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Data Collection for the Study on Climate Change and Migration in the MENA Region

Nicholas Burger, Bonnie Ghosh-Dastidar, Audra Grant, George Joseph, Teague Ruder, Olesya Tchakeva, and Quentin Wodon

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Abstract

A large part of this study is based on data collected in 2011 in five focus countries of the MENA region. In addition, other existing data sources were used as well, as documented in the various chapters that follow, but this need not be discussed in this chapter. This chapter documents the process followed and some of the choices made for new data collection, both quantitative and qualitative, for the study on climate change and migration in the MENA region. After a brief introduction, we explain the nature of the household survey questionnaire, what it enables us to document, as well as some of its limits. Next, we explain how the household survey sites were selected and how the samples were constructed in each of the five focus countries. We also provide a few comments on the challenges encountered during survey implementation. The chapter finally explains the process used for the focus group discussions and in-depth interview, as well as for the interviews with key informants conducted in each country.

1 Introduction

Having explained the rationale for the choice of focus countries for this study and having provided general background on each of the five countries in chapter 3, this chapter documents the process followed and the choices made for new data collection in the five focus countries – Algeria, Egypt, Morocco, Syria, and Yemen. Documenting these choices is important because much of the effort under this study in terms of staff time and study costs consisted in collecting and analyzing new data in the five countries – that is, household surveys and qualitative focus groups as well as in-depth household interviews and key informants interviews. But documenting these choices is also important to clarify what the study can and cannot do – what it can inform us about, but also what it cannot inform us about given the data’s limits in terms of representativeness as well as the types of questions asked and to whom.

We first describe briefly the nature of the household survey questionnaire, and especially the questions in the survey what it enables us to do, as well as some of its limits. In each of the five focus countries the same household survey was implemented, with only minor adaptations to take into account country characteristics. The survey questionnaire included a total of 17 sections, many of which were designed to gather background information on household members. But the three chapters that have been written in this study using the household surveys focus on the questions related to household perceptions of climate change, coping mechanisms and adaptation strategies, and finally both temporary and permanent migration.

Next, we explain how the household survey sites were selected in each of the five countries and how the survey samples were constructed in each sub-area. We also provide a few comments on weights and on some of the challenges encountered during survey implementation. Data collection was not easy. In Egypt, Syria, and Yemen, the quantitative and qualitative fieldwork was interrupted by the 2011 Arab Spring events, causing delays of weeks and in some cases months, with frequent interruptions in fieldwork once the data gathering resumed. While these events did not appear to affect responses in the survey, the teams implementing the survey had to be flexible in order to adapt. In addition, in Yemen interviewers faced some intimidation and threats to their physical security, which caused further delays in data collection there.

Finally we provide background on the objectives of the qualitative data collection, as well as the process followed and techniques used, such as probing on specific questions. As was the case for the survey data collection, data collection was challenging in some countries. In Yemen the deteriorating security conditions made focus group recruitment very difficult, which led to a switch from focus groups to in-depth interviews for that country. In Algeria, focus group recruitment was hampered by local suspicion. Time constraints and worries about the spread of Arab Spring dynamics prevented sustained efforts at focus groups recruitment, so that in that country as well the team opted for in-depth interviews. We also discuss the approach used for interviews with key informants, who included government officials as well as researchers and representatives of non-governmental and international organizations.

The structure of the chapter follows closely the above discussion. After explaining some of the characteristics of the household survey questionnaire in section 2, section 3 is devoted to the process followed for collecting the household survey data. Section 4 discusses the qualitative data collection through focus groups in Egypt, Morocco, and Syria, and in-depth interviews in Algeria and Yemen, as well as interviews with key informants. A brief conclusion follows.

2. Household Survey Questionnaire

In each of the five focus countries the same household survey was implemented, with only minor adaptations to take into account country characteristics. The survey questionnaire included a total of 17 sections, many of which were designed to gather background information on household members, including on demographics, education, health, and occupation, as well as household well-being. Three chapters have been written in this study using the household surveys conducted in the five countries. This section briefly describes the data used in each of the three chapters, and the types of questions in the survey which make this analysis feasible.

Chapter 5 focuses on household perceptions of extreme weather events and climate change, and the impact of adverse events on their livelihood. The analysis is based on three main questions. First, households are asked if they have noticed any changes in weather patterns in the last five years, with the potential changes identified in the questionnaire including more erratic rainfall, less or more rain, more frequent droughts, floods, or sand storms, and changes in temperatures, among others. Next household are asked if, again compared to five years ago, they have noticed changes in their environment – these would include deforestation, livestock losses, crop failures, water pollution, less fertile land, etc. Finally, households are asked if they experienced losses of crops, income, livestock, or fish as a result of changes in weather patterns.

Chapter 7 looks at the ways through which households cope with the impact of adverse weather events, and how they adapt to changes in the climate and their environment. On coping, households who declare that they have experienced a loss of crops, income, livestock or fish due to weather shocks or changes in the environment are asked if they used the following coping strategies: (1) Selling or pawning livestock; (2) Selling or pawning assets other than livestock, such as land or jewelry; (3) Withdrawing children from school; (4) Using their savings; and finally (5) Asking for a loan. Households who did not experience a loss linked to an adverse weather events are asked whether they would rely on the same coping mechanisms in case they would experience such a loss. On adaptation, households are asked whether they have taken specific actions to adapt to changing conditions. Many different actions are listed in the questionnaire, including changing in the timing of planting, changing the source of water used, drilling boreholes, changing production technologies or crop choices, increasing the use of fertilizer or pesticides, seeking or increasing off-farm employment, and so on. Similar questions are asked about the community level response to climate change, and about the availability of government programs that could help households cope with and adapt to climate change.

Finally, chapter 8 looks at the relationship between household perceptions of climate change and whether household members have migrated either temporarily (this is referred to as resident migration because the member still resides in the household), or permanently (this is referred to as non-resident migration). The analysis is made possible through information asked about migration not only among current household members, but also among those who used to live in the household and have left permanently. There are however limits to the analysis that can be conducted with such data. First, because the surveys were implemented in sending areas affected by extreme weather events, we do not record information on the migration of entire households – we only record the migration of household members. Second, it is difficult to distinguish the separate effects of climate change, environmental change, and weather shocks on households, and to separate short-term versus long-term household responses. It could be that household perceptions of climate change are wrong – for example, even if households declare that rainfalls are becoming more erratic, this may not be the case in reality. At the same time, one could argue that decisions such as that of migrating are influenced at least as much by the

perceptions of households of the reality as by the reality itself. Also, questions in the survey about the reasons for migration provide a way of checking whether the estimates of the impact of perceptions on migration in the regression analysis are of a reasonable order of magnitude.

