



# HAZARD AND CLIMATE VULNERABILITY AND CAPACITY ASSESSMENT TOOLKIT

*The Afghanistan Resilience Consortium's Guide to Assessing  
Community Resilience and Vulnerability to Natural Hazards and  
Climate Change in Afghanistan*







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## Executive Summary

Afghanistan is a predominantly rural country where more than 80 percent of the population relies directly on the natural resource base to meet its daily needs. However, nearly four decades of conflict and environmental mismanagement have severely degraded the natural environment and reduced the resilience of rural communities to natural hazards and climate change.<sup>1</sup> In addition to conflict, many social and economic pressures, such as poverty, migration, unemployment, and land tenure practices, have pushed people to live in more hazard-prone areas, thereby increasing exposure and vulnerability. Moreover, Afghanistan's dependence on rain-fed agriculture, livestock herding, and dryland farming makes it extremely exposed to the adverse impacts of climate change, including increased temperatures, changes in precipitation patterns, and extreme weather events.

According to most global indices, Afghanistan is ranked as extremely vulnerable to natural hazards and climate change.<sup>2</sup> The humanitarian situation in Afghanistan is also among the worst in the world, with recent studies showing that more than 70 percent of the country's population has been displaced by conflict at least once in their lifetimes, and only 30 percent of the population is food secure.<sup>3</sup> Afghanistan's chronic needs are also compounded by periodic emergencies and natural hazards. Nearly half of the country's 398 districts are highly prone to natural hazards, and each year approximately 250,000 people are directly affected by natural hazards such as droughts, floods, landslides, avalanches, earthquakes and extreme weather.<sup>4</sup>

In the aftermath of a natural hazard, the provision of emergency aid to affected communities is essential to saving lives and addressing urgent humanitarian needs. However, preparatory actions taken before a natural hazard strikes can considerably reduce the negative impacts of such hazards on human life, property, and the environment. Such preparatory actions – globally referred to as disaster risk reduction (DRR) – include reducing exposure to natural hazards, reducing vulnerability of people and property, effective management of natural resources and the environment, and improving preparedness and early warning systems.<sup>5</sup> However, determining what preparatory DRR actions to employ requires a thorough understanding of the local context and how diverse actors and factors interact and can be mobilized to reduce vulnerability and exposure to natural hazards.

The following Hazard and Climate Vulnerability and Capacity Assessment (HCVCA) toolkit has been developed by the Afghanistan Resilience Consortium (ARC) based on our experience applying these community-based and participatory tools with more than 450 communities across eight of Afghanistan's most hazard-prone provinces. Our objective with sharing this toolkit is to provide development practitioners, community leaders, and decision-makers a framework for researching, analysing, and understanding the underlying causes of vulnerability to natural hazards and climate change in rural Afghanistan. Armed with this greater knowledge, it is hoped that a foundation for resilience-building activities can be established and concrete actions can be taken to better prepare rural Afghanistan's communities against natural hazards and the adverse impacts of climate change.

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1. UNEP. (2002). *Afghanistan Post-Conflict Environmental Impact Assessment*.

2. See DARA *Climate Vulnerability Monitor* (2012), *GermanWatch Global Climate Risk Index* (2013), and *Notre Dame Global Adaptation Index* (2014) for full details.

3. WFP. (2012). *Emergency Food Security and Livelihoods Survey*.

4. UN. (2013). *Afghanistan Common Humanitarian Action Plan 2013*.

5. UNISDR. (n.d.). *What is Disaster Risk Reduction?*

# 1

## INTRODUCTION



## Overview of Natural Hazards in Afghanistan

Every year, Afghanistan suffers from numerous floods, droughts, landslides, avalanches, earthquakes, and extreme temperatures. However, owing to Afghanistan's diverse geography – ranging from high mountains in the northeast to desert plains in the south – the distribution of these hazards is not uniform across the country, nor do they impact all people in the same ways. For these reasons, assessing vulnerability to natural hazards and climate change is best contextualized within local conditions, and benefits from participatory and inclusive research methods that allow local communities to vocalize their challenges and needs.

It is also worth noting the distinction between natural hazards and disasters, in order to highlight the human aspects of assessing vulnerabilities. Natural hazards are naturally occurring events that can have negative impacts on people or the environment, such as floods or severe storms. Disasters, however, are events that cause serious disruption to the functioning of a community that results in widespread damage and losses, and that exceed the ability of the affected communities to cope using their own resources.<sup>6</sup>

Thus, natural hazards can lead to disasters when there are people or assets in harm's way (exposure) and the effects of the hazard overwhelm the community's ability to cope with damages caused (vulnerability). Ultimately, the degree of a community's exposure and vulnerability determines the impact of a natural hazard, which can be mitigated through human actions to reduce the underlying causal factors of exposure and vulnerability.



Exposure can be minimized through effective planning and identification of high-risk areas, such as not building houses in flood plains or at the bottom of unstable hillsides. Vulnerability, however, is more complex and involves a variety of social, cultural, political, economic, physical and environmental factors. Thus, in order to address the underlying causes of vulnerability we must begin by understanding the complex interactions of these various factors, which can subsequently provide a rationale for proposing actions to build greater resilience to natural hazards and climate change.

In 2015, the ARC conducted a research activity across eight provinces<sup>7</sup> in order to determine the most prevalent natural hazards, as well as their impacts, the coping mechanisms employed by communities, and the underlying drivers of vulnerability. The following section summarizes the findings of this research, which informed the design and application of the vulnerability tools in this toolkit.

6. UNISDR. (2009). *2009 Terminology on Disaster Risk Reduction*.

7. Badakhshan, Balkh, Bamyan, Ghor, Jawzjan, Samangan, Sar-e Pul and Takhar.

- **Flood**

Across Afghanistan, seasonal and flash floods regularly cause fatalities, damage to property and infrastructure, destruction of agricultural crops and lands, death of livestock, and disruption of rural livelihoods. The impacts of these floods are often felt so severely because of high levels of exposure (having houses, lands, assets and infrastructure located in flood areas), environmental degradation (deforestation and rangeland degradation) that exacerbates the severity of floods, and lack of planning and insufficient infrastructure to mitigate the impacts of floods, including absence of floodways to direct water away from the community, retaining walls to reinforce structures against the impacts of floods, or effective early warning systems.

- **Drought**

Over recent decades, Afghanistan has endured several droughts that have impacted millions of people, reduced agricultural productivity, and undermined rural livelihoods. Particularly hard hit are the communities that rely upon rain-fed cultivation of grains and staple crops. While most of the impacts of drought are due to insufficient precipitation and access to water, additional key drivers are the mismanagement of water resources, lack of planning and preparedness, absence of water-harvesting and drought-resilient agriculture practices, and poverty. A degraded natural resource base in watershed areas, principally due to loss of trees, rangelands, and other vegetation, also inhibits groundwater recharge and puts greater pressure on aquifers and wells. With the impacts of climate change already beginning to be felt in Afghanistan, it is expected that droughts will increase in frequency and severity as a result of increased temperatures and changes to precipitation patterns that will impact the year-round availability of water.

- **Landslide**

Although landslides tend to have more localized impacts than other hazards, such as floods that can spread across multiple provinces at a time, they are nonetheless highly dangerous and destructive forces. As with floods, the impacts of landslides are often severe because of high levels of exposure by having houses, infrastructure, and agricultural and grazing lands located in vulnerable areas. In addition, environmental degradation is also a leading driver as deforestation, soil erosion, and land degradation are responsible for destabilizing hillsides and increasing the risk of landslides. Preparedness for landslides is also generally low at the school, community, and district levels, and only rarely are early warning systems for landslides installed or operational.

- **Avalanche**

In mountainous areas of the country, avalanches are a serious natural hazard that pose considerable threats to local communities and infrastructure. Moreover, the destruction caused by avalanches often extends well beyond mountainous areas, such as occurred in 2015 when avalanches in Panjshir led to hundreds of fatalities and severely damaged infrastructure, including vital power lines that disrupted power supply to Kabul for several weeks. As with the aforementioned hazards, community-level resilience to avalanches is generally very low due to the magnitude and timing of the event resulting in widespread damage to infrastructure, wintertime isolation and road closures, and lack of preparedness and early warning.

- **Earthquake**

Afghanistan is a seismically active country owing to its geological location along the Hindu Kush mountain range. Past earthquakes in Afghanistan have caused considerable destruction to buildings and infrastructure, frequently resulting in injuries and loss of life. Northern regions of the country, especially the far north-eastern provinces of Badakhshan and Takhar, are vulnerable to earthquakes. The impacts of earthquakes are further exacerbated by a lack of information, planning and early warning, the locations of buildings and structures, the timing of the event, isolation and accessibility, and a lack of resources for response and recovery.

- **Extreme Temperatures**

Extreme temperatures, meaning severely high temperatures in summer and severely low temperatures in winter, are natural hazards experienced across Afghanistan and occur because of the country's diverse geography and weather patterns. Moreover, with the growing impacts of climate change on seasonal weather patterns, the threats posed by extreme temperatures on rural livelihoods cannot be overstated.

Current climate change projections for Afghanistan suggest that over the coming decades the majority of the country will experience warming of approximately 2°C, with areas of higher elevation particularly hard hit. Extreme temperatures pose considerable threats to human health, particularly among the elderly, young, and infirm. Agricultural productivity and rural livelihoods are also vulnerable to the impacts of extreme temperatures on plant growth rates, which subsequently impacts income generation and food security among rural communities. In effect, changes to seasonal temperatures and weather patterns can greatly impact the natural environment and natural resource base that rural Afghanistan's communities rely upon for their subsistence and livelihoods.

## Overview of Climate Change Projections for Afghanistan

Climate change refers to alterations in the earth's atmosphere and environment that have long-term effects, such as climate warming, changes in precipitation levels, or increased frequency of extreme weather events at the global and regional levels. Changes to and fluctuations in the earth's climate are constantly happening as a result of natural processes, but since the Industrial Revolution, human activity has caused the earth's climate to enter a period of global warming. This global warming can largely be attributed to increased emissions of greenhouse gases (GHGs), such as carbon dioxide, that are released into the atmosphere when fossil fuels are burned.

In 2016, Afghanistan's National Environmental Protection Agency (NEPA) and UN Environment developed the most detailed and accurate climate change projections to date for Afghanistan, based upon currently available climate data and regional climate models from the Cordex experiment.<sup>8</sup> The climate change projections of these models are based on different GHG scenarios, known as Representative Concentration Pathways (RCPs).<sup>9</sup> Overall, the findings from these projections show a strong increase in mean annual temperature – considerably higher than global mean projections – compared to the baseline period of 1985–2006 (see Figure 1).

More specifically, the optimistic (RCP4.5) scenario shows Afghanistan warming approximately 1.5°C until 2050, followed by a period of stabilization and then additional warming of approximately 2.5°C until 2100. In contrast, the pessimistic (RCP8.5) scenario shows extreme warming across the whole country of approximately 3°C until 2050, with further warming by up to 7°C by 2100.

