should be discussed more rigorously. The message should be that populations not only formed a liability to water scarcity but could also drive development. She agreed with the suggestion made by Mr. Salman on clustering countries, but noted that such clustering should not be made on the basis of environmental issues but rather income groups or similar economic characteristics, such as Gulf Cooperation Councils (GCC) countries versus non-GCC countries.

20. Ms. El Korri clarified that the previous issue of the Population and Development Report specifically focused on the demographic window of opportunity. There were internal constraints on the number of pages for the Report. All the points made by participants on how to further strengthen the contents had been noted.

21. Ms. Chouchani expressed support for most of the mentioned comments. She noted that clustering could be descriptive, but could also be included as the outcome of analysis. She recommended not to cluster upfront because the aim was to assess how exposure affected resilience, which varied by population group. She also noted the need to look beyond single level indicators. For instance, when looking at quantity only, it would seem that GCC countries were more vulnerable than other countries in the region, which was not the case. The mapping of indicators was important and created another way of studying an issue. Moreover, the health component was missing from the analysis and, to a lesser extent, the geographic distribution component. She also commented on the focus of the Report, stressing the need for a consistent approach in terms of whether it wanted to examine the impact of water on people or people on water. Currently, the analysis mostly focused on the effect of peoples (population dynamics) on resource availability rather than on how resource availability affected people.

22. Ms. Arja explained that chapter 3 of Part I would address how exposure affected the resilience of different populations and would provide a reading of different environmental, social and economic indicators to assess vulnerability. Thus, no clustering should be done up front, but could instead come as an outcome of the analysis. She gave the example of the United Arab Emirates, which managed to deal with various water constraints owing to its economic wealth. Nevertheless, the impact of measures undertaken by the Government to deal with water issues varied by socio-demographic group. For instance, the profile on the United Arab Emirates examined the economic consequences that higher bills, resulting from the increasing cost of water desalination in Dubai, would have on blue-collar migrants, especially labourers.

23. Ms. El Korri emphasized that the aim was to look at specific demographic groups within a country and study the differential impact of a stressor on demographic sub-groups. The indicators would help assess the situation at the country level, but the objective was not to gauge whether a country was vulnerable, or to rank or cluster countries.

24. Ms. Chouchani stressed the need to be careful and consistent with the use of terms in the Report, especially the need for clarity as to what was meant by “exposure”. The Report linked exposure to both water scarcity and population dynamics when in fact, population groups should be considered as “units of concern”. Moreover, she suggested specifying the units of analysis (population groups) examined from the outset and using them across the board, which would ensure consistency and encourage readers to look through a population lens rather than a water lens. She also noted that sensitivity indicators had yet to be specified.

25. Ms. Muttarak made the observation that the term “population vulnerability” was not commonly used and that “demographic differential vulnerability”, which existed in literature on health, could be used instead.

26. Ms. Abouali mentioned the need to have an indicator on urban slums, such as “the number of slums in urban areas”, in addition to the selected indicators of “percentage of urban population” versus “percentage of rural population”, because people living in urban slums were more vulnerable than other urban populations. She said that the list of indicators could be reduced by adding new, more relevant indicators and taking out less meaningful ones. She suggested having one indicator on poverty instead of two and one indicator to measure vertical equality and another to measure horizontal inequality or equality, such as the income or expenditure gap between urban and rural populations. Moreover, she recommended replacing the suggested gender inequality indicators with the “literate females to literate males ratio”, the “male to female unemployment ratio” and the “ratio of girls to boys in secondary education”. She suggested looking at literacy rates by age groups and assessing the quality of education in the region, not only the quantity, by adding indicators such as the “number of teachers to pupils in a class”.

27. Ms. Arja clarified that the purpose of the indicator framework was to provide entry points to help better understand the issue in question, i.e., vulnerability at the national level. Specific indicators were used, where relevant, in the local level analysis. For instance, urban settlements were considered in the Yemen case study, which addressed rural to urban migration. Mr. Marwan Khawaja drew attention to the fact that education indicators were favourable to females in the region and that indicators should focus on the regional context and not on the country context alone. Ms. El Korri noted that enrolment was especially important in the case of water, because lack of water affected girls’ enrolment, given that they were made to fetch water instead of go to school.