It must be emphasized that because the surveys are not nationally representative and were implemented only in two sending areas affected by extreme weather events, as discussed in the next section, we are not able to provide estimates of migration by entire households away from the sending areas – we only record the migration of household members.

To mitigate this weakness, we also conducted work with nationally representative data. For Morocco, we used the nationally representative Morocco Household and Youth Survey (MHYS) implemented between December 2009 and March 2010. Much of the questionnaire of that survey focuses on issues critical to youth, such as the obstacles they encounter on the labor market and for civic participation. But the questionnaire also included data on migration as well as on various shocks affecting households and their ability to cope with these shocks. Being aware that the survey would be implemented, we were able to add additional questions on household perceptions regarding changes in climate, and whether this affected migration decisions. Those data are then used for two chapters in the study on, respectively, the ability of households to cope with weather and other shocks (chapter 6), and the migration decisions of household members (chapter 9). For Yemen we used data from the latest census and the latest national integrated household survey to conduct additional analysis of migration patterns. The census data were used together with other data (including climatic data) to analyze the determinants of migration rates between districts (chapter 10). The national household survey was used to analyze who benefits from remittances from international and domestic migrants, and what impact those remittances have on the welfare and human development indicators of the households who receive them, and whether this impact depends on where the beneficiary households live (chapters 12 and 13). The fact that we are able to rely on national data for Morocco and Yemen helps in placing some of the findings from the new household surveys in a broader context, so that the use of the two types of data complement each other.

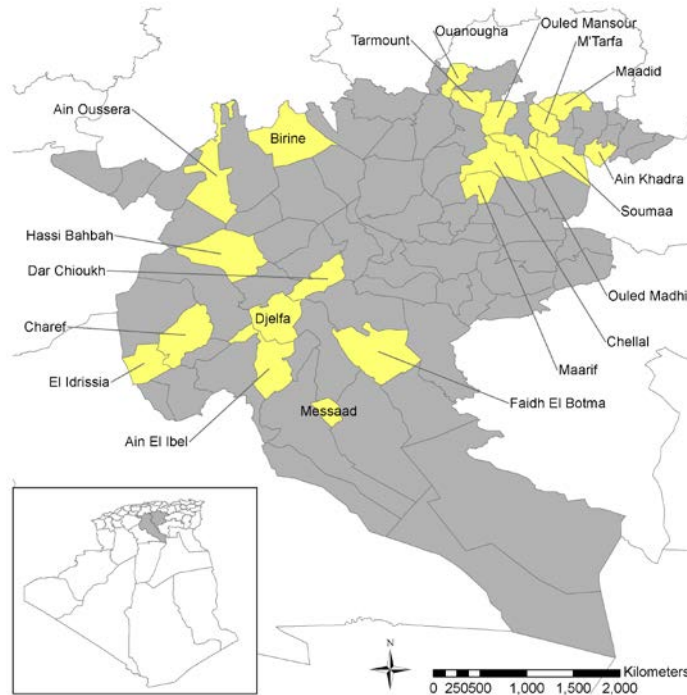
3. Household Survey Data Collection

3.1 Survey Sites Selection

In each of the five countries the same household survey was implemented in two predominantly rural areas. These two areas were located in regions that are considered to be vulnerable to climate-induced environmental degradation in the agricultural sector and are also areas that have produced significant out-migration internal to the countries. In other words, the regions were chosen based on existing environmental conditions and on their contribution to internal migration patterns. The majority of the areas have been subjected to long-term drought and water scarcity or incidence of flooding. While there is ongoing debate regarding whether the sources of climate change are caused by human actions or by natural climatic factors, the selection of the areas was meant to reflect the latter. In practice, we relied for the selection of the areas on recommendations from climate change and environment experts in the respective countries, population and migration experts, ministry officials, and existing information from a wide variety of sources on climate and migration trends in each country. The remoteness of the areas and security risks also influenced survey site selection. Official approval from ministries in each country was obtained to conduct the survey in each survey site. The sample size in each area was 400 households for a total of 800 households in each of the five countries.

In Algeria, two sites were selected. M'Sila is located in the Steppe region and has been classified by the Algerian Ministry of Agriculture and the National Centre for Spatial Techniques as an area that is "sensitive" or "very sensitive" to desertification. Approximately, 62 percent of the region has been designated as such. Djelfa is also located in the Steppe zone and has similarly been designated as "sensitive" or "very sensitive" to desertification. In that region, approximately 500,000 thousand hectares of land are in the process of desertification and more than seven million hectares are under threat of desertification.

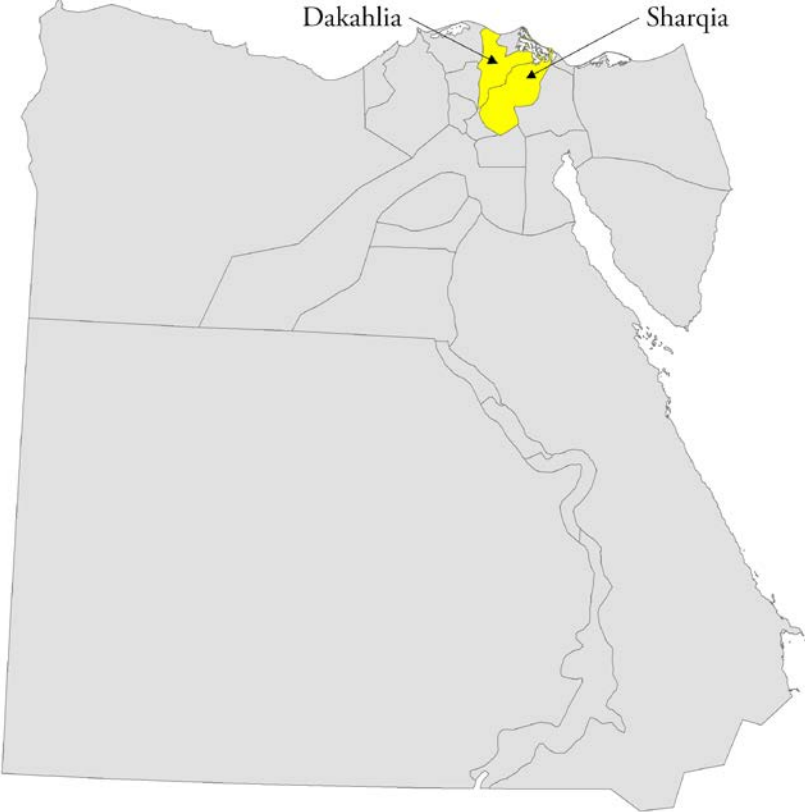
Figure 1: Map of the Selected Area for the Household Survey in Algeria



Source: Authors.