Under both scenarios there are regional differences, with higher temperature increases expected at higher altitudes than the lowlands. In the Central Highlands and the Hindu Kush, warming over a 30-year period in the near future (2021–2050) is projected to range from 1.5°C to 1.7°C compared to the base period (1976–2006), while in the lowlands the increase ranges from 1.1°C to 1.4°C. The band of uncertainty for these projections is approximately  $\pm 2^\circ\text{C}$ .<sup>10</sup>

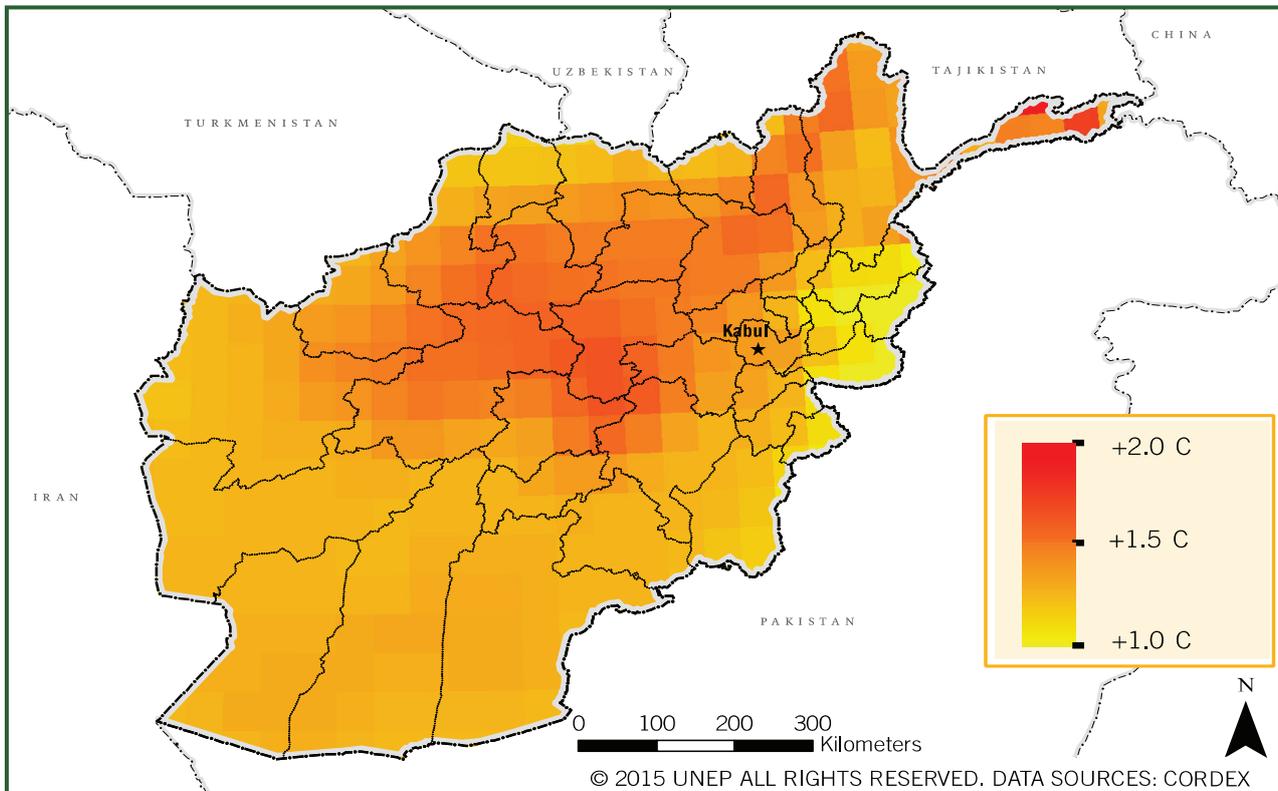
The model projections for precipitation, however, show a greater level of uncertainty and more distinct regional and seasonal differences. The mean of all models shows a significant ( $\alpha=0.05$ ) decrease of precipitation during springtime (March–May) for the North, the Central Highlands and the East from 2006 until 2050 between 5–10 percent. This decrease is offset by a slight increase of precipitation during autumn and wintertime (October–December) in these regions. For the Hindu Kush, the models show a significant and substantial increase in precipitation during the winter season of approximately 10 percent, whereas during the spring season precipitation is projected to stay stable. For the arid South, the models do not project significant trends for precipitation. In terms of changes to amount of annual rainfall, visual analysis of the scenarios does not reveal any significant change (see Figure 2).

8. Aich, V. & Khoshbeen, A.J. (2016). *Afghanistan: Climate Change Science Perspectives*.

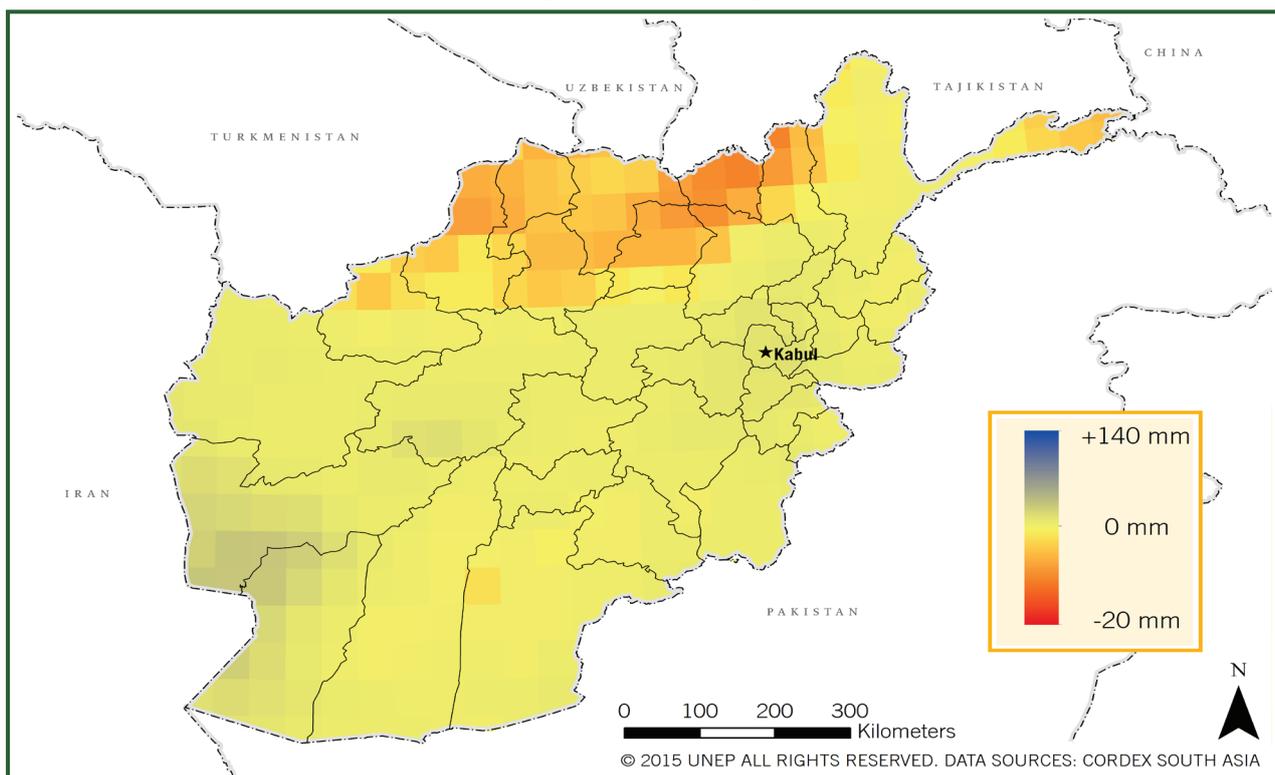
9. Representative concentration pathways (RCPs) are GHG emission scenarios adopted by the Intergovernmental Panel on Climate Change (IPCC) to describe four possible climate futures depending on the levels of future global GHGs emitted. There are four RCPs: 1) RCP2.6, which assumes that GHG emissions peak between 2010–2020 and then decline; 2) RCP4.5, which assumes that GHG emissions peak around 2040 and then decline; 3) RCP6, which assumes that GHG emissions peak around 2080 and then decline; and 4) RCP8.5, which assumes that GHGs emissions continue to rise throughout the 21st century.

10. Savage, M., et al. (2008). *Socio-economic Impacts of Climate Change in Afghanistan*.

**FIGURE 1.** Difference in mean annual temperature between the base period (1985-2006) and the near future period (2021-2050) using RCP 4.5. All grids of all models show a positive trend.



**FIGURE 2.** Difference of annual precipitation between the base period (1985-2006) and a near future period (2021-2050) as mean of eight different regional climate models for RCP 4.5.



Overall, the decrease of precipitation during springtime is particularly relevant since this is the period of main plant growth for agricultural production. In addition, this precipitation decrease is projected to take place in the regions with the highest agricultural productivity of Afghanistan (East, North, and Central Highlands). In combination with the overall increase in temperature and the related increase in evapotranspiration across the country, this will most likely have negative impacts on the hydrological cycle, agricultural productivity, and availability of water resources.

Based upon these climate change projections, it is evident that Afghanistan's environment will experience considerable change over the remainder of this century. Thus, it is imperative that climate change adaptation, based on sound scientific analysis of those changes and uncertainties, be integrated into sectoral planning to reduce the negative impacts of climate change in Afghanistan, increase resilience, and enhance adaptive capacity. This is particularly important in rural areas where communities rely on agricultural production as a primary means of subsistence and changes in the seasonality of precipitation may present further challenges for agricultural productivity and rural livelihoods.



## Assessing Vulnerability to Natural Hazards and Climate Change

Vulnerability is the result of complex interactions between social, cultural, political, economic, and environmental factors. Therefore, vulnerability assessments attempt to identify the underlying causes of vulnerability to natural hazards and climate change in order to propose solutions to increase resilience. Based upon the ARC's extensive experience working with local communities across Afghanistan, the following priority research areas have been identified for assessing vulnerability within the context of rural Afghanistan:

- Livelihoods and income generation
- Human capital
- Social capital
- Poverty
- Food security and nutrition
- Natural resources
- Infrastructure
- Preparedness and response
- Conflict and displacement
- Gender equity

The tools contained in this HCVCA toolkit have been designed in order to probe into these priority areas and identify the underlying causes of vulnerability to natural hazards and climate change. Collectively, these tools help paint a picture of a community's vulnerabilities, which provides the strategic foundation for the next step of selecting activities to building resilience to natural hazards and climate change (see Section 4: Data Analysis and Next Steps for further guidance on the ARC's approach to community-based disaster preparedness planning).

In the following section, we provide an overview of the ARCs approach to assessing vulnerability to natural hazards and climate change in Afghanistan, including a detailed description of methods and guiding principles, as well as a detailed overview of the data to be collected under each of the aforementioned priority areas. Across the entire toolkit, there is an emphasis on participatory research methods and analysis, which serves to both accurately document the vulnerabilities experienced by local communities as well as directly empower them through decision-making processes that raise the voices of the most vulnerable and marginalized groups.

# 2

## THE ARC'S APPROACH TO ASSESSING RESILIENCE AND VULNERABILITY TO NATURAL HAZARDS AND CLIMATE CHANGE



## Origin and Refinement of HCVCA Toolkit

This Hazard and Climate Vulnerability and Capacity Assessment (HCVCA) toolkit was originally developed in 2014 by ActionAid, Afghanaid and Concern Worldwide, and subsequently integrated into the ARC's core programme of work on community-based resilience. In 2017, the ARC further revised the HCVCA toolkit following an action research activity that harvested the best practices and lessons learned from its previous usage, which also led to the integration of a greater number of environmental and climatological factors into the toolkit. These include the refinement of the seasonality calendar and a greater emphasis on community members' observations and perceptions of change in weather patterns, environmental conditions, and natural resource management.