28. Ms. Chouchani reiterated the importance of maintaining focus and a consistent storyline and logic. Consequently, the storyline should be kept in mind when assessing the purpose of each indicator and the choice of indicators should be made according to whether or not they fitted the storyline. She also reiterated the importance of differentiating between resources and services. The Report was attempting to look into water scarcity, which reflected the availability of a resource in terms of quality and quantity and the ability to access this resource. Talking about water scarcity was thus very different from talking about water services or water management, which included both the ability to access resources as well as services.

29. Mr. Khawaja noted that there was a demand issue, which was very much affected by consumption patterns, and asked about the possibility of examining water demand and supply. Ms. Chouchani noted that demand was connected to the issue of affordability. On affordability, Ms. Koval inquired whether ESCWA had data for the region on water pricing and if such datasets could be shared to assess issues such as how much per capita income was spent on water purchases, especially for populations using water for livelihood purposes in the agricultural sector; how increases in water prices impacted those populations’ livelihoods; and their risk exposure. Ms. Chouchani mentioned that the ESCWA Sustainable Development Policies

Division was currently working on the MDG+ Initiative report, which would be useful as it produced a national averaging of costs, although it did not measure vulnerability.

30. Mr. Ayman Abouhadid, Professor at the Ain Shams University in Cairo, noted the need to be careful with the water pricing issue as it was very tricky in the region, adding that the service cost of delivering water could be considered. He also observed that agriculture would be a great loser if the productivity of water was compared in United States dollar terms. Yet, agriculture was very important to the community for food security purposes.

31. Ms. Muttarak made an observation on the presentation of indicators in the measurement framework. She suggested clustering the indicators instead of providing them in list form by including external factors, such as water scarcity in the first box; country level factors, such as water management, in the second box (for example, gross domestic product (GDP), spending on water, etc.); and population dynamics/demographic factors characterizing the differential vulnerabilities in the third box; the reorganization could help make things clearer and reduce confusion about the indicators.

32. Ms. Chouchani reiterated that the research question should not be how to manage water supply but rather how water scarcity impacted different socio-demographic groups, and how to assist those groups in dealing with the situation (for instance, to make people aware of the repercussions of a lack of clean water). Ms. Arja added that there was a need to better understand the differentiated impact on different socio-demographic groups to be able to come up with suggestions specific to them. Ms. Chouchani further recommended reflecting on the employment and agriculture components, and establishing the minimum access rate to water for health.

33. Ms. Abouali suggested changing the focus of the boxes in the Report to gear them towards recommendations on how to address problems. She pointed to the availability of numerous studies on theoretical issues in connection with water scarcity and referred to the work by Withington and Jeuland who produced extensive studies on the Nile. Mr. Salman also mentioned a report entitled “Impact of Syrian refugees on Jordan’s water resources and water management planning”, which he thought could be useful. Ms. Koval said that the abovementioned report talked about population pressures on water and included some elements of how the population was coping, but did not address actual population resilience and impact. She suggested clustering the impact of population on income, livelihood and health to develop recommendations on increasing population resilience rather than enhancing water management, even if clustering was not to be used at the national or subgroup levels.

## *2. Review of chapter 3 of Part I*

34. The third session of the meeting was chaired by Ms. El Korri. Time was provided for participants at the beginning of the session to review the three sample country profiles prepared by ESCWA prior to initiating discussion and soliciting feedback. She said that participants’ suggestions would be taken into consideration when developing snapshot profiles for Arab countries.

35. Mr. Salman recommended referring to the book entitled *State, Society and Land in Jordan* as it could help in the development of the profile on Jordan.

36. Ms. Abouali observed that the profile for Egypt should include information on urban slums. She also inquired as to why the latest data quoted in the profile was for the year 2011 instead of extending it to the year 2014, to enable reflection on how the Arab uprisings had affected demographic differentials in general. For instance, downward trends in fertility had been reversed in Egypt as a result of the popular revolts, which was something that the profile should definitely include. Ms. Arja explained that the data used was from international data sources for purposes of consistency and comparability and was only available for the cited year and not beyond. In response, Ms. Abouali stressed the importance of noting that point in the report and explaining data limitations and that the situation could have changed since 2011.