In Egypt, the first area chosen area was Dakhalia in the Northeast. Experts at the Cairo College for Engineering indicate that water consumption has increased 17 percent owed to hotter and longer summers there. In the governorate of Dakhalia, approximately 11,000 hectares of land in 2010 were no longer viable as a result of poor weather conditions, which has caused diminished water supply for agriculture. Farmers staged regular protests outside of the governor's office demanding initiative to improve availability of water. The second region is Sharqia, also in the Northeast. Similar water scarcity has damaged rice farms causing farmers to use sewage water for irrigation purposes. The Central Agency for Public Mobilization and Statistics reports that water resources in Egypt will decline by 15 billion cubic meters by 2017 in these and other areas throughout the country, a significant decrease from the requirement of 86.2 billion. Each of the above areas is a supplier of migrants to other areas within Egypt, mostly to urban areas, such as Cairo, a major destination for rural migrants who seek to escape poverty. These survey areas were approved by officials and researchers associated with the Egyptian Environmental Affairs Agency.

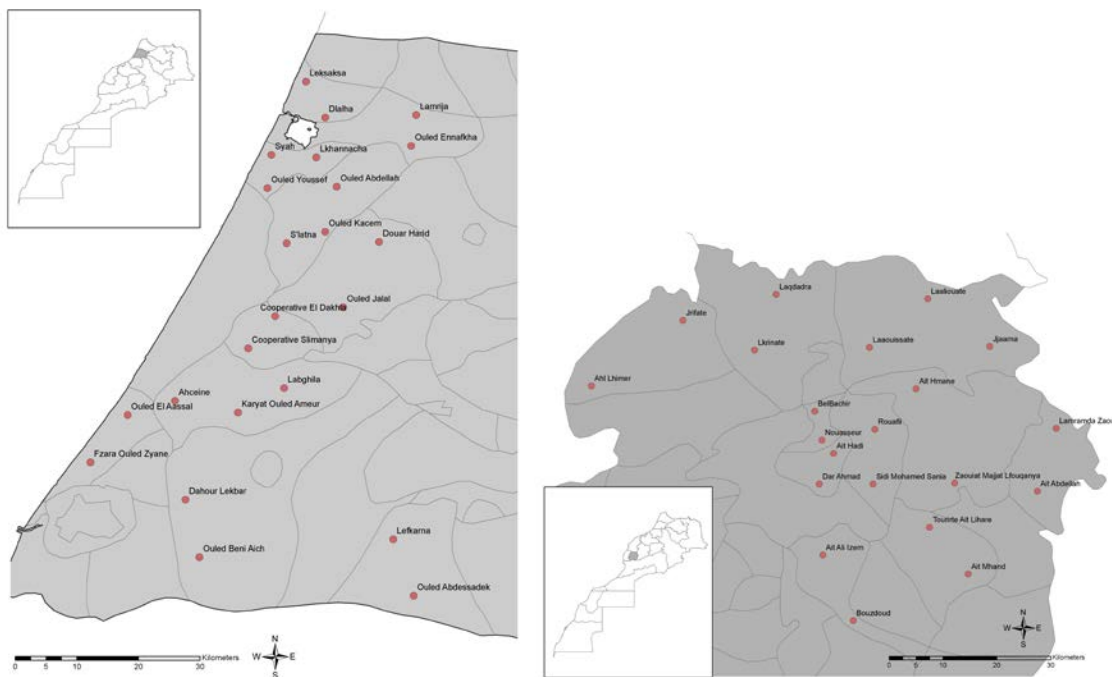
Figure 2: Map of the Selected Area for the Household Survey in Egypt



Source: Authors.

In Morocco, the first site was Chichaoua in the Plains Region. Chichaoua Province has been affected by drought over recent decades. The pattern has been accompanied by severe drought events. The second region is Al-Gharb in the Northwest. The al-Gharb plain is Morocco's second largest agricultural producing region. In 2009, al-Gharb accounted for roughly 35 percent of the country's cereal acreage. Al-Gharb has been severely affected by flash flooding from the Sebou River – events exacerbated by heavy snowfall and rains – which began in 2009. Thousands were displaced amid loss of homes and shelter and significant damage to infrastructure and agricultural production. Yet, Gharb also suffers from cycles of lack of rainfall. In 2011, for example, rainfall decreased by 14 percent. The area was recommended by Moroccan government officials and is an outlier among the survey sites, an area that has been affected by short-term weather events in the form of a natural disaster.

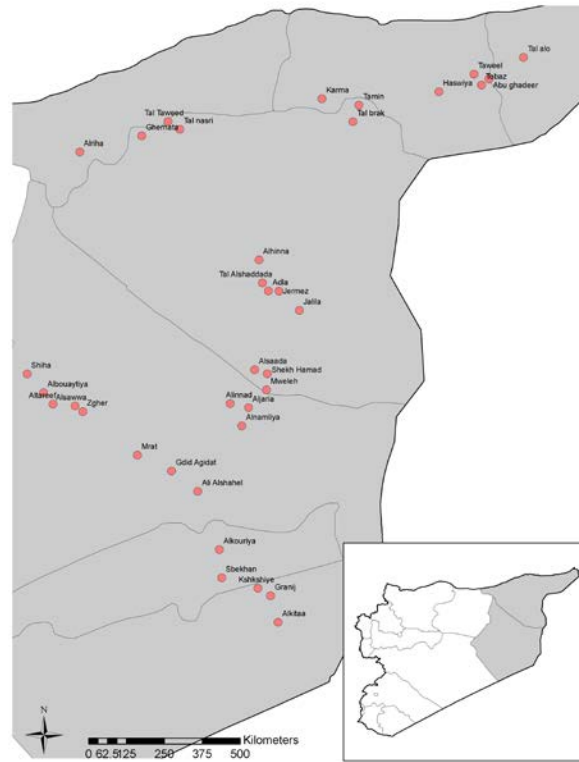
Figure 3: Maps of the Selected Area for the Household Survey in Morocco
(a) Chichaoua **(b) Al-Gharb**



Source: Authors.

In Syria, the first area is Al-Hassakeh in the North. The region has been afflicted by drought and land degradation over a long period. The Qamishle and al-Shadaddi districts have been particularly affected. Tens of thousands of Syrians have been displaced from al-Hassakeh as a result of severe drought. The second area is Deir ez Zour in the East. Like al-Hassakeh, Deir ez Zour to the east have also suffered from drought and land degradation. In both al-Hassekh and Deir ez Zour, approximately 1.3 million have been profoundly affected by drought especially since 2008, and according to the Syrian government, some 800,000 are vulnerable. Though precise figures are difficult to acquire, between 40,000 to 60,000 families are estimated to have migrated, including 35,000 from al-Hassekeh alone. Both Deiz Ezzor and al-Hassakeh are home to crops considered strategic by the Syrian government, such as wheat, cotton and barley. Metropolitan Damascus has been a major destination for rural migrants for many decades.