In its current form, the HCVCA toolkit's objective is to identify the underlying causes of community-level vulnerabilities to natural hazards and climate change, in order to provide the basis for selecting and implementing community-based activities to build resilience. In doing so, this toolkit also aims to bring together diverse community stakeholders to promote greater understanding of the links between environmental degradation, socio-economic conditions, and resilience to hazards and climate change. Moreover, as the HCVCA toolkit is concerned with conditions at the community level, and recognizing the diversity within communities, the majority of its research methods aim to harvest experiences and perceptions from a wide cross section of people and groups within the community.

## Guiding Principles

The HCVCA toolkit is designed to be a participatory exercise and a community empowerment tool rather than simply an information collection process. Thus, it is through the HCVCA toolkit that community members come together to discuss and analyse various dimensions of their community, including their resources and capacities, to identify the underlying root causes of their vulnerabilities to natural hazards and climate change. In order for this process to be as fruitful as possible, it is essential that as many diverse groups and individuals participate and make their voices, conditions, and needs heard. With this in mind, the ARC adheres to the following guiding principles when administering the HCVCA toolkit.

- **Respect**  
Communities are always respected, both as individuals and collectively in their customs, practices, and beliefs.
- **Participation and Equality**  
Everyone's voice is equal, not just the loudest or most common, and often the quietest voices are the most vulnerable and marginalized.

- **Words, Not Just Numbers**

There are different sides to every story, and not every experience is lived or remembered the same way by different people. Rather than trying to simply document facts and figures, the goal of the HCVCA toolkit is to understand the complex ways that people interact with each other and their surroundings in order to identify the underlying causes of vulnerability.

- **Local Knowledge**

Most community members have a lifetime of memories from their area, which translates into deep knowledge about local conditions. This local knowledge is respected and treated as complementary to any technical expertise provided by external audiences or sources.

## Methodology

The research methods used in the HCVCA toolkit aim to both harvest data about vulnerabilities to natural hazards and climate change, as well as promote community engagement and encourage people to collectively take action to build resilience. It is precisely through this engagement that communities can increase their knowledge and understanding of the threats posed by natural hazards and climate change, and thus make better decisions and take actions that increase their resilience. Leading this process is more complex than simply administering a survey questionnaire, and often takes the following forms:

- **Focus Group Discussions**

Focus Group Discussions bring together community members to openly discuss local conditions, identify challenges, and find opportunities for building resilience and adaptive capacity. Focus group discussions are the primary research method employed in this toolkit, used in the various mapping tools, as well as the Seasonal Calendar and Timeline and Trend Analysis.

- **Semi-structured Interviews**

Semi-structured interviews are conducted with key informants who have broad knowledge about the history of the community and its resources, and are therefore able to provide a greater depth of information on specific topics. In applying semi-structured interviews, topics are chosen before the interview begins but actual questions are developed during the interview as an adaptive process which allows the interviewer to engage constructively with the informant. Questions should be precise and easy to understand; leading questions should not be used while conducting interviews.

- **Iteration**

Iteration is a technique where the same question is repeatedly asked in different contexts for confirming the answers provided. This provides a high payoff in terms of the quality and depth of the answer, but requires a high level of skill from the facilitator to continuously reformulate questions throughout the period of the discussion.

- **Probing**

Probing is a way of asking for further clarification and for encouraging the discussion participants to answer more fully and accurately. Furthermore, it also helps to structure the respondent's answers and make sure that all topics of interest are covered.

Interviewers or facilitators can ask probing questions at any stage, and frequently rely on the question words "who," "what," "where," "when," "why," and "how" to help gain greater clarity.

- **Participant Observation**

Participant observation requires the facilitator to become a partial participant in the activity, which provides entry points for further observation and research. For example, in conducting the transect walk, the facilitator joins the community members in walking through the community to observe key features and engage in conversation that helps ground truth the information collected via the community mapping exercises and other focus group discussions.

- **Sharing and Feedback**

In keeping with the participatory spirit of the HCVCA toolkit, it is important that community members are provided access to the information collected and allowed to voice their opinions about its content. This also requires the facilitators to document their field notes daily in order to ensure that information is recorded accurately and in a timely manner.

## Key Questions Under Priority Areas

The ARC's identification of priority research areas helps provide a framework to analyse the complex nature of vulnerability to hazards and climate change. Under each of these priority areas, the ARC has also identified a handful of key questions to consider broadly when investigating the underlying causes of vulnerability in rural Afghanistan's communities. These questions are not exhaustive and may not always be applicable in every context; however, their inclusion here serves to contextualize the key issues and research objectives for each priority area. At a practical level, the tools in this toolkit will provide they means to harvesting data, as well as mobilizing community knowledge and skills, to try and answer these key questions directed at identifying the underlying issues and causes of vulnerability.

Priority Area	Description	Key Questions	Relevant Tool(s)
<b>Livelihoods and income generation</b>	A greater diversity of livelihoods increases sources of income generation and resilience to a larger number of natural hazards and climate change.	<ul style="list-style-type: none"> <li>• What are the most common or significant modes of production and income generation?</li> <li>• How many different kinds of livelihoods are there in the community?</li> <li>• How much competition is there over natural resources? Does it change over time?</li> <li>• What livelihood changes have occurred over recent years? Over recent decades?</li> </ul>	<ul style="list-style-type: none"> <li>• Community Social Mapping</li> <li>• Natural Resource and Livelihood Mapping</li> <li>• Timeline and Trend Analysis</li> <li>• Seasonal Calendar</li> </ul>
<b>Human capital</b>	Low levels of education, literacy, and skills impact income-earning opportunities and employability.	<ul style="list-style-type: none"> <li>• What education infrastructure is present and available to the community?</li> <li>• What is the level of knowledge of hazards and climate change in the community?</li> <li>• Do individuals/households have secondary skills they can rely upon for income generation if their primary source is disrupted?</li> <li>• To what extent is entrepreneurship present in the community?</li> </ul>	<ul style="list-style-type: none"> <li>• Community Social Mapping</li> <li>• Hazard and Vulnerability Mapping</li> <li>• Natural Resource and Livelihood Mapping</li> </ul>

<b>Social capital</b>	The socio-cultural networks and resources that people draw upon in daily life and for livelihoods.	<ul style="list-style-type: none"> <li>• Are there community-based organizations that can assist people in times of need?</li> <li>• Are there relatives or neighbours that can be relied upon for assistance in times of need?</li> <li>• How fragile/resilient are socio-cultural networks in times of need? How do social ties, trust, equity and leadership change or adapt?</li> <li>• What changes have occurred in terms of community attitudes, perceptions of risk, identity, beliefs, norms, and values?</li> </ul>	<ul style="list-style-type: none"> <li>• Community Social Mapping</li> <li>• Institution Mapping</li> </ul>
<b>Poverty</b>	Lower household income and less financial assets limits the opportunities to respond and adapt when hazards strike.	<ul style="list-style-type: none"> <li>• How much income is saved or spent on household needs?</li> <li>• How evenly are financial assets spread across the community?</li> <li>• Which households and individuals are the most poor and have the least amount of financial assets?</li> <li>• How do coping strategies differ according to levels of savings and access to financial assets?</li> <li>• Have poverty levels changed over recent years or decades? Are the people affected today the same as in the past?</li> <li>• Which livelihoods and groups of people have the most and least income/resources?</li> </ul>	<ul style="list-style-type: none"> <li>• Community Social Mapping</li> <li>• Hazard and Vulnerability Mapping</li> <li>• Natural Resource and Livelihood Mapping</li> </ul>
<b>Food security and nutrition</b>	Access to a sufficient quantity of food and a nutritionally valuable diet are essential to ensure good health.	<ul style="list-style-type: none"> <li>• How do households get their food? Do they produce their own for subsistence, or buy, or barter?</li> <li>• How nutritionally diverse is the diet? Does this differ across age or gender?</li> <li>• What are the levels of childhood malnutrition?</li> <li>• Are there any major nutrition-related health issues faced by the community?</li> <li>• How have agricultural productivity, food availability, or nutrition changed in recent years? Over recent decades?</li> </ul>	<ul style="list-style-type: none"> <li>• Natural Resource and Livelihood Mapping</li> <li>• Seasonal Calendar</li> </ul>

<p><b>Natural resources</b></p>	<p>Healthy ecosystems and abundant natural resources (forests, rivers, rangelands, etc.) help absorb the shocks of natural hazards and provide the foundation for rural livelihood resilience to climate change.</p>	<ul style="list-style-type: none"> <li>• Which natural resources are most valued by community members, and why? Is it the same for men and women?</li> <li>• Which natural resources are the most degraded?</li> <li>• Which natural resources are protected by the community?</li> <li>• How has the natural resource base changed over recent years? Over recent decades? How are these changes perceived?</li> <li>• What climatic changes have been observed in recent years? Over recent decades? How are these changes perceived?</li> <li>• Which natural resources would the community like to see restored or expanded for ecosystem services purposes?</li> </ul>	<ul style="list-style-type: none"> <li>• Natural Resource and Livelihood Mapping</li> <li>• Timeline and Trend Analysis</li> <li>• Seasonal Calendar</li> </ul>
<p><b>Infrastructure</b></p>	<p>The absence and poor quality of transportation, water, and sanitation infrastructure undermine community and household resilience to natural hazards.</p>	<ul style="list-style-type: none"> <li>• Is there basic infrastructure? Roads, bridged, clean water access, waste facilities?</li> <li>• Is there regular and stable access to products and services in the community?</li> <li>• Is there access to markets or basic services in nearby areas?</li> <li>• Are there exit routes and emergency facilities available in times of crises?</li> <li>• In the past, how has infrastructure been damaged by natural hazards? If its rebuilt, who is responsible for that?</li> </ul>	<ul style="list-style-type: none"> <li>• Community Social Mapping</li> <li>• Hazard and Vulnerability Mapping</li> </ul>
<p><b>Preparedness and response</b></p>	<p>If households and communities are unprepared for natural hazards and climate change, they fail to take preventative measures that could reduce their impacts</p>	<ul style="list-style-type: none"> <li>• Are there EWS in the community? For what hazards?</li> <li>• Are there plans for emergency response in the community? For what hazards?</li> <li>• Are preventative measures being taken for the anticipated impacts of climate change, especially precipitation and temperature changes?</li> <li>• Are all households equally prepared for hazards? Are there differences according to livelihood, poverty, age, or gender?</li> <li>• What institutions are involved and/or responsible for providing support before, during, and after a natural hazard strikes?</li> </ul>	<ul style="list-style-type: none"> <li>• Hazard Ranking</li> <li>• Hazard and Vulnerability Mapping</li> <li>• Institution Mapping</li> </ul>