37. Ms. Abouali noted the need to dwell on the issue of inclusiveness, especially since the indicators in the chosen framework related to inclusive growth. She recommended not to tackle each indicator separately, but rather to undertake a more holistic analysis. She also suggested structuring the profile and focusing the analysis on the three elements of vulnerability.

38. Ms. Muttarak mentioned that the profiles were mostly focused on population growth and that the socio-demographic group element was lacking. She recommended better framing the analysis around the topics that the report was tackling, for instance, water access for rural versus urban populations or for women versus men. Ms. Arja explained that the short profiles would present national contexts and refer to population dynamics from a macro-perspective, and that the case studies would look at socio-demographic subgroups from a micro-perspective. Ms. Muttarak then stressed the need to explain the choice of countries and of socio-demographic group and subgroups for the case studies (why and how they were selected). Ms. Arja confirmed that an explanation would be provided in the introduction to chapter 3.

39. Ms. Abouali pointed out that the link between the national level and the case studies was missing and should be clearly established. Ms. Arja explained that the focus on agriculture in Egypt and on internal migration to Sana'a could be explained by the growth of land reclamation in the former and rapid urbanization in the latter. Ms. Abouali then emphasized the need to clarify those points and that, for the Egypt case study, the focus of the analysis should be on more sustainable farming given the water stress factor. Mr. Abouhadid elaborated that the focus of the Egypt case study was on the vulnerability of small farmers in the Nile Delta and the push factors that were driving them to migrate. Ms. Abouali reiterated that further work needed to be done on clarifying the link between national and local levels as the logic still seemed vague to her.

40. Ms. Koval asked about indicators to identify vulnerabilities and highlighted the importance of elaborating on why certain socio-demographic groups had been chosen for the case studies. For instance, were they considered the most vulnerable within the country in terms of water and socioeconomic vulnerabilities; if so, why? Ms. Arja explained that the report clarified from the onset that there was no single framework that would allow the identification of all groups vulnerable to water scarcity, and that the proposed framework in the Report presented a method to allow the identification of only some vulnerable population groups.

41. Mr. Khawaja suggested specifying how different elements and concepts, such as vulnerability and stressors, would be measured and using a diagram to elaborate that aspect (i.e., each concept and the related indicators), as that will facilitate understanding.

42. Ms. Koval remarked that some of the indicators overlapped as they came under both exposure and sensitivity. Ms. Arja explained that the difference between exposure and sensitivity was not clear cut.

43. Mr. Khawaja inquired on whether the Report was trying to establish causality, because that was what he had understood from the presented draft. Ms. Arja explained that it was not, since establishing new causalities was beyond the scope of Report, and noted that the phrasing in the Report would be changed to ensure clarity.

44. Ms. Abouali reiterated that the key issue was the clear identification of the research question. Ms. Chouchani concurred with Ms. Abouali and added that there had to be clarity on the target groups that the Report was looking at, as this would affect the structuring of the argument; was the Report looking at sectors (health, education, etc.) or at vulnerable population groups (youth, elderly, women, migrants)? If it was looking at vulnerable groups, then the profiles would have to be structured according to groups. She recommended using a causal chain analysis if the aim was not to assess vulnerability.

45. Ms. Muttarak reiterated the point that the profiles should answer the research question: which she considered as access to water. Ms. Abouali said that the research question, in her opinion, should be how

effectively people dealt with water scarcity, and that the profiles should be structured following the three elements of vulnerability, which had to be tied to different vulnerable groups, then subsequently focused on one group. She recommended to conclude chapter 3 by clustering countries to draw policy recommendations on how different groups of countries could effectively deal with the issue in question, and then provide the country case studies as examples.

46. Ms. Koval argued that the profiles should address exposure, resilience in terms of responsiveness of Governments and assess the most vulnerable population groups, discussed in more detail in the case studies (e.g., agriculture workers, urban migrants and women). She gave the example of GCC countries, noting that their vulnerability to water scarcity was high, but that the ability of their Governments to cope was also high. Thus, there was a need to focus on the ability to respond at the macro level, since that would help further differentiate countries as those able and those unable to deal with vulnerabilities.