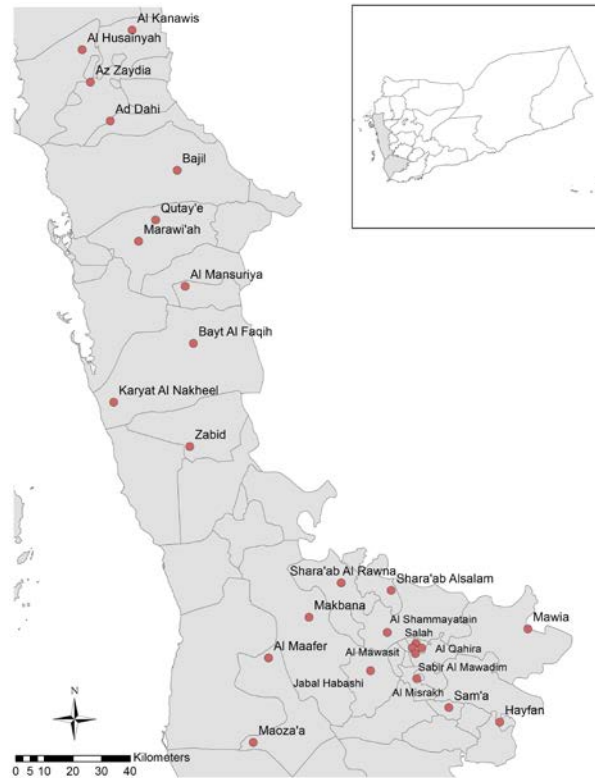
Figure 4: Map of the Selected Area for the Household Survey in Syria



Source: Authors.

In Yemen, the two areas were Hudaydah in the West and Taiz in the South. Both areas are designated as high-drought risk areas. About a third of Yemen's poor are concentrated in these areas. Taiz has been affected by both long term water scarcity and acute drought, the latter occurring since 2008 causing significant displacement. The situation in Taiz is more severe, however, as the region faces a humanitarian situation in 2011 caused by the collapse of the Salah government last year. Civil unrest and violence have compounded water scarcity as health care, education, and physical security are threatened. Taiz is among the areas in Yemen suffering from the most severe water shortages. Rainfall has decreased or ceased all together since late 2008-early 2009, depleting ponds and tanks which are the typical reservoirs of natural rainfall for the agricultural sector.

Figure 5: Map of the Selected Area for the Household Survey in Yemen



Source: Authors.

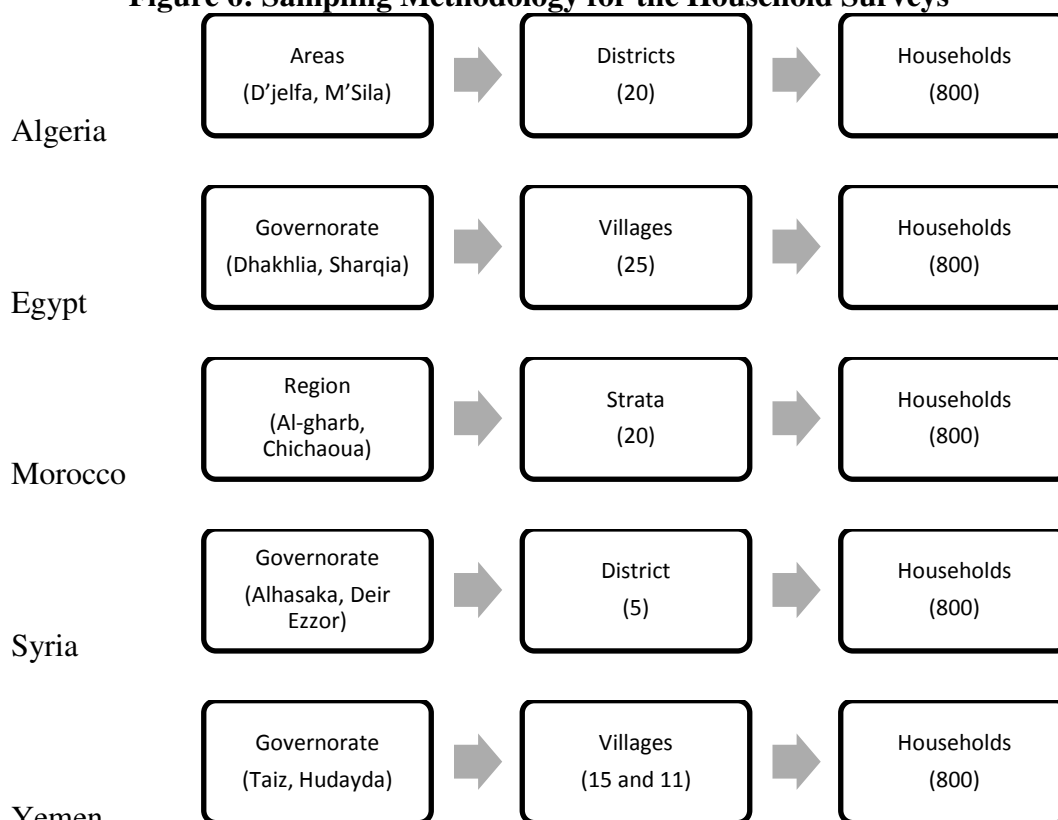
3.2 Sample Design and Weights

For each country, the target was to implement the survey with a sample of 800 households. Sample selection followed a general framework, with variations on how household units were selected depending on the country. Each country was first divided into two Strata composed of: (i) areas with high level of environmental degradation, and (ii) areas with low level of environmental degradation. Only areas in stratum 1 with high level of environmental degradation were eligible for inclusion in this study. In each country, two areas with high environmental degradation and high migration were selected. These areas were typically selected systematically, but non-randomly because of factors such as importance, size, or location.

Thus, we cannot produce weights that generalize the sample of households in these two areas to produce country-level statistics, not only because this would not be appropriate with only two areas surveyed, but also because we do not have a probability of selection of these two areas. Instead, where feasible we estimated household-level weights to generate representative statistics from each sample of households for their respective area. But again, the weighted area-level summaries may not be representative of the country with respect to level of environmental problems, degradation and migration due to non-random selection of these areas into the study.

The survey implementation was supervised by Rand under contract with AFD and the World Bank. In each country, Rand worked in partnership with local teams: the University of Algiers in Algeria, IPSOS MENA in Egypt and Syria, TNS Global in Morocco, and the Market Research Organization (MRO) in Yemen. In each of the two areas sampled per country, a multi-stage sampling design was carried. Figure 6 visualizes how the sample was selected in each of the five countries, but household selection rules were country specific and are described below.

Figure 6: Sampling Methodology for the Household Surveys



Source: Authors.