<b>Conflict and displacement</b>	Conflict and insecurity are the largest drivers of displacement, which contributes to vulnerability by uprooting households and communities, undermining their sources of income, and reducing their access to resources and services.	<ul style="list-style-type: none"> <li>• How have conflict/displacement affected the community? Has it suffered direct conflict? Have households fled to other locations? Has it received displaced households? Etc.?</li> <li>• How have conflict/displacement affected the allocation, management, and use of natural resources?</li> <li>• How have conflict/displacement affected income generation, human and social capital?</li> <li>• How do households cope with the impacts of conflict/displacement?</li> <li>• Who are the most greatly affected by conflict/displacement? Are differences with age, ethnicity, gender, etc.? Why?</li> </ul>	<ul style="list-style-type: none"> <li>• Community Social Mapping</li> <li>• Hazard and Vulnerability Mapping</li> <li>• Natural Resource and Livelihood Mapping</li> </ul>
<b>Gender equity</b>	Women in Afghanistan have less access to livelihoods and income generation, lower mobility, are less educated and more illiterate, have less access to resources and services, are considerably food insecure, and face severe maternal health issues. <sup>11</sup>	<ul style="list-style-type: none"> <li>• How are men and women involved in decision-making at the community and household levels?</li> <li>• What is the division of work between men and women in the household, agriculture, and community?</li> <li>• Do men and women have equal access to natural resources and income earning opportunities?</li> <li>• Does the community identify any gender aspects to preparedness and response to natural hazards and climate change?</li> <li>• What are the biggest difficulties men and women are facing today? How has this changed in recent years or decades?</li> </ul>	<ul style="list-style-type: none"> <li>• Community Social Mapping</li> <li>• Hazard and Vulnerability Mapping</li> <li>• Natural Resource and Livelihood Mapping</li> </ul>

11. Huber, M. (2015). *Afghanistan Gender Equality Report Card: Evaluating the Government of Afghanistan's Commitments to Women and Gender Equality*.

# 3

## RESEARCH METHODS AND TOOLS



The following section contains the tools used by the ARC when conducting assessments of community-level vulnerability to natural hazards and climate change. The tools are presented here as a complete package, but – recognizing the often different and changing needs of stakeholders and practitioners – each tool has been packaged individually to allow mixing and matching, and thus create a customizable vulnerability assessment exercise.

#	TOOL NAME	TOOL DESCRIPTION
1	<b>Vision Mapping</b>	Introductory activity that leads the community to describe their current situation, conceptualize a better future, and propose actions to reach it.
2	<b>Hazard Ranking</b>	Community-based identification and ranking of all natural hazards from most to least disruptive to community life.
3	<b>Community Social Mapping</b>	Provides an overview of the community geography, resources, and infrastructure, as well as insight into decision-making processes.
4	<b>Hazard and Vulnerability Mapping</b>	Identifies the locations where natural hazards strike, and the areas, persons, and assets most at risk and vulnerable to the impacts of natural hazards in the community.
5	<b>Natural Resource and Livelihood Mapping</b>	Identifies community livelihoods, and the natural resources used in pursuit of these livelihoods, in order to understand local use patterns, provision of ecosystem services, and natural resource management practices.
6	<b>Seasonal Calendar</b>	Documents seasonal variation of factors linked to livelihoods, natural hazards, climate change.
7	<b>Timeline and Trend Analysis</b>	Documents changes in frequency, severity or impact of natural hazards and climate change across the lifetime of community members.
8	<b>Institutional Mapping</b>	Identifies the roles of various institutions inside and outside the community, as well as the relationships between them vis-à-vis preparedness, planning, and response to natural hazards and climate change.
9	<b>Transect Walk</b>	Direct observation that documents the landscape features, structures, and resources along a given transect walked thru the community.

However, regardless of how these tools are combined, the ARC recommends that the following steps are taken before, during, and after the HCVCA exercise in order to streamline the application of each tool, improve research results, and provide greater value to the local community.

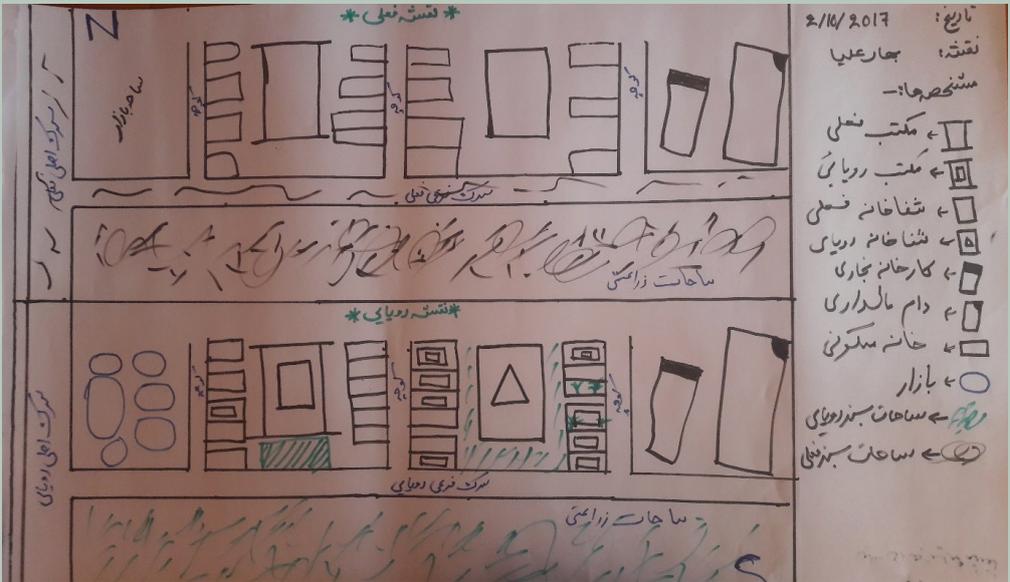
BEFORE	DURING	AFTER
<p><b>Situational awareness:</b> conduct background research of the issues and location.</p> <p><b>Planning:</b> review priority areas and key questions to ensure HCVCA tools selected are appropriate; if not, modify as needed.</p> <p><b>Preparation:</b> visit the community to open lines of communication, explain the HCVCA process, and obtain permission for conducting the HCVCA assessment.</p>	<p><b>Rapport-building:</b> communicate respectfully, be open about your activities, show genuine interest in local issues, and be respectful and appreciative of people’s time, energy, and knowledge.</p> <p><b>Maintaining protocols:</b> establish protocols and rules to keep the HCVCA process on track.</p> <p><b>Tool-wise reporting:</b> timely and accurate reporting of outputs and discussions for each tool ensures no information is lost or forgotten.</p>	<p><b>Review:</b> the overall HCVCA process to ensure that all research is collected and collated</p> <p><b>Analyse:</b> compile the results from the HCVCA tools and document salient information in a final report to provide a structured framework for next steps in resilience-building activities.</p> <p><b>Share:</b> copies of all documents with community and organize a wrap-up session to present findings, open dialogue, and accept feedback.</p>



## INTRODUCTION AND VISION MAPPING

<b>OBJECTIVE</b>	Community members conceptualize the future they want for themselves as a first step towards identifying vulnerabilities to natural hazards and climate change.
<b>TIME</b>	1 hour
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Flipchart paper</li> <li>• Coloured markers</li> <li>• Notecards and coloured paper</li> <li>• Scissors</li> <li>• Glue and/or tape</li> </ul>
<b>OVERVIEW</b>	This exercise serves as an introductory icebreaker with community members and initiates: 1) a process of self-assessment, 2) preliminary discussion of current vulnerabilities to natural hazards and climate change, and 3) conceptualization of what a more resilient future could look like for the community, for example in 5, 10 or 20 years. It is ultimately this vision for the future that provides a goal and timeline along which community members can identify the improvements they would like to bring about in order to reduce vulnerabilities and increase resilience to natural hazards and climate change.
<b>PROCESS</b>	<p>Step 1: As this is the first exercise with the community, begin with a round of greetings and overview of what the HCVCA process will entail, and provide some extra details about the Vision Mapping tool.</p> <p>Step 2: To begin the Vision Mapping, divide community members into groups of 4-6 persons and ask them to brainstorm a vision for what their “dream community” would look like in the near future, e.g. in 5, 10 or 20 years. If needed, refer to Discussion Questions below to encourage group thinking.</p> <p>Step 3: Provide groups with pens, paper, markers, cards, scissors, glue, tape, and any other materials needed so that they can document their dream community using words, drawing, or a combination of both.</p> <p>Step 4: Facilitator (and co-facilitators) move from group to group to ensure that everyone is participating and the group is being creative in their conceptualization and depiction of their dream community.</p> <p>Step 5: Once all groups have completed their task, have them present back to everyone what their vision is for a dream community of the future.</p> <p>Step 6: Display the products of each group on a nearby wall to serve as a reminder of the community’s vision for the future as the group completes the next tools in the HCVCA toolkit.</p>

<p><b>DISCUSSION QUESTIONS</b></p>	<ul style="list-style-type: none"> <li>• What makes your community a good place to live?</li> <li>• What makes your community special or different from other neighbouring communities?</li> <li>• Does your community face any challenges or difficulties? What are the reasons for these?</li> <li>• How have things changed in your community over the past 5, 10 or 20 years?</li> <li>• What changes would you like to see in your community over the next 5, 10 or 20 years?</li> <li>• What might you change in your community to make it better for your children and the next generation?</li> </ul>
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<p><b>OUTPUT(S)</b></p>	<p>The community's vision for a resilient future that identifies the changes and improvements they would like to see over the coming 5, 10 or 20 years.</p>  <p>The image shows a hand-drawn map of a community layout with various buildings and areas. The map is divided into sections with labels in Persian. A legend on the right side lists various community facilities with corresponding symbols:         <ul style="list-style-type: none"> <li>مکتب فعلی (Current school)</li> <li>مکتب رویایی (Dream school)</li> <li>شفاخانه فعلی (Current clinic)</li> <li>شفاخانه رویایی (Dream clinic)</li> <li>کارخانه تجاری (Commercial factory)</li> <li>دام مالداران (Farmers' house)</li> <li>خانه مسکونی (Residential house)</li> <li>بازار (Market)</li> <li>مساحات سبز رویایی (Dream green spaces)</li> <li>مساحات سبز فعلی (Current green spaces)</li> </ul>         The map includes a north arrow and a date '2/14/2017'. The text 'نقشه: بهار علیا' (Map: Behar Aliya) and 'مبتکران: -' (Inventors: -) are also present. The map shows a transition from a current state to a 'dream' state with more green spaces and improved infrastructure.</p>
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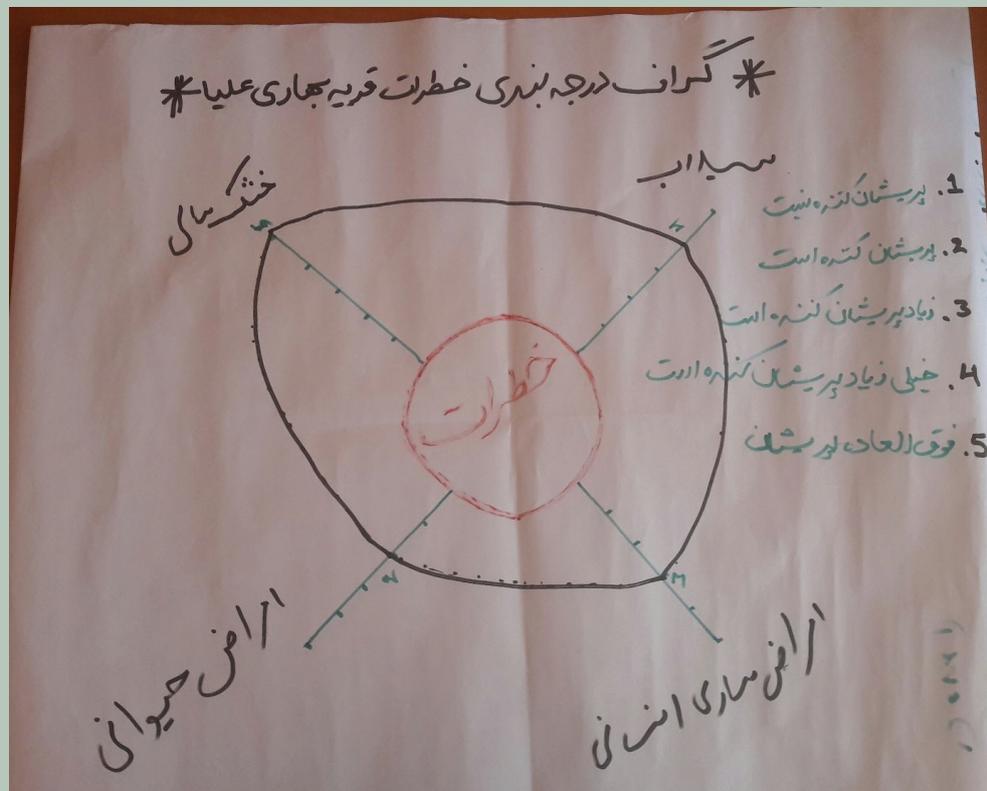
## HAZARD RANKING