47. Ms. Arja commented that it would be better to build causality in the conceptual framework for easier flow, for instance, how poverty was linked to vulnerability. Ms. El Korri clarified that the study would not classify countries as able and not able to deal with vulnerability, as there were socio-demographic groups that were vulnerable even when countries were not. She further stressed that the focus was not just on countries, but rather on what happened within a country, since that might enable the identification of a number of vulnerable groups to focus on in case studies.

48. Ms. Chouchani advised not to change the methodology of the Report, which was to tackle some vulnerable groups through case studies, as it would not be possible to identify all vulnerable groups, and that there was no need to be comprehensive in that regard. Ms. Arja clarified that the methodology was thoroughly discussed at the expert group meeting held in December 2014, to review the conceptual framework for the seventh issue of the Report and that it had been established that the case studies were the main way to look at vulnerable groups.

## B. CASE STUDIES ON OVERCOMING POPULATION VULNERABILITY TO WATER SCARCITY IN THE ARAB REGION

### 1. *Review of the case study on small farmers in the Nile Delta, Egypt*

49. Mr. Abouhadid presented the case study on Egypt within the context of previous discussions. He provided a national overview for Egypt and raised some highly alarming issues related to population, such as deteriorating living conditions, population growth and increasing unemployment, providing data on the unemployment rate that had increased from 20 per cent in 2011 to 13 per cent in 2012. He explained that water resources were highly reliant on the Nile. The national distribution of water was uneven and subject to severe losses owing to evaporation. In addition, climate change increased water scarcity thus exacerbating the situation. He presented the targeted areas of the case study, the governorates of Al-Minya, located in Upper Egypt, and Al-Beheira, situated in the North of the Delta. Both governorates depended mostly on the agricultural sector to sustain livelihoods, raising concerns on the impact on rural areas, mainly affecting small farmers, whose livelihoods depended on agricultural resources. To highlight some of the most vulnerable groups in each of the two governorates, he presented the population characteristics of the targeted areas and tried to establish a link between population vulnerability and water scarcity. His analysis focused on the following indicators, which gave similar results in both governorates: population size, population growth, household size, young population size, rate of migration, literacy rate, non-enrolment and national poverty rate. The analysis led to identifying women and young people among the most vulnerable groups. He applied the term “feminization of poverty” to stress women’s vulnerability. The impact on young people was reflected in their unwillingness to work in the agricultural sector, because of low incomes and the “degrading” status associated with the agricultural sector. He proposed the following recommendations to address the vulnerability of the inhabitants of the selected demographic areas: with regard to women, empowerment was necessary to allow them access to better opportunities; for young people, he advocated

social protection, land reclamation and agro-industrial complexes to generate work opportunities. He also recommended better usage of water facilities and institutional reform to save water and promote sustainability.

50. In the ensuing discussion, Mr. Salman asked for more clarification on the consequences of water scarcity for vulnerable populations and recommended further research and analysis to alleviate the impact of water scarcity on vulnerable groups. He stressed the importance of including a table showing the poverty line used in the case study and the value added of the agricultural sector, together with a comparison of different sectors of the economy (agricultural, industrial and services).

51. Mr. Raidan al-Saqqaf, Social Affairs Officer at the ESCWA Population and Social Development Section, suggested considering the differences between the governorates of Minya and Al-Beheira in terms of literacy rate, employment rate, family size and population growth. He asked for additional clarification on the local policies and practices of agricultural associations and their structures, which enabled local populations to enhance their coping capacity and overcome vulnerability. He stressed the importance of identifying some of the changes that had led the governorates down two different paths.

52. Ms. Abouali stressed that the case study should answer the main question of the report. She questioned the choice of governorates, suggesting that they were not the poorest and most vulnerable areas in Egypt.

53. Ms. El Korri drew attention to the fact that the selection of governorates was not based on poverty, but rather on the impact of water scarcity on one socio-demographic group (small farmers) at the centre of the report. She said that the targets should not be the poorest governorates, stressing that, within those governorates, some groups were more affected and vulnerable to water scarcity than others, and their capacity to cope was also different.