The Algeria sample was split evenly between the prefectures Djelfa and M'sila. Within each prefecture, ten administrative districts were selected with probability proportionate to size using the 2008 district population as the measure of size. The number of households per district was then allocated proportionately, with more interviews in larger municipalities. In the absence of a complete listing of dwellings in each prefecture, households were selected within districts using a random selection algorithm in the field. The 2008 population sizes of each district used for designing the sample as well as the number of interviews per district are listed in table 1.

Table 1: Location Information for Algeria Survey Sample

	Population (2008)	Share (%)	Sample	Population (2008)	Share (%)	Sample	
Djelfa area				M'Sila area			
Djelfa	288228	38.1	152	Maadid	24168	19.44	78
Hassi Bahbah	86421	11.42	46	Tarmount	9954	8.00	32
Feidh El Botma	32501	4.29	17	Mtarfa	8074	6.50	26
Birine	30913	4.08	16	Chellal	5411	4.30	17
El Idrissia	32900	4.35	18	Ouled Mahdi	7069	5.70	23
Messaad	102453	13.54	54	Ain Khadra	29046	23.40	93
Dar Chioukh	30372	4.00	16	Ouanougha	14397	11.60	46
Charef	24028	3.17	13	Ouled Mansour	5731	4.61	19
Ain El Ibel	28406	3.75	15	Maarif	13269	10.67	43
Ain Oussera	100631	13.3	53	Souamaa	7189	5.78	23
Total		100.0	400	Total		100.0	400

Source: Authors.

In Egypt, the sample was split evenly between the two Governorates of Dakhalia and Sharqia. Within each governorate, the selection of villages was dictated by the Egyptian government authority approving the survey (the Egyptian Environmental Affairs Agency). This means that villages were selected in a non-random fashion. Nine villages were selected in Dakhalia and 16 in Sharquia. The allocation of interviews across villages within each governorate was done using a probability proportionate to size approach, with the number of households in the village being used as the measure of size. The number of households was obtained from 2006 general census by CAPMAS. For the selection of households within a village, fieldwork supervisors selected random starting points within each village. Each interviewer was advised to start by selecting the first house to the right of the starting point. The interviewer then attempted to conduct an interview with every fourth building. In case of a refusal, the interviewer moved to the next housing unit to complete a questionnaire. If the next housing unit had multiple apartments, only one was selected to complete an interview. A maximum of 8-10 interviews were conducted at each point. Table 2 provides the population size of each sampled village, along with the number of interviews completed per village.

Table 2: Location Information for Egypt Survey Sample

	Population	Sample		Population	Sample
Dakhalia			Sharqia		
Meet El Kom Vill.,Talkha City	22,944	30	<i>Hehaya City</i>		
Kafr El Dabosy, Sherbeen City	12,204	16	El Zarzamon Village	8,692	18
Meet El AamaL, Aga City	24,717	33	El Adwa	10,649	22
Meet Zonkor, Talkha City	6,323	8	Sobeha Village	9,598	20
Balkas City	103,549	---	El Mosalmy Village	3,575	8
El Gamalia, Mansoura City	71,652	95	El Salamon Vill	7,398	16
Meet Salsabil, Mansoura City	35,628	49	<i>El Hosaynia City</i>		
El Danabik Village, Mansoura City	8,535	11	Smakin Shark Vill	7,790	16
Abo Daood El Enab Village, Aga City	5,159	7	Smakin Gharb Vill	12,478	26
Meet Mzag, Mansoura City	10,687	14	Soad Island Vill	40,090	84
Gamasa City	755	---	<i>Abo Kabir City</i>		
			El Shekh Island Vill	3,394	7
			Awlad Musa Vill	15,903	33
			El Sawaky Vill	5,997	13
			Nazlt El Arien Vill	9,442	20
			<i>Fakos City</i>		
			El Ghadadna Vill	7,019	15
			Akyad El Bahria Vill	21,365	45
			○Akyad El keblia	18,696	39
			Kafr El Hag Omar	7,858	17

Source: Authors.

In Morocco, the sample was evenly split between the regions of al-Gharb and Chichaoua. Within each region, 10 strata were defined and 40 households were sampled per stratum under an equal allocation design (see table 3). The 40 households were selected in two stages to improve efficiency of fieldwork. First a random sample of douars (villages) was selected from a complete listing of douars in each region, although douars with less than 100 households were not selected. Second, in the absence of a complete listing of households within each douar, an algorithm was used to ensure a random sample of households in a way similar to that of Egypt. The starting point was the village center. In cases where the population in the douar was dense, a

pattern of skipping three households was implemented. Interviewers adhered to the “right hand rule” so that interviews were conducted on the right hand side of the road/path/“street.” Random selection of roads/paths was not possible in rural areas similar to urban areas. Instead, a path was specified by the supervisor and two people followed a path in opposite directions (e.g., north and south or east and west). The first household along the path was selected, with skipping of three households in dense areas. If no one was at home, the interviewers proceeded to the next house along the road/path/street. To avoid excessive clustering, no more than 20 households were selected from the largest douars, for a total of 40 household interviews per stratum.

Table 3: Location Information for Morocco Survey Sample

	Households	Interviews		Households	Interviews
Al Gharb			Chichaoua		
Moulay Bousselham	2,292	40	Ahdil	1146	40
Lalla Mimouna	1,531	40	Ait Hadi	819	40
Bahhara Oulad Ayad	3,213	40	Lamzoudia	1439	40
Sidi Mohamed Lahmer	4,608	40	Sid Mokhtar	635	40
Souk Tlet EL Gharb	2,866	40	Sidi Bouzid Ragragui	1504	40
Sidi Allal Tazi	1,542	40	Sidi M'hamed Dalil	591	40
Mograne	3,623	40	Douirane	1698	40
Mnasra	4,088	40	Gmassa	1184	40
Ameur Seflia	5,466	40	Majjat	1059	40
Dar Bel Amri	4,941	40	M'zouda	1299	40

Source: Authors.

The Syria survey was implemented in the governorates of Alhasaka and Deir Ezzor. Within Alhasaka, six areas/provinces and 20 villages were selected from two of the four districts. Multiple provinces and areas in Alhasaka were not eligible for inclusion due to safety concerns, no relevant climate/weather impacts, and language issues for areas that bordered Iraq. In Deir Ezzor, 10 areas/provinces and 16 villages were selected. These areas/provinces represented all three districts in Deir Ezzor. Thus, the sample in Deir Ezzor has better coverage than that in Alhasaka. Highly urban areas, such as the city centers, were excluded from both samples. The total number of interviews was divided equally between the two governorates. Within each district, areas were selected using a random sampling approach (with certain exclusion criteria noted above). Within areas, the number of interviews was proportionately allocated based on population size. One or more villages were randomly chosen in each area, although villages that were very small and where local government permission was denied by the mayor were excluded. In Alhasaka and Deir Ezzor, 20 and 15 villages were sampled from the 6 and 10 areas, respectively. The details on the location of the sample are provided in table 4.