<b>OBJECTIVE</b>	To identify the natural hazards that exist in the community and rank them according to the levels of disruptive impact they have on community life.
<b>TIME</b>	1 hour
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Flipchart paper</li> <li>• Coloured marker pens</li> <li>• Place markers (stones, chips, game pieces, etc.)</li> </ul>
<b>OVERVIEW</b>	The Hazard Ranking tool builds off the Vision Map exercise to identify the natural hazards that pose the greatest risks to community life today, and the attainment of the community's vision for a resilient and prosperous future. In addition, a climatological angle is integrated here by pursuing a research focus that tracks changes in existence, frequency, and severity of natural hazards over recent decades.
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of the exercise and setting up the materials for ranking the natural hazards.</p> <p>Step 2: Ask participants to begin by listing all the hazards that occur in their community.</p> <p>Step 3: Once all hazards are listed, the facilitator draws a spider chart on a flipchart paper, with 4 concentric circles and the names of each natural hazard spaced evenly along the outside circle.</p> <p>Step 4: Next, lay the spider chart on the ground. Give the participants 1 place marker for each natural hazard they identified and ask them to rank the hazards on a scale of 1-5 according to the degree to which they are disruptive to life in the community, by placing the place marker along the spider chart:</p> <ul style="list-style-type: none"> <li>1= not disruptive</li> <li>2= slightly disruptive</li> <li>3= moderately disruptive,</li> <li>4= highly disruptive</li> <li>5= extremely disruptive</li> </ul> <p>Step 5: Once all natural hazards have been ranked, ask the participants to reflect on any changes in the frequency, severity, and impact of these natural hazards today as compared to the past 20, 30 or 40 years. This will help identify the ways in which climate change is impacting the occurrence of natural hazards in the community, and provide preliminary observations on climatological impacts on exposure and vulnerability.</p> <p>Step 6: Thank all participants for their time and contributions.</p>

## DISCUSSION QUESTIONS

- Which natural hazards are the most common? Which are least common?
- Which natural hazards are the most damaging, dangerous, and disruptive?
- Are all households equally affected by hazards? Are there differences according to livelihood, poverty, age, or gender?
- Are all households equally prepared for hazards? Are there differences according to livelihood, poverty, age, or gender?
- Are there early warning systems (EWS) in your community? For what hazards?
- Have natural hazards changed at all over the last 20, 30 or 40 years? If so, specify in terms of frequency, severity, or impact.

## OUTPUT(S)



See "Annex 1: Hazard Ranking Reporting Template" for tool-wise reporting guidance.

## COMMUNITY SOCIAL MAPPING

<b>OBJECTIVE</b>	To take a snapshot of the community and better understand its geographic layout, provision and existence of basic services, access to infrastructure, and the dynamics of inclusion/exclusion from development planning and decision-making.
<b>TIME</b>	2-3 hours
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Flipchart paper</li> <li>• Coloured markers</li> </ul>
<b>OVERVIEW</b>	<p>Using local materials, the participants draw or model current or historical conditions of their community. The facilitator then interviews the participants by “interviewing the map,” in other words asking questions about the existence and location of features on the map. This technique can be used to show farms, home gardens, residential areas, soils, forests, water sources, wealth rankings, household assets, land-use patterns, changes in farming practices, constraints, trends, health and welfare conditions, vulnerability and the distribution of various resources.</p> <p>In addition, this Community Social Map can serve as a base map upon which later mapping tools (Hazard and Vulnerability, Natural Resource and Capacity, etc.) can be layered in order to reduce time and simplify the process by not requiring that a brand new map be created for each tool. If the Community Social Map is used as a base map, be sure to have appropriate materials available for use, such as large sheets of paper and coloured markers to clearly and boldly document the features of the community, as well as sheets of plastic or tracing paper that can be layered on top for use in the next mapping tools.</p>
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of this exercise (see above), and select an appropriate location for putting the map together (somewhere with a lot of floor/wall space for spreading flip chart paper, etc.). Make sure that the space is large enough and accessible to everyone that wants to participate. If the exercise is organized outside, ensure that there is sufficient shade and seating areas.</p> <p>Step 2: Ask participants to start drawing prominent places and key landmarks of their community, such as mosques, roads, schools, clinics, etc. Allow the participants to be creative and choose their own symbols and designs for these landmarks to start giving the map the unique flavour of the community.</p> <p>Step 3: Next, ask participants to identify the common areas in their community, like bazaars, social areas, cemeteries, etc.</p> <p>Step 4: Ask participants to identify where there are households and other shelter structures in their community. Next, ask participants to identify where marginalized or disadvantaged households live, in order to begin gauging the social dynamics and distribution of land and other resources in the community.</p> <p>Step 5: Ask participants to identify the existence of basic services, their locations, as well as the status of their provision. For example, clinics, government offices, community centres, etc.</p> <p>Step 6: Once all major features of the community are mapped and participants are satisfied with their map, engage with the group with some probing questions about changes and developments in the community over recent years. For example, inquire about the origin of communal spaces and how they're managed today as compared to in years past, etc.</p> <p>Step 7: Thank all participants for their time and contributions.</p>

**DISCUSSION  
QUESTIONS**

- What are the social structures and institutions found in the community?
- Are there community-based organizations that assist people in times of need?
- Do people rely on relatives or neighbours or other groups in times of need?
- What is the extent of support that can be provided or expected from these socio-cultural networks? Has this changed over recent years or decades?
- How fragile/resilient are these socio-cultural networks in times of need?
- What education opportunities are present and available in the community?
- Is there basic infrastructure? Roads, bridged, clean water access, waste facilities?
- Is there regular and stable access to products, markets, and services in the community? If not, are there in nearby areas?
- Do people travel to any other neighbouring communities to access services?
- How have conflict/displacement affected the community? Has it suffered direct conflict? Have households fled to other locations? Has it received displaced households?
- How have conflict/displacement affected income, human and social capital?
- How are men and women involved in decision-making at the community and household levels?
- Are there differences between the services, institutions, and access between men and women in the community?
- How many households have secondary skills they can rely upon for income generation if their primary source is disrupted?
- How evenly or equitably are assets and wealth spread across the community?

**OUTPUT(S)**

A detailed mapping of the community's structure, assets, resources, and livelihood patterns, including:

- Elements of social and economic infrastructure (roads, bridges, schools, health clinics, places of worship, community centres, electricity poles, solar power, hand pumps, wells, shops, ration shops, etc.) in the community.
- Status of social and economic infrastructure (gravel roads, broken roads, good roads, culverts or iron bridges etc.) in the community.
- Habitation pattern of the people, such as houses, kinds of houses (concrete houses, mud houses) as well as concentration of particular class or kind of people (like vocational centre, blacksmiths, etc.) across the community.



See “Annex 2: Community Social Map Reporting Template” for reporting guidance.

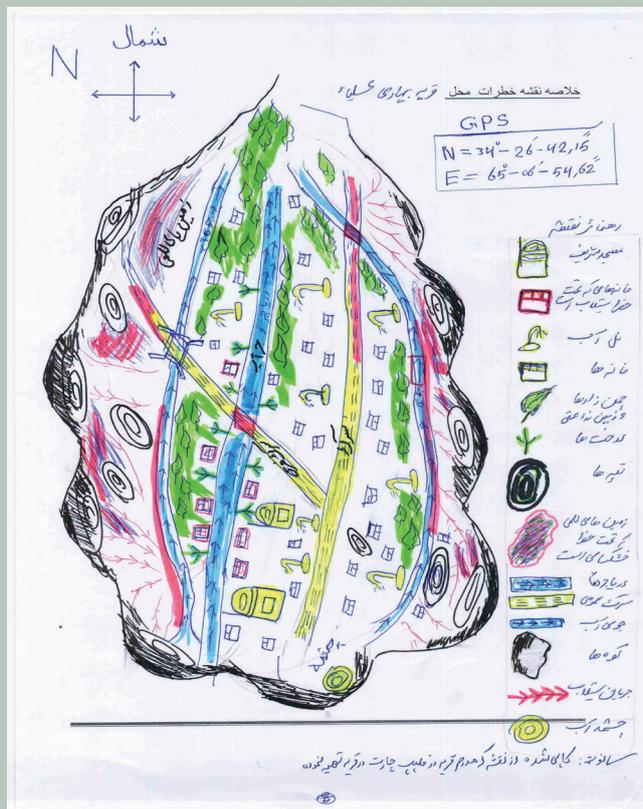
## HAZARD AND VULNERABILITY MAPPING

<b>OBJECTIVE</b>	To identify the natural hazards that exist in the community, the people they impact, and the places and assets that are affected, in order to identify the underlying drivers of exposure and vulnerability.
<b>TIME</b>	1 hour
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Large sheets of paper, preferably translucent or tracing paper</li> <li>• Coloured markers</li> </ul>
<b>OVERVIEW</b>	The Hazard and Vulnerability Mapping tool builds off the foundations of the Community Social Mapping and Hazard Ranking tools to identify the locations, people, and assets that are impacted by natural hazards. In addition, a climatological angle is integrated here by pursuing a research focus that tracks changes in existence, frequency, and severity of natural hazards over recent decades.
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of the exercise and setting up the materials for drawing the map.*</p> <p>Step 2: Using the list of natural hazards produced in the Hazard Ranking exercise, the facilitator goes one-by-one through each natural hazard and asks participants to identify and draw on the map: 1) where they take place, 2) which areas are impacted, 3) which households are impacted, 4) which assets are impacted, and 5) any changes that have occurred in the past 20-30 years in terms of frequency or severity of the hazard.</p> <p>Step 4: The facilitator continues asking these five questions for each natural hazard until participants complete mapping for all hazards on top of the Community Social Map. Make sure that there is thorough discussion on infrastructure and resources, such as roads, houses, bridges, schools, clinics, micro hydropower, mosques, flourmills, markets, irrigation canals, agriculture land, forest land, rangeland, soil, etc.</p> <p>Step 5: Once all mapping is complete, ask participants to brainstorm on the similarities and differences between the impacts of different hazards, using the Discussion Questions below.</p> <p>Step 6: As participants discuss, ask them to mark on the map areas where the most vulnerable households, assets, and natural resources are located, to help identify those areas of the community that are most exposed to the natural hazards.</p> <p>Step 7: At this point, basic facts about exposure and vulnerability to natural hazards should be identified in the community, namely which persons, assets, and resources are most or least in harm's way. In order to bring in a climatological angle, engage the participants in a probing discussion on observed changes in the frequency, severity, and impacts of the relevant natural hazards over recent decades, e.g. 20, 30 or 40 years. These observations should be documented in a narrative format which can then be compared to climate change models and projections to ground-truth the potential future impacts of climate change on the community.</p> <p>Step 8: Thank all participants for their time and contributions.</p> <p><i>*Tip: to save time, use sheets of transparent paper or plastic to lay over the Community Social Map to avoid re-drawing the physical layout of the community.</i></p>