54. Mr. Khawaja also requested clarification on the choice of governorates. He said that the presentation lacked a strong population perspective and the linkage between group vulnerability to water scarcity was based on assumptions. He asked whether the study could answer the following question: “Why is water scarcity impacting mostly the selected group?”

55. Mr. Abouhadid clarified that both governorates were selected because they relied heavily in agriculture.

56. Ms. El Korri highlighted that the choice of governorates was determined according to water availability. Both governorates were highly dependent on fresh water availability for livelihoods; the case study aimed to illustrate that the selected communities relied on water for their survival. However, she recommended clarifying the impact of water scarcity on the target populations. She gave the example of women’s vulnerability whereby, in the absence of their husbands, women took over both agricultural activities and household chores. She asked for more clarification on how those impacts manifested themselves and suggested that the linkage between selected groups and health indicators could also be explored.

57. Ms. Arja reiterated the importance of selecting some of the most vulnerable target groups within a community. The role of the study was to build and develop tailored recommendations to decrease population vulnerability by building resilience and strengthening adaptive capacity. The report advocated for the recognition of the differentiated impacts on various groups and the differentiated responses they generated.

58. Ms. Muttarak suggested that it would be more effective to clarify the various factors, such as population indicators and water management, before moving to the story, thus allowing researchers to identify how water scarcity was impacting various groups differently.

59. Discussions resulted in the following recommendations to improve the case study: further elaborate on the rationale behind the choice of the selected socio-demographic group; rely on primary sources as much as possible; and further focus on population issues rather than water management technical issues.

## *2. Review of the case study on rural to urban migration, Sana'a*

60. Ms. Rima Habib, Associate Professor at the Faculty of Health Sciences of the American University of Beirut, presented the case study on Yemen, focusing on informal settlements in Sana'a comprising mainly poor and recent migrants. She provided a brief overview of the Yemeni historical background, political context and economic situation; Yemen was affected by depleted water resources, ranked as the lowest in the world. She provided an example to illustrate the importance of addressing water scarcity, as 90 per cent of all water use was for agricultural purposes, largely fed by the country's dwindling water reserves. She noted that 56 per cent of the Yemeni population experienced severe food insecurity linked to water shortages. Furthermore, policies such as joining the international market and the introduction of cash crops had negatively affected small farmers, mainly because of high costs. The consequences of poor water management were being felt across the country; entire villages had relocated because of severe water shortages. As a result, many people had migrated to Sana'a, but the capital was unable to cope with the alarming increase in urban expansion. Therefore, new residents sought shelter in informal areas, leading to a rapid expansion of the city, additional pressure on water resources and widespread inequalities among residents. She focused her study on informal settlements, identifying them as the poorest and most vulnerable communities. She provided population indicators to support her argument, such as low life expectancy, high fertility, lack of access to improved water and sanitation, lack of infrastructure and limited access to social services. She identified the most vulnerable populations located on the urban fringe of Sana'a, residing in informal settlements, noting that their vulnerability was further illustrated by their poor health.

61. Mr. Mohammad al-Hamdi, First Economic Affairs Officer at the ESCWA Food and Environment Policies Section, asked for more clarification about the concept of "informal settlement". He pointed out that, owing to a lack of coverage and investment in infrastructure, there was limited access to infrastructure in several areas of Sana'a, regardless of whether residents were rich or poor. He discussed the case of Yemen from a water perspective, focusing on the economy. He highlighted the high rates of demand that were surpassing supply and provided some statistics to illustrate the intensity of water shortages in Yemen, stating that Sana'a basin was huge but its annual recharge was limited to 4-6 million tonnes per year, and extraction was 300 million tons per year, resulting in a water drop of 3-6 million tonnes per year. The Yemeni economy relied heavily on the agricultural sector; however water sector mismanagement, unsustainable usage of water resources and lack of funding exacerbated water scarcity. In this context, he proposed some solutions to overcome this alarming problem, including efficient water usage in irrigation and desalination, although the latter was only viable in coastal cities for domestic supply.

62. Participants agreed on the importance of better focusing the case study around a clear population perspective and of changing the targeted socio-demographic group, as data on urban dwellers living in informal settlements was lacking.