Table 4: Location Information for Syria Survey Sample

District	Area	Population	Villages	Interviews		
Alhasaka						
Alhasake Centre	Alshaddada	58,916	Adla	25		
			Alhinna	12		
			Jalila	19		
			Jermez	27		
			Tal Alshaddada	27		
	Markada	34,745	Alsaada	19		
			Shekh Hamad	24		
			Mweleh	22		
	Bi'r Alhelou	38,833	Karme	22		
			Tal brak	27		
			Tamim	26		
	Alarish	30,544	Alriha	24		
			Ghernata	26		
	Tel Tamr	10,000	Tal Taweel	5		
			Tal Nasri	20		
Abu Ghadeer			6			
Haswiya			19			
Tal elou			27			
Almalkiya	Jawwadiya	40,535	Taweel	11		
			Tobaz	12		
			Deir Ezzor			
			Kisra	63,226	Sawwa	24
Central Deir ezzor			Al Tarif	23		
			Basira	40,236	Ali Alsaleh	30
			MouHasan	35,113	Jdid Agidat	26
			Altibne	48,393	Shiha	36
			Khisham	28,718	Mrat	21
			Sour	37,552	Aljarya	20
Alboukamal	Hajeen	97,870	Alinad	16		
			Ghranig	40		
			Keshkeshiya	30		
Al-mayadeen	Aljalaa	29,255	Alkitaa	20		
			Alkouriya	26		
Al-mayadeen	Ziban	65,079	Altayyana	19		
			Dablan	37		
			Ishara	96,001	Sbekhan	32

Source: Authors.

Finally, the Yemen sample was split between the governorates of Taiz and Hudayda according to population (58 percent of the sample in Taiz and 42 percent in Hudayda, see table 5). Interviews were completed in 15 villages within Taiz and 11 villages within Hudayda. The primary reasons for selecting the 15 villages in Taiz and 11 villages in Hudayda were the distribution of population, community variety, local knowledge, and the observed degree of environmental degradation. The most critical areas with respect to environmental problems were chosen in both governorates. The total sample size within each governorate was allocated across the chosen villages on the basis of number of households on the basis of data produced by the Yemen Central Statistical Organization. Each village was divided into different sectors (or neighborhoods) and interviews were divided equally among the two sectors. In each sector the interviewers contacted every third household by location to achieve quasi randomness.

Table 5: Location Information for Yemen Survey Sample

	Households	%	Sample		Households	%	Sample
Taiz				Al Hudayda			
Al Misrakh	18,277	7%	32	Bajil	32,232	19%	65
Sabir Al Mawadim	18,848	7%	33	Al Katea'	16,116	10%	32
Salh	17,705	7%	31	Al Marawi'ah	14,651	9%	30
Al Qahirah	23,417	9%	41	Al Mansuriyah	12,697	8%	26
Hayfan	18,277	7%	32	Bayt Al Faqiah	14,651	9%	30
Al Mawasit	23,988	9%	42	Al Husainieh	12,697	8%	26
Sama'	21,132	8%	37	Zabid	13,186	8%	27
Mawiyah	17,134	6%	30	Karyet An Nakheel	10,744	7%	22
Mawza'	16,563	6%	29	Ad Dahi	13,186	8%	26
Ash Shamayatayn	15,992	6%	28	Az Zaydiyah	11,721	7%	24
Al Ma'afer	13,136	5%	23	Al Qanawis	14,162	8%	28
Jabal Habashy	19,990	8%	35				
Makbanah	10,281	4%	18				
Shara'b Ar Rawnah	16,563	6%	29				
Shara'b As Salam	13,707	5%	24				
Total Taiz	265,011	100%	464	Total Al Hudayda	166,042	100%	336

Source: Authors.

Household sampling weights are usually defined as the inverse of the probability of selection of a household in a sample. In general, the probability of selection of a household consists of two components. The first component can be denoted as $P(\text{district})$, the probability with which a district or other sub-area is selected within a prefecture or governorate. The second component is the probability of selection of a household within a district, $P(\text{household}|\text{District})$. With a random selection of households within a district, this is the ratio of the number of interviews completed in a district and the population size of the district. The probability for a household to be selected is then $P(\text{Selection})=P(\text{district})\times P(\text{household}|\text{District})$ and the sampling weight is $1/P(\text{Selection})$. This is the approach used for assigning households weights in Algeria.

In Morocco, given that villages were randomly selected from each stratum, they have an equal probability of selection. This then simplifies the probability of selection of households, which is simply the ratio of the total number of household interviewed in a stratum and the size of the stratum. That is, $P(\text{Selection}) = \text{Number of interviews}/\text{Number of families in an area}$, with again the sampling weight defined as the inverse of the probability of selection. In Syria, the sample was essentially self-weighted (equal probability of selection for all households) given that the areas within districts were selected randomly, and so were the households within districts. In Egypt, due to the non-random selection of villages, it is not advisable to produce weights (within villages, households were selected randomly). Similarly, due to the systematic selection of villages within governorates in Yemen, sample weights are also not provided (again, within villages households were selected randomly, but villages themselves were not).

3.3. Challenges in Survey Implementation

In Algeria data collection ran from April to October, 2011. Interviewers participated in training and orientation sessions before going to the field, lasting approximately three days. Data were collected through face to face interviews, after securing permission from local leaders in each district. The primary fieldwork challenges in order to access households were related to transport, hot weather, and long distances between villages and houses. There were also

difficulties with some families who did not want to answer questions, because they thought the questions were an intrusion into their personal life. The interview teams went to great lengths to explain to farmers the nature of the survey and reassure them that the goal was not to probe into their private lives. Although some households refused to participate in the survey and some did not complete the entire questionnaire, the overall non-response was less than 1.5 percent. The survey took on average 1.5 hours to complete.

In Egypt, data collection ran from May (following a delayed start) to June 2011. Fieldwork training lasted two days and covered detailed descriptions of the questionnaire contents, the importance of probing for particular questions, and role playing activities to gain experience with the questionnaire. The interview teams consisted of 29 individuals (23 male, 6 female). Household refusals to participate in the field were primarily due to the length of the questionnaire and the personal nature of questions. A total of 99 households refused to participate and 133 people showed reservations when asked questions on personal life details. The supervisors for the data collection team were responsible for quality control, which included accompanying interviewers to household visits (20 percent of interviews), checking a subsample of questionnaires for accuracy (20 percent of interviews), and telephone call backs (35 percent of interviews). Double data entry was conducted for 15 percent of the questionnaires as an additional test. Some problems we reencountered during interviews, including respondents who were observed to give any answer just to finish the interview, respondents that did not take the survey seriously, and interruptions from other people in the household during the interview.