**DISCUSSION QUESTIONS**

- Which areas, people, assets, and infrastructure are most impacted by natural hazards?
- What factors increase the community's exposure to natural hazards?
- What factors reduce the community's ability to cope with natural hazards?
- How do socio-economic factors contribute to increasing or decreasing vulnerability? (e.g., poverty, education, employment, natural resource management, etc.)
- Have natural hazards changed at all over the last 20-30 years? If so, specify in terms of frequency, severity, seasonality, or impact.
- How are people warned about potential natural hazards? What do people do to prepare for a natural hazard?
- Are there plans for emergency response in the community? For what hazards?
- Are there safe places or shelters where to seek refuge when a natural hazard strikes?
- Which households and individuals are the most poor and with the least amount of financial assets?
- How do coping strategies differ according to financial factors?
- Have poverty levels changed over recent years or decades? Are the people affected today the same as in the past?
- What are the gender aspects of impacts of natural hazards and climate change? Are men and women equally affected by natural hazards and climate change?
- What are the gender aspects of preparedness and response to natural hazards and climate change? Do men and women prepare and respond equally?
- Are preventative measures being taken for the anticipated impacts of climate change, especially precipitation and temperature changes?
- In the past, how has infrastructure been damaged by natural hazards? If its rebuilt, who is responsible for that?

**OUTPUT(S)**



See “Annex 3: Hazard and Vulnerability Map Reporting Template” for tool-wise reporting guidance.

## NATURAL RESOURCE AND LIVELIHOOD MAPPING

<b>OBJECTIVE</b>	To identify the natural resources and modes of production utilized by a community in order to identify the ecosystem services that are relied upon before and after a natural hazard strikes.
<b>TIME</b>	1 hour
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Flipchart paper</li> <li>• Large sheets of paper, preferably translucent or tracing paper</li> <li>• Coloured markers</li> </ul>
<b>OVERVIEW</b>	The Natural Resource and Livelihood Map is a visual depiction of the community's natural endowments and skills, which also serves as a corollary to the Community Social Map that identifies the man-made structures and systems that govern the community. Thus, this tool aims to identify the key natural resources and ecosystem services that support the community's livelihoods in general, and more specifically how these are utilized for recovery in the aftermath of a natural hazard.
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of the exercise and setting up the materials for drawing the map.*</p> <p>Step 2: As an introductory question, ask participants to brainstorm all the different livelihoods that exist in their community. Once these livelihoods are identified, continue by probing questions on which natural resources are used to support these livelihoods, e.g., rangelands for animal grazing, wood forests for furniture production, etc.</p> <p>Step 3: List all these livelihoods and natural resources on a flipchart paper and ask the participants to draw a symbol or index for each one.</p> <p>Step 4: Next, working off the Community Social Map, ask participants to identify the locations of these natural resources, marking with the symbols they previously selected for each one.</p> <p>Step 5: With all mapping completed, the Facilitator now asks the participants questions about the distribution and use of these natural resources by "interviewing the map" and asking open-ended questions about which natural resources are most impacted by natural hazards, which are most relied upon in the aftermath of a natural hazard, etc. as described in Discussion Questions, below.</p> <p>Step 6: Next, ask the participants to describe any changes in the existence, access or management of natural resources over recent decades, e.g. 20, 30 or 40 years, in order to understand the potential impacts of climate change on the ecosystem and livelihoods, as well as anthropogenic impacts on ecosystem services and the community's overall resilience.</p> <p>Step 7: Ensure that the Note Taker captures the subtleties of the discussion during the exercise, and that the Facilitator takes proactive steps to ensure everyone's participation in the exercise.</p> <p>Step 8: Thank all participants for their time and contributions.</p> <p><i>*Tip: to save time, use sheets of transparent paper or plastic to lay over the Community Social Map to avoid re-drawing the physical layout of the community.</i></p>

DISCUSSION  
QUESTIONS

- Which natural resources are most valued by community members, and why? Is it the same for men and women?
- How has the natural resource base changed over recent years? Over recent decades? How are these changes perceived? Has competition and use changed?
- Which natural resources are the most degraded?
- Which natural resources are protected by the community?
- Which natural resources would the community like to see restored or expanded for ecosystem services purposes?
- Do men and women have equal access to natural resources and income earning opportunities?
- How has conflict/displacement affected the allocation, management, and use of natural resources?
- After a natural hazard, what natural resources do you depend on? (e.g., where do you get food, water, shelter from?)
- Are there any links between livelihoods and specific natural hazards? Are certain livelihoods more or less vulnerable?
- Are there any specific changes happening to specific livelihoods? Are these changes related to availability or access to natural resources?
- What are the most common or significant livelihoods and modes of income generation?
- Which livelihoods and groups of people have the most and least income/resources?
- What is the division of work between men and women in the household, agriculture, and community?
- How do most households get their food? Do they produce their own for subsistence, or buy, or barter?
- How nutritionally diverse is the diet? Does this differ across age or gender?
- Are there any major nutrition-related health issues faced by the community?
- Which households and livelihoods are the most greatly affected by conflict/displacement? Are differences with age, ethnicity, gender, etc.? Why?
- How do households cope with the impacts of conflict/displacement?

## OUTPUT(S)



See “Annex 4: Natural Resource and Livelihood Map Reporting Template” for tool-wise reporting guidance.

## SEASONAL CALENDAR

<b>OBJECTIVE</b>	To understand the seasonal nature of the various factors and trends linked to natural hazards, including ecosystem and climate components, such as weather patterns, harvest cycles, transhumance schedules, etc. In addition, the seasonal calendar also provides an entry point for gauging community perceptions of climate change by comparing today's seasonality with past decades, e.g. 20, 30 or 40 years.
<b>TIME</b>	1-2 hours
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Flipchart paper</li> <li>• Coloured markers</li> <li>• Place markers (stones, chips, game pieces, etc.)</li> </ul>
<b>OVERVIEW</b>	<p>The Seasonal Calendar is a participatory tool that is used to explore the seasonal schedule of events in the community in order to identify any trends, patterns, or habits in terms of when natural hazards strike, the severity of their impact, the populations and areas affected, the response strategies employed, etc. Thus, the seasonal calendar looks at the intersections between livelihoods schedules and the occurrence patterns for natural hazards.</p> <p>This is achieved through the development of a calendar grid that lists the months of the year in columns across the top of the page, with activities and events listed as columns running down the side of the page. As discussion develops with the participants, the Facilitator will mark the months in which certain activities and events occur with the goal of identifying the areas of overlap, which provides insight into the underlying issues of exposure and vulnerability.</p>
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of the exercise and setting up the materials for the exercise.</p> <p>Step 2: Along the top of a flipchart have the participants write the names of the 12 months of the year and then continue to draw a calendar grid with vertical and horizontal lines.</p> <p>Step 3: Now, along the right column of the grid, have participants write the names (or use symbols and pictures if working with illiterate people) of events and activities they engage in over the space of the year. For example, planting seeds, taking animals to pasture, harvest season, house construction, firewood collection, weather patterns, rainy season, etc. Be sure to encourage participants to provide these events and activities as they know their community the best.</p> <p>Step 4: With the list of events and activities completed, lay the flipchart on the ground and distribute the place markers (small stones, chips, game pieces, etc.).</p> <p>Step 5: Beginning with the first event or activity, ask participants to mark its duration and intensity by putting place markers in the months when it occurs. Intensity should be indicated on a scale of 0-10, with 0 (no marker) being no activity and 10 being the highest intensity possible. For example, the rainy season may take place over 3 months but start off slow in the first month (2-3 markers), increase in intensity during the second month (5-6 markers), and reach full intensity in the third month (10 markers).</p>

**PROCESS**

- Step 6: Proceed patiently and gradually through all the events and activities. Don't rush, do not dominate, do not try to impose Facilitator's ideas on the community and don't assume. Allow the participants to discuss and debate until they make their final decisions.
- Step 7: Once all activities are covered, ask participants if they would like to make any modifications to the seasonal calendar or add/remove any sections.
- Step 8: Next, use the seasonal calendar to engage with the participants in a discussion on why certain events or activities happen at specific times, with the goal of identifying those overlapping areas where people and assets are in areas of greater exposure or vulnerability.
- Step 9: For an added climate change benefit, continue the discussion by asking participants to compare the seasonal calendar of today with the schedule of activities and events in past decades, e.g. 20 or 30 years ago. Major changes in terms of weather patterns, natural disasters, agricultural production, and livelihood prosperity should be noted by the Facilitator and Note Taker.
- Step 10: The Note Taker should also document the activity by marking with a coloured marker the places where participants laid place markers on the seasonal calendar.
- Step 11: Thank all participants for their time and contributions.

**DISCUSSION QUESTIONS**

- Examples of events or activities that can be included in the seasonal calendar include:
- Natural hazards (flood, drought, avalanche, landslide, heat wave, cold wave, etc.)
  - Agriculture production (land preparation, seed planting, harvest time, etc.)
  - Seasons of rain and snow fall
  - Cropping patterns and farm cycles
  - School sessions and vacation time
  - Seasonal migration, labour patterns, and external employment
  - Incidences of disease and pests

**OUTPUT(S)**



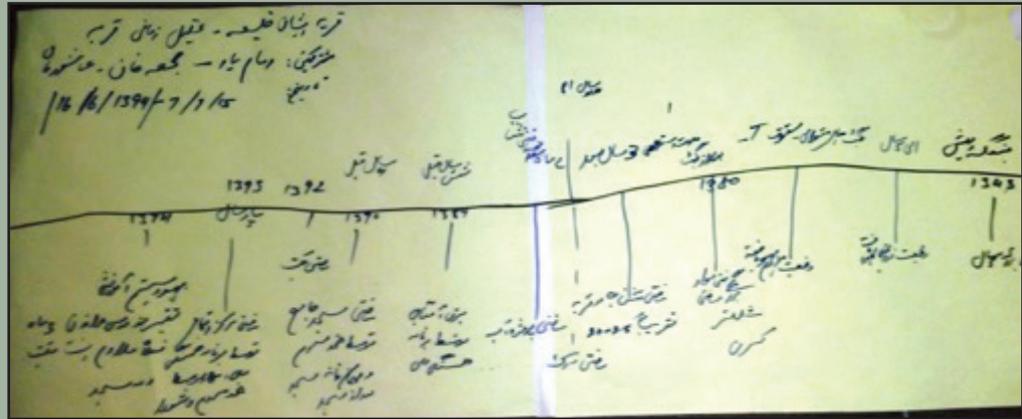
See "Annex 5: Seasonal Calendar Reporting Template" for tool-wise reporting guidance.