63. The discussion resulted in the following recommendations: relying on a demographic and health survey to collect further information on Yemen as it included reference to rural-urban migration, based on place of birth and current residence; writing an abstract; applying an anti-poverty approach; and focusing on the differentiated impact of water on health and the impact of unequal access to water and sanitation.

64. Ms. Arja concluded said that the focus should not necessarily remain on rural to urban migration. Instead, it could be centred on the urban population in Sana'a and identify the differentiated impact on population subgroups, such as women and children, and the differentiated impact on health.

## *3. Review of the case study on Jordan*

65. Ms. Koval delivered a presentation on the Jordan case study. She provided participants with a national overview of Jordan, stating that, despite significant increases in GDP, economic progress was not reflected in social indicators. Employment rates were still increasing; the growing youth population was unemployed;

poverty remained high, reaching 14 per cent; and out-of-pocket expenditure on health was high. She added that Jordan, one of the most water-stressed countries in the region, relied heavily on underground water; water losses could reach up to 46.8 per cent. She highlighted the increase in population growth because of the influx of Syrian refugees, adding increasing pressure to limited water resources.

66. She noted that two case studies would be prepared on Jordan, one on the Northern governorate of Mafrq and the other on the Northern Jordan Valley. She presented an overview of the Northern governorate of Mafrq, stressing that it faced the highest rate of refugee influx while registering the highest rate of water losses. After providing some demographic information, she described the socioeconomic situation, stating that the governorate had the highest property rate, the lowest labour participation rate, the highest female illiteracy rate and the second highest fertility rate. She explained that water vulnerability was increasing because the current level of extraction surpassed sustainable usage. Mafrq had been assessed as the most water insecure region in Jordan, in part because of its overexploited ground water resources, the high rate of non-revenue water and the lack of sewage connectivity. The influx of refugees had resulted in a population increase of 128 per cent in Mafrq, coupled with an increase in water demand by 40 per cent, in addition to economic imbalance and higher costs of food, sanitation and water. She noted that the cost of drinking water in Mafrq had also increased, becoming the highest in Jordan, and that large families sharing a household were probably among the most vulnerable to water scarcity. She stressed that the proportion of income spent on water per capita in Mafrq was higher than the national average and could reach 30 per cent of household income. Furthermore, water management and waste facilities were operating at full capacity; however, only 8 per cent of households were connected to those facilities. Poor water practices within households, contaminated ground water and poor water quality had potential health impacts on the population. Women were responsible for managing water in the household but they were not in charge of finances or water allocation. In terms of recommendations, she suggested building community resilience to water scarcity and educating communities on water disposal.

67. She explained that, in the Northern Jordan Valley, the case study focus was on small farmers and water vulnerability. She described the Jordan Valley as the main area for agricultural production. Agriculture remained a vital economic sector and contributed to ensuring food security and national employment. However, that irrigated area was characterized by water shortages, declining aquifers and salinity, in addition to increasing competition between different sectors. Given that water was the main commodity impacting farmers' competitiveness and food security, it was safe to say that small-scale landless farmers were among the most vulnerable population in the Jordan Valley. Water scarcity resulted in reduced production and a decrease in cultivated areas by 40 per cent, leading to a reduction in income and increased unemployment. Another negative consequence of the decrease in income and resources was the significant increase in the number of children dropping out of school to contribute to household income.

68. Women in the Northern Jordan Valley were crucial contributors to agriculture activities as farmers and day labourers. They were also responsible for providing water to households; however, they were not empowered enough to access credit or make independent decisions about water purchase, use or management, making them vulnerable to water scarcity.

69. She concluded the presentation with a set of recommendations on how the resilience of Northern Jordan Valley communities, mainly small landless farmers and women, could be strengthened. She said that there was a need to improve livelihood resilience, for instance, by encouraging women to explore avenues for non-agricultural income. She also acknowledged the need to enhance agricultural efficiency overall. Lastly, she highlighted the vital need to improve irrigation methods and invest in solar energy for water pumping.

70. Mr. Salman said that Jordan was one of the most water scarce countries in the world. He discussed different water sources and highlighted key challenges. He then elaborated on the historical development of the Jordan Valley and its heavy reliance on foreign labour, mainly farmers from Egypt.