In Morocco, fieldwork was completed between April and May 2011. The field team consisted of approximately 20 interviewers, and training for the interviewers lasted three days. The training for the Chichaoua team was held in Marrakech, while the training for the Al Gharb team was held in Casablanca. A relatively large number of households refused to participate in the survey (144), but there were no major challenges associated with the fieldwork and household refusal rates were not tied to any particular issues other than general challenges with length and sensitivity to certain questions.

In Syria, fieldwork was carried out between March and June 2011. Interviewers were trained during separate training sessions for each region, with each training session lasting one day. The training included interview procedures, questionnaire review, and mock interviews. Supplemental training was done at the start of fieldwork and following supervisor review of initial completed interviews. The survey teams comprised 35 individuals, including interviewers, supervisors, and the office team. A total of 1,200 households were contacted for 800 successful interviews, with a rate of unsuccessful interviews of 8 percent. Average interview length was just under one hour. Interview teams encountered security problems in many villages, and they were required to secure approvals to be allowed to work in most villages. Four villages refused to participate in the survey. Other challenges included transportation and lack of roads to some remote villages. Supervisors reviewed completed questionnaires, accompanied interviewers on household visits (for 31 percent of the interviews), conducted debriefing sessions with interviewers, and conducted telephone-based data verification (for 24 percent of interviews).

In Yemen the survey took place between June 2011 and February 2012—with significant periods of non-activity due to violence in the areas where the survey was being implemented. The survey team consisted of 26 individuals, including 7 supervisors. The fieldwork teams faced a number of access-related obstacles, including difficult terrain and lack of transportation. Some respondents were reluctant to provide their names or the names and personal information of their

family members. Because of these and other challenges, participation refusal rates were at around 30 percent across both survey areas.

4. Qualitative Data Collection

Focus groups and semi-structured in-depth interviews were also implemented in the five countries for this study. Focus groups are a set of individuals that are selected and assembled to discuss a given topic of research from the perspective of personal experience. The conduct of focus groups is based on the assumption that: participants have a specific experience of or opinions about the topic under investigation. An explicit interview guide is used and the varied experiences of participants are explored in relation to a set of predetermined research questions.

Focus group research draws upon respondents' attitudes, sentiments, beliefs, experiences and reactions in ways that are not feasible using other methods – for example observation, one-to-one interviewing, or survey questionnaires. These attitudes, feelings and beliefs may be partially independent of the group's social setting, but the social and interactive environment provided by a focus group can help respondents articulate and further reflect upon views. Compared to individual interviews, which target individual attitudes and impressions, focus groups elicit an array of views and psychological processes in a group context.

The original intent was to conduct focus groups in the five countries. But as mentioned in the introduction, lack of security in Yemen made focus group recruitment difficult, and in n Algeria, focus group recruitment was hampered by local suspicion. In both countries, this led to a shift towards semi-structured in-depth interviews which provide similarly rich and textured information. In such interviews individuals engage in a discussion themselves and are posed open-ended questions not unlike the question-answer process in a focus group setting.

Focus groups and in-depth interviews can be used at either the preliminary stages of a study to inform other aspects of research. Or they may be used to confirm findings produced from other research methods, such as following a quantitative survey. In such a scenario, focus groups are useful as a confirmatory method that may valid certain hypotheses or assumptions about attitudes, emotional processes or understandings of concepts. In other words, they can help explain survey findings. Yet as with any method, focus groups and in-depth interviews are not without their limitations. First, neither method permits sweeping generalizations across entire populations. This is because focus group samples are not representative of large populations. Second, the moderator risks the loss of control over the direction and tenor of focus group discussion. Group interactions and dynamics are strongly influenced by the dialogue created by participants. Consequently, the moderator may have difficulty controlling the flow of discussion. Third, and related to the previous limitation, is the difficulty in drawing out and isolating individual viewpoints. Since focus group and interview participants speak in specific contexts, and within specific cultures, it may be difficult to clearly identify an individual attitude. Still, both approaches can also be used as an evaluative tool to assess reactions to policies and events and are also useful as points of departure for future research through generating hypotheses.

The qualitative fieldwork was conducted among adults 18 years of age and older in each country between November 2010 and February 2012. Implementation dates varied by country due to Arab Spring protests and government collapse which interrupted fieldwork in Egypt, Syria, and Yemen, starting in January 2011. Although the results do not appear to be seriously affected, there is some mention of concern about the security situation related to Arab Spring events among Egyptian focus group respondents. Results are based on the conduct of seven focus groups in Morocco, Egypt, and Syria, with each group comprised of six to eight

participants: four focus groups among urban migrants, who have relocated internally from rural areas; and three focus groups in each rural area among rural residents. The structure of the focus groups was determined by assumptions and hypotheses believed to be critical in informing respondent attitudes and their adaptation strategies. The rural and urban groups were comprised of both men and women, and the groups were divided by age, gender and socio-economic status. In Algeria and Yemen, as already mentioned, semi-structured interviews were conducted instead.

In order to accurately capture variation in attitudes, respondents were recruited from select areas referred to as rural or “sending areas” and urban or “receiving areas”. Rural or “sending areas” are often the source of internal migrants moving to cities, and were selected for this study based on their long-term physical exposure to environmental degradation and declining agriculture, as well as corollary trends of rural outmigration to other areas internal to countries. The rural areas were also the sites of household surveys mentioned in the previous section. In other words, the rural focus group sites in Algeria (M’Sila), Morocco (Lamzoudia), Egypt (Dakhalia), Syria (al-Hassakeh), and Yemen (Hudaydah) were chosen based on the extent of documented environmental degradation and of rural out-migration patterns. “Receiving areas”, by contrast, are urban areas that are common destination points for internal migrants seeking better opportunities. These were selected based on trends of rural to urban migration. In most cases, these areas were among the countries’ largest, most populous cities. Thus, in Algeria, Morocco, Egypt, Syria, and Yemen, the urban focus group sites were Algiers, Casablanca, Cairo, Damascus, and Sanaa. Table 6 provides more details on the qualitative research sites.

Respondents were randomly recruited door-to-door using a screening questionnaire that filtered for select demographic characteristics. For receiving areas, involvement in agricultural activity prior to migrating was a critical selection criterion for those recruited in urban neighborhoods. Migrants had to have come from households that relied solely on agriculture as the main source of income, and relocated to urban areas due to unfavorable agricultural conditions in their homes of origin within the last 10 years. All rural respondents in sending areas were selected based on the primacy of agriculture as the main source of economic activity. Respondents for in-depth interviews were also recruited similarly to focus group respondents.

Discussions in focus groups and in-depth interviews in urban areas were organized around nine questions, with probing for specific aspects or sub-question within each of the main nine question. The nine questions were as follows; (1) What would you say the biggest problem facing your household these days?; (2) As you know, some people who live in this area have relocated from other places. From where did you relocate?; (3) Why did you leave?; (4) Before you decided to move, what did you do to try to survive in your village?; (5) How dependent is/was your family on financial help from other family members living in other areas or abroad?; (6) When we choose to relocate to another area, we may relocate to a particular area based on certain factors. Why did you choose this town and neighborhood?; (7) Since you have relocated here what are the biggest problems or challenges you have faced?; (8) Are you aware of any government programs that are targeted for people who have relocated for the reasons you described?; and finally (9) Under what circumstances would you return to your previous home?

Table 6: Qualitative Research Sites

Egypt				
	Location	Social-economic status	Gender	Age
#1	Urban Cairo	D/E	F	25-35
#2	Urban Cairo	D/E	M	36-45
#3	Urban Cairo	C1/C2	F	36-45
#4	Urban Cairo	C1/C2	M	25-35
#5	Dakhalia	C1/C2	M	36-45
#6	Dakhalia	D/E	M	25-35
#7	Dakhalia	C1/C2	F	36-45
Fieldwork date: March 22-March 27, 2011				
Morocco				
	Location	Social-economic status	Gender	Age
#1	Casablanca	D/E	M	30-35
#2	Casablanca	D/E	M	40-45
#3	Casablanca	C1/C2	M	20-25
#4	Casablanca	C1/C2	F	20-25
#5	Lamzoudia	D/E	M	40-45
#6	Lamzoudia	D/E	F	30-35
#7**	Lamzoudia	D/E	M	30-35
Fieldwork date: November 22-November 25, 2010				
**Fieldwork date: February 10, 2011				
Syria				
	Location	Social-economic status	Gender	Age
#1	Al-Hassakeh	D/E	F	25-45
#2	Al-Hassakeh	D/E	M	25-45
#3	Al-Hassakeh	C1/C2	M	25-45
#4	Al-Hassakeh	C1/C2	M	25-45
#5	Damascus	D/E	F	25-45
#6	Damascus	D/E	M	25-45
#7	Damascus	D/E	M	25-45
Fieldwork date: August 17-August 20, 2011				
Algeria (Semi-Structured In-Depth Interviews)				
	Location	Social-economic status	Gender	Age
#1	Urban Algiers	C1/D	7M	25-35
	Urban Algiers	C1/D	13M	36-45
#2	Rural Djelfa	C1/D	15M	36-45
Fieldwork date: February 2012				
Yemen (Semi-Structured In-Depth Interviews)				
	Location	Social-economic status	Gender	Age
#1	Urban Sanaa	C/D/E	3M	25-35
	Urban Sanaa	C/D/E	7M	36-45
#2	Rural Hudaydah	D/E	3F	25-45
	Rural Hudaydah	C/E	7M	25-45
Fieldwork date: November 29-December 5, 2011				
Source: Authors.				

Similarly, the qualitative work in rural areas was organized around a core set of eight questions, and some probing within each. The questions were: (1) Thinking about where you live now, including the surrounding conditions, what would you say is the biggest problem facing your community today?; (2) Some people believe that this area has been affected by poor weather conditions, and by this, I mean drought, storms, or flooding. To what extent has this been a problem in your view? In what ways have poor weather conditions affected the daily life

of your household?; (3) How dependent is/was your family on financial help from other family members living in other areas or abroad?; (4) Sometimes, the weather is not very good and farming is difficult. What kinds of programs are you aware of that are intended to help you improve conditions in your community and for your household?; (5) Imagine a situation where there was a major flood or drought here and you were completely unable to earn an income from farming. What would the four things you would be most likely to do in order to survive?; (6) Some of you mention that you would move somewhere else in our country. To what town or city would you most likely move?; (7) Why would you move there?; and finally (8) Once you would have moved to this area, what would you do to earn a living and survive?

In addition to the focus groups or in-depth household interviews, interviews with key informants were also carried in each of the five countries. In each country, a dozen government officials were interviewed and a dozen additional respondents were contacted from various organizations, including universities, international organizations, and NGOs. For government officials, the questions asked were as follows: How important an issue is climate change – has it become more of a priority for your government?; Why has climate change become an important concern? Do you see climate change as a significant problem in the future?; How has environmental degradation affected rural populations in particular? What about urban areas that are attract rural migrants?; What are the challenges facing policy makers in dealing with climate change migration? What are the gaps in knowledge and resources?; What is the government doing about rural-urban migration? Is there any public assistance available to migrants and rural populations affected by environmental degradation? Can you please describe them to me?; What is the government planning to do?; What do you think is the level of public awareness about existing programs?; Why has it been difficult to address this issue?; If there are no programs, what kinds of programs would be most beneficial in your view?.

For non-governmental experts, the main questions were as follows: How has climate change affected this country? In your view, has it contributed significantly to environmental degradation? And how do you think climate change will affect the country in the future?; How has environmental degradation affected rural populations in particular? Do certain populations, such as women and girls, bear a greater burden?; What kinds of problems are you seeing?; Some people may choose to relocate to other areas as a coping mechanism. What is the profile of a typical migrant in this country? In other words what type of person migrates and why?; To where do people tend to migrate in this country and why?; Have these patterns and destinations changed over time to your knowledge?; What sorts of challenges do migrants face when they relocate from one place to another? What are the political, social, economic, health-related, and practical challenges that migrants face?; Not everyone is able to relocate. What would you say are the biggest obstacles to migration?; Many migrants face various kinds of environmental shocks, such as floods and or drought. These shocks often affect agricultural productivity and thus income and the very livelihood of households. How do migrants cope to these situations? What survival strategies do they adopt?; Is there any government assistance available to migrants and rural populations affected by environmental degradation?; Is there any non-government assistance available to migrant and rural populations affected by environmental degradation?; What do you think is the level of public awareness about existing programs?; And if there are no programs, what kinds of programs would be most beneficial in your view?

5. Conclusion

New data collection on perceptions of climate change and migration decisions was a key component of this study. This chapter has documented the process followed and the choices made for data collection, both quantitative and qualitative. The discussion of the data collection for the household surveys included a review of key questions in the survey questionnaire, as well as the sampling design and some of the challenges encountered during survey implementation. For qualitative data collection, we discussed the approach used in the various countries and its rationale, as well as the main questions that were asked not only in focus groups, but also in in-depth interviews, and in the interviews with key informants.

Perhaps the most important point to emphasize again in concluding this chapter is the fact that neither the household surveys, nor the focus groups and the other qualitative data are representative of the countries as a whole in which they were implemented, since they are only representative (or quasi-representative in some cases) of the areas selected for fieldwork. Yet the data are illustrative of the conditions prevailing in the five countries, and since these countries account for a large share of the population in the region, they are also illustrative for the region as a whole, or at least as much as they could be given constraints in the size of the samples.