## TIMELINE AND TREND ANALYSIS

<b>OBJECTIVE</b>	To document major changes in climate, ecosystems, and the frequency and severity of disaster events that occurred in the community and to understand how diverse people within the community cope with and recover from those events.
<b>TIME</b>	1 hour
<b>PARTICIPANTS</b>	Community elders, leaders, and persons who would have first-hand historical knowledge of the community
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Flip chart paper</li> <li>• Coloured markers</li> </ul>
<b>OVERVIEW</b>	Historical trends often repeat themselves, therefore documenting the timeline of the community over the memory of its members can provide insight to the frequency and severity of natural hazards over decades, as well as identify changes in the environment, climate, and natural resource usage from the past to the present that can in turn inform planning for the future.
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of the exercise and setting up the materials for the exercise.</p> <p>Step 2: Ask participants to begin listing some of the major events they remember in the history of their community and the year when it occurred, such as a serious flood or a year with an exceptional wheat harvest.</p> <p>Step 3: The Facilitator writes down these events on a flipchart and encourages participants to continue providing examples of major events related to natural hazards, livelihoods, natural resources and the environment.</p> <p>Step 4: Once a good number of events are listed and participants are satisfied with their contributions, the Facilitator draws a table on a separate piece of flipchart paper with four columns: first column for “year,” second for “event,” third for “impact,” and fourth for “community response.”</p> <p>Step 5: Going chronologically from earliest to latest event, the Facilitator inputs the list of events provided by the participants into the new table.</p> <p>Step 6: Through the use of open-ended and participatory questions, the Facilitator leads the participants to complete the remaining columns of the table, identifying the impacts and community response for each major event.</p> <p>Step 7: Now that the events are structured chronologically, double-check with the participants that there are no other missing events that were forgotten or need to be added.</p> <p>Step 8: Using the Discussion Questions, below, continue to engage with participants on the causes and impacts of these events in order to identify any underlying trends or patterns that can be used as early warning today, as well as any changes to local environmental and meteorological conditions that suggest climate change is occurring (e.g., changes in rainy seasons, temperatures in summer and winter, etc.).</p> <p>Step 9: Thank all participants for their time and contributions.</p>
<b>DISCUSSION QUESTIONS</b>	<ul style="list-style-type: none"> <li>• What are the biggest changes you’ve noticed in your community since you were a child?</li> <li>• What is the most serious/devastating natural hazard you can recall?</li> <li>• What were the most prevalent natural hazards you can recall as a child?</li> </ul>

DISCUSSION QUESTIONS

- What changes have you observed since you were a child until today? Specifically in terms of natural resources, environment, and weather.
- How have the use and availability of natural resources changed over recent years? Over recent decades? How are these changes perceived?
- Has the availability and access to natural resources had any impacts on livelihoods?
- How have agricultural productivity, food availability, or nutrition changed in recent years? Over recent decades?
- What are the biggest livelihood changes that have occurred over recent decades?
- What climatic changes have been observed in recent years? Over recent decades? How are these changes perceived?
- What were the seasons like when you were a child? Were spring, summer, fall, or winter the same as today or different?



OUTPUT(S)

دوره گزارش سال	نتایج مهم	تأثیرات	بافت	اقدامات	فعالیت‌های انجام داده و دستاوردهای حاصله
سال 1386	فصل	1- عدم راه‌های ترافیک 2- کم‌طبی از زمین رخت 3- کشاورزی‌های سنتی	از طرف دفتر آبخیز کارای مردم نبودند بسیار قوی بودند	1- مطالعه در راه 2- شب‌آلودگی‌ها 3- فعالیت‌های مردم	تعداد آب و هوا موسم بسیار کم بارش
سال 1387	بوت کج	1- آلودگی زمین 2- آلودگی زمین 3- آلودگی زمین 4- آلودگی زمین	○	1- زمین‌های زراعت 2- زمین‌های زراعت	1- زمین‌های زراعت 2- زمین‌های زراعت
سال 1390	بسیار آب	1- طغیان رودخانه 2- طغیان رودخانه 3- طغیان رودخانه 4- طغیان رودخانه	○	1- عدم همکاری 2- کم‌طبی زمین 3- کم‌طبی زمین 4- کم‌طبی زمین	1- آب و هوا 2- آب و هوا 3- آب و هوا 4- آب و هوا

See “Annex 6: Timeline and Trend Analysis Reporting Template” for tool-wise reporting guidance.

## INSTITUTIONAL MAPPING

<b>OBJECTIVE</b>	To map and analyse the roles and relationships of various institutions, both inside and outside the community, that can be relied upon before, during, and after a natural hazard strikes.
<b>TIME</b>	1 hour
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Flipchart paper</li> <li>• Notecards and coloured paper</li> <li>• Coloured markers</li> <li>• Scissors</li> <li>• Glue and/or tape</li> </ul>
<b>OVERVIEW</b>	<p>This Institutional Mapping tool aims to identify the institutions that are most relevant and accessible to the community in terms of planning, preparedness, response, and recovery when a natural hazard strikes. This is achieved through the use of a Venn diagram that lays out different sized circles on a flipchart paper to visually depict:</p> <p>1) the importance and 2) the accessibility of these institutions to the community. The importance of the institution is reflected in the size of the cut-out circle it represents, and the accessibility of the institution is reflected in its distance from the centre of the flipchart paper (where the community's name is written).</p> <p>Through this exercise, the community will identify which institutions provide them with the greatest services before, during, and after a hazard strikes. This is not always the most important or most accessible institution; it is possible to have many different combinations of importance and accessibility in each community. For example, an institution may be very relevant to the response and recovery from the shock of a natural hazard, but may not be easily accessed by the community which thereby impacts the value of the services it provides. Conversely, an easily accessed institution may theoretically be less relevant in terms of its mandate or purpose, but because it is accessible and can respond to a call of action it may provide vital response and recovery services, even if it is not the ideal institution to do so.</p>
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of the exercise and setting up the materials for the exercise.</p> <p>Step 2: Ask the participants to brainstorm and list the institutions they think are relevant to planning, prevention, response and recovery from natural hazards in their community.</p> <p>Step 3: As brainstorming continues, ask the participants to write the names of these institutions on small notecards (encourage the use of symbols and pictures if there are illiterate people participating).</p> <p>Step 4: Once all institutions are named and written on the small notecards, lay out the notecards on the ground or a table and ask the participants to rank them according to their importance to the community. Once the cards are arranged, confirm that all the participants are in agreement, and adjust as needed.</p> <p>Step 5: Next, distribute coloured paper and scissors to the participants and ask them to cut circles of different sizes to represent each institution, with larger circles representing those institutions ranked as more important and smaller circles representing those that are ranked as less important. Using tape or glue, stick the notecard with each institution's name onto their respective circles.</p>

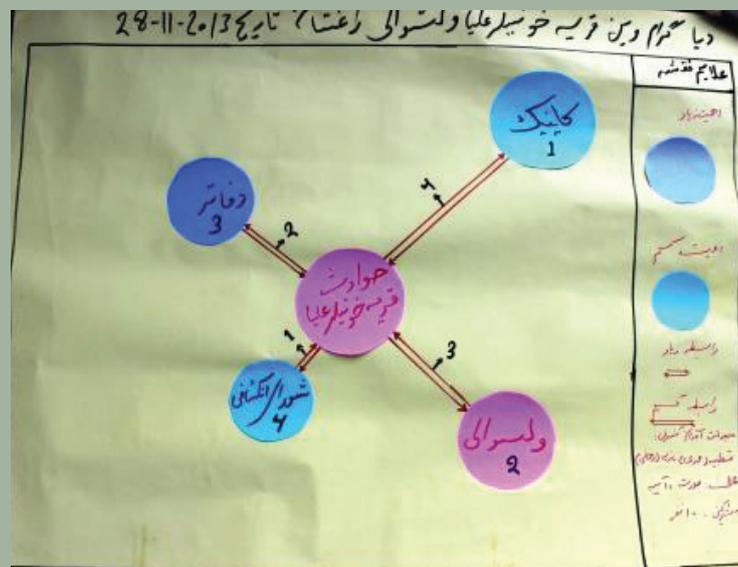
**PROCESS**

- Step 6: On a piece of flipchart paper, draw a circle in the middle and write the name of the community inside this circle.
- Step 7: Now, ask participants to place the cut-out circles with the names of institutions on the flipchart paper, with the distance between the circle and the name of the community representing the effectiveness of the services provided by the institution (i.e., the further the distance between the community name and the chosen circle, the less the effectiveness of the services it provides; and, the closer the distance, the greater its effectiveness).
- Step 8: Once all the cut-outs are placed around the central circle (with community's name), ask participants to discuss and explain why they placed them this way. Note down the points of discussion and explanations provided. If any changes need to be made to the positions of the circles during this dialogue, adjust accordingly. When all positions are final, tape the cut-out circles to the flipchart.
- Step 9: As a final step, ask one of the participants to summarize the findings of this exercise to the rest of the participants.
- Step 10: Thank all participants for their time and contributions.

**DISCUSSION QUESTIONS**

- What institutions are involved and/or responsible for providing support before, during, and after a natural hazard strikes?
- Which are the most/least important institutions to your community in terms of natural hazards and climate change?
- What services are provided by these institutions to your community before, during and after a natural hazard strikes?
- What services are organized and provided directly by the community?
- How can communication between your community and these institutions be improved?
- Are there any institutions that your community wants to increase communication and coordination with?
- Are there community-based organizations that assist people in times of need?
- What is the extent of support that can be provided or expected from these socio-cultural networks? Has this changed over recent years or decades?
- How fragile/resilient are these socio-cultural networks in times of need?

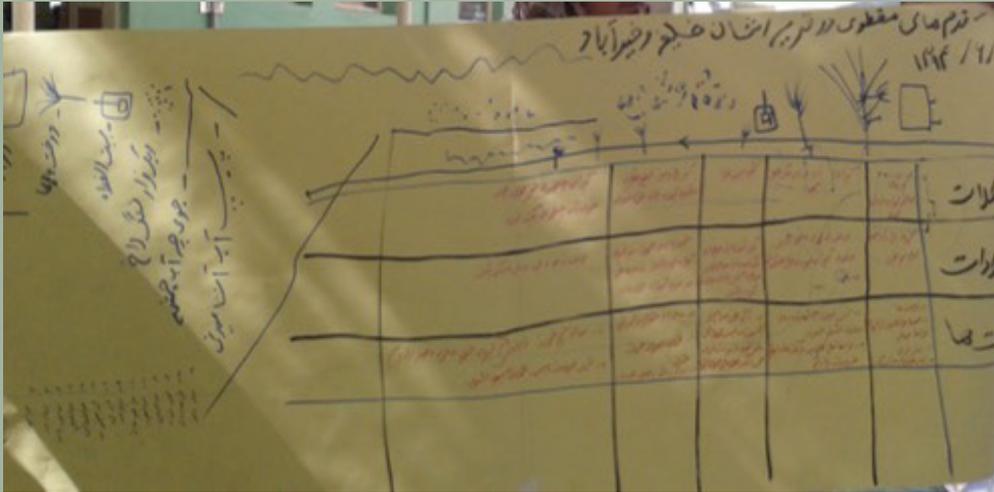
**OUTPUT(S)**



See “Annex 7: Institutional Map Reporting Template” for tool-wise reporting guidance.

## TRANSECT WALK

<b>OBJECTIVE</b>	To observe first-hand and understand the local situation, risks, vulnerabilities, resources, and capacity in the community
<b>TIME</b>	2 hours, depending on the distance to be walked
<b>PARTICIPANTS</b>	A wide range of male and female community members, including elders, scholars, leaders, youth, farmers, tradespersons, labourers, and other vulnerable groups (single parents, disabled, landless, etc.)
<b>SUPPLIES</b>	<ul style="list-style-type: none"> <li>• Pad of paper for note taking</li> <li>• Pen</li> </ul>
<b>OVERVIEW</b>	A transect walk is a systematic walk along a defined path (transect) across the community area together with the local people to explore the vegetation, habitation, infrastructure, water and sanitation conditions, crops, undulation of the topography etc. by observing, asking, listening and producing a transect diagram. It is best to walk a route that will cover the greatest diversity in terms of vegetation, habitation, infrastructure, water and sanitation conditions, crops, etc. The transect walk is conducted jointly with the villagers or community members, and can be conducted with a large group of people or broken into a series of smaller walks with different groups depending on the socio-cultural dynamics of the community. The information collected during the walk is used to present the findings visually in the form of a diagram.
<b>PROCESS</b>	<p>Step 1: Begin by explaining the objective of the exercise and setting up the materials for the exercise.</p> <p>Step 2: Organize the community members that will accompany the Facilitator on the transect walk. Make sure to gather a diverse group of people (gender, age, livelihood, etc.) that is willing to talk and walk through the community to observe its features, resources and landscape. You may choose to conduct this exercise with just one group of community members or break the activity into smaller groups depending on what is appropriate in the community and what will facilitate better research findings.</p> <p>Step 3: Explain the purpose of the transect walk to the group and what it is you want to observe in the community.</p> <p>Step 4: Once everybody understands the purpose of the exercise, the Facilitator and participants refer back to the maps produced in earlier exercises and select the route for the Transect Walk. This route should provide an overview of the community and first-hand observation of risk factors for natural hazards, such as locations where they take place or assets that are in harm's way. Thus, with the map in hand and route determined, the Facilitator and participants can ground-truth the map to ensure its accuracy and completeness.</p> <p>Step 5: The Facilitator determines the parameters for the data (unit, quantity, etc.) and prepares a checklist of data and information to be gathered during the Transect Walk (see "Annex 9: Transect Walk Reporting Template" for a sample).</p>

<p><b>PROCESS</b></p>	<p>Step 6: While undertaking the Transect Walk, the Facilitator and Note Taker should listen, ask questions about each area, and inquire about the environmental conditions (soil, water, range, forest, etc.), livelihoods (agriculture, animal husbandry, workshops, small businesses, etc.), natural hazards, social issues (capacity, education, knowledge, skills, etc.), in order to collate findings and ground-truth the information that was provided in the earlier exercises from the toolkit.</p> <p>Step 7: Also make time during the Transect Walk to conduct informal and unstructured interviews with the local community members met along the way, particularly to inquire about critical issues of vulnerability, exposure and impacts of natural hazards in the community.</p> <p>Step 8: After completing the Transect Walk, document the findings on a transect diagram and share this information back to the participants so that the local community can understand the output of the exercise and purpose of the tool.</p> <p>Step 9: Thank all participants for their time and contributions.</p>
<p><b>DISCUSSION QUESTIONS</b></p>	<ul style="list-style-type: none"> <li>• What is the overall topography and geography of the community?</li> <li>• Where are the areas that natural hazards strike? Ask for each hazard.</li> <li>• Where are areas of soil erosion and land degradation visible?</li> <li>• Where are the areas most exposed and vulnerable to natural hazards?</li> <li>• Where is the major infrastructure in the community? Identify any roads, bridges, community buildings, clinics, schools, electricity, water, sanitation, etc.</li> <li>• Where are crops grown? Where are they stored?</li> <li>• Where are the communally used natural resources located? Rivers, lands, forests, rangelands, etc.</li> <li>• Where are homes that people live located? What other structures are present?</li> </ul>
<p><b>OUTPUT(S)</b></p>	 <p>See “Annex 8: Transect Walk Reporting Template” for tool-wise reporting guidance.</p>

## Documentation, Consolidation and Feedback

- **Tool-wise Reporting**

It is important to document the major findings and outcomes for each tool because these generate the raw data that is used for the next steps of analysing and identifying the underlying causes of vulnerability to natural hazards and climate change. All the tools in this toolkit are accompanied by tool-wise reporting templates, which are included in the annexes. In addition, visual examples of these completed tool-wise reporting templates are provided in the “output” section of each tool description. Detailed and accurate documentation of the execution of each tool, and its findings and outcomes, is also essential for future follow-up and gauging of changes in baseline conditions and vulnerabilities in the community.

- **Consolidation**

Tool-wise reporting should be completed as quickly as possible after the exercise is concluded to ensure that information is not forgotten or lost. Each of these templates, once complete, should be consolidated into a single master file for safe keeping. The Facilitator’s team should retain a copy of this master file, while the originals should be left with the community for their reference and future use. Be sure to store this master file safely for use in future follow-up, replication, and assessments with the community.

- **Feedback**

The community members are participants in the research process and use of this toolkit, therefore it is essential they have access to its findings and outputs. At the very end of the research process with the community, best practice is to organize a feedback session with the participants where the Facilitators can provide an overview of the findings and explain the next steps in terms of building community-based resilience to natural hazards and climate change. In addition, a feedback session also affords the community members with an opportunity to provide the Facilitators with suggestions for improvement of their methods and application of the tools. All feedback provided should be documented by the Facilitator and Note Taker for inclusion in the next steps of data analysis.

In addition, during this feedback phase, it is often interesting to refer back to the outputs of the Vision Mapping tool and see if the community’s ideas have evolved or changed now that they have completed all the tools in the HCVCA toolkit. This serves to provide further refinement to the next step of community-based disaster preparedness planning.

- **Giving Thanks and Showing Appreciation**

At the very end of the feedback session, the Facilitators should make sure to thank the community for their participation in the research process. It is important to show appreciation for the time, energy, and resources provided by the community, and use this opportunity to solidify the foundation for continued collaboration with the community on activities that will build their resilience to natural hazards and climate change.

# 4

## DATA ANALYSIS AND NEXT STEPS



With the toolkit activities completed, and all findings and outputs documented with the tool-wise reporting templates, it is time to proceed with analysing this raw data in order to answer the key questions for our priority areas, identify the community's underlying vulnerabilities, and determine actions for building community-based resilience to natural hazards and climate change.

The ARC recommends using our “Community-based Disaster Preparedness (CBDP) plan” for this next step of analysis, which has been designed as the natural progression from the HCVCA to design detailed action plans for natural hazards. A detailed outline of the CBDP plan is provided below, and the full CBDP toolkit (including instructions and templates) is available from the ARC.

## Community-based Disaster Preparedness Plan Outline

### INTRODUCTION (1-2 pages)

- Overview of the HCVCA process (when, with who, where, etc.)
- Overview of the community (demographics, location, etc.)
- What is the community's vision for improving itself?
- What are the goals of this assessment?

### HAZARD OVERVIEW (1-2 PAGES)

- Hazard listing: what hazards are present in the community? What are their risks?
- Hazard ranking: which hazards are more or less disruptive to the community?
- Hazard history: what is the frequency of hazards?

### COMMUNITY VULNERABILITY, EXPOSURE AND CAPACITY (2-4 PAGES)

- Include a final map that is a synthesis of the Community Social Map, Hazard and Vulnerability Map, and Natural Resource and Livelihood Map.
- Where are the most vulnerable areas in the community?
- What people are the most exposed to and impacted by natural hazards and climate change?
  - E.g., include a list of vulnerable groups and short description of their considerations.
- What resources are most exposed to and impacted by natural hazards and climate change?
- What capacities exist in the community to respond to natural hazards and climate change?
- Any other major considerations in terms of community vulnerability and exposure?

**INSTITUTIONS AND THEIR ROLES (1-2 PAGES)**

- What institutions are most and least accessible to the community.
- What institutions are the most and least important for before (planning), during (response), and after (recovery) for each natural hazard?
  - E.g., include a table that identifies each the role of each institution for each natural hazard

**CLIMATE CHANGE CONSIDERATIONS (2-4 PAGES)**

- What major changes have been observed in climate and weather over past 30 years?
- How have natural hazards changed?
  - E.g., frequency, severity, timing, impacts, appearance of new hazards, etc.
- What other aspects of livelihoods have been impacted by climatological changes?
  - E.g., changes in growing season, harvest times, crops grown, yields, etc.

**RISK MITIGATION PLANNING (1 PAGE PER HAZARD)**

- For each natural hazard, identify potential short-, medium- and long-term actions to mitigate their impacts, including:
  - What: the specific activity and its basis from earlier analysis of vulnerability and exposure
  - Where: the location of the activity
  - When: the time-frame of the activity
  - Who: the responsible parties for carrying out the activity

# 5

## KEY TERMINOLOGY



**Acceptable Risk:**

The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Biodiversity:**

Biological diversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (UNCBD, Article 2).

**Capacity:**

The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals. Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacities are the positive factors that increase the ability of people and the society they live in, to cope effectively with hazards, that increase their resilience, or that otherwise reduce their susceptibility to disasters (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Climate Change:**

A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. In other words, a change in the climate that persists for decades or longer, arising from either natural causes or human activity (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Climate Change Adaptation:**

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation exist, e.g. anticipatory and reactive, private and public, and autonomous and planned (IPCC, 2012).

**Climate Variability:**

Variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all spatial and temporal scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability) (IPCC, 2012).

**Coping Capacity:**

The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters. This capacity may differ according to demography, location, gender and other factors. The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during crises or adverse conditions. Coping capacities contribute to the reduction of disaster risks (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Disaster:**

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Disaster Risk:**

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Disaster Risk Management:**

The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Disaster Risk Reduction:**

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Early Warning System:**

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Ecosystem:**

A dynamic complex of micro-organism, plant, animal and human communities and their non-living environment interacting as a functional unit (Millennium Ecosystem Assessment, 2005).

**Ecosystem Services:**

The benefits that people and communities obtain from ecosystems. These include “regulating services” such as regulation of floods, drought, land degradation and disease, along with “provisioning services” such as food and water, “supporting services” such as soil formation and nutrient cycling, and “cultural services” such as recreational, spiritual, religious and