71. Answering a question on the impact of the influx of Syrian refugees on the price of water, Ms. Koval clarified that water cost was at 6.9 per cent of income in Mafraq and that tanker water was even more expensive. An increasing amount of money was being spent on water because of the massive influx of Syrian refugees, with water rates going up by 33 per cent, leading to price inflation as a result of joint meters for multiple households.

72. Ms. Muttarak suggested that a demographic and health survey might help better focus the case study on population issues, namely the identification of the differentiated impact on various population groups within the targeted socio-demographic groups, especially in terms of health indicators. She also noted that the latest data was from 2012 and might not capture the effect of the Syrian crisis. She recommended comparing data between 2007 and 2012 to highlight differences between results.

73. Ms. Chouchani recommended using maps at the beginning of each case study and checking the Jordanian Valley Authority site for data by basins as well as the ministries' websites. She proposed linking population and livestock, stating that livestock was extremely water intensive, making populations dependent on livestock much more vulnerable than other communities. She advised the author to reflect on the cost of energy in relation to water scarcity.

74. Ms. Arja said that, in some cases, the resilience measures developed by people made them more vulnerable to water scarcity. To a question about whether the trajectory of the paper focused mainly on reducing water vulnerability or on reducing reliance of people on water, she replied that the aim was to identify the differentiated impact to enhance communities' adaptive capacities and explore options to build resilience. The case study should identify practices already developed by locals and recommend how to enhance them. She reiterated the importance of highlighting the water-management side, with population behaviour as the core focus.

75. On the overall structure of Part II of the report (case studies), it was agreed that an introduction should be added, including a paragraph on methodology, to provide a common entry point for the case studies. When discussing the conclusions and recommendations, mainly whether they should come at the end of each case study or in a separate chapter at the end of the report, participants agreed that each case study should include a concluding section and set of recommendations closely linked to the findings of each study and the socio-demographic groups it covered. However, a separate section at the end of the report could also be useful, bringing together some general trends and linking water management practices, both governmental and behavioural, to water availability, livelihood, economic, vulnerability, health, among other things. That section would summarize the progress of the main thesis of the report, from the research question to a set of conclusions that could be of use to policymakers when designing water-management policies in different settings.

### C. CONCLUSIONS AND RECOMMENDATIONS

76. Discussions resulted in a set of recommendations for the improvement of the first draft of the report. Regarding Part I, expanding chapter 1 (introduction) to include some elements of chapter 2 to strengthen the focus on water scarcity, population dynamics and sustainable development; further developing and explaining the conceptual framework and methodology in chapter 2; starting with a clear and detailed introduction in chapter 3 on country profiles. Concerning Part II, participants highlighted the need to strengthen the logical link between the two parts of the report by further explaining the transition from the country level to the case studies, which focused more on specific socio-demographic groups. Lastly, participants agreed on the importance of adding more tables, figures, maps and definitions to clarify the methodology and arguments.

## **II. ORGANIZATION OF THE MEETING**

### **A. VENUE AND DATE**

77. The expert group meeting to review the draft seventh issue of the Population and Development on overcoming population vulnerability to water scarcity in the Arab region was held at the United Nations House in Beirut, on 1 and 2 April 2015.

### **B. OPENING**

78. Ms. El Korri welcomed participants and thanked them for their contributions. She explained that the seventh issue of the Population Development Report aimed to understand the water challenges facing the region and raise awareness on the necessity to readjust water policies based on a clear understanding of the needs of specific population groups. She highlighted Governments' struggle to ensure access to basic services, such as water and energy, and clarified that the Report attempted to establish a link between population dynamics and water scarcity and show how some adopted policies seemed to be making the vulnerable even more vulnerable.

79. She put the report in a broader context of shaping the forthcoming post-2015 global development agenda and the formulation of the sustainable development goals. She added that there was a close link between population dynamics and water scarcity, highlighting the importance of adopting a population perspective rather than addressing the issue from a water angle, to ensure access to affordable water for all.

80. The meeting was attended by 14 participants, including the organizers. Three of the participants were consultants who had drafted the case studies. The others were experts who provided feedback and comments on Part I of the report, prepared in-house, and the case studies.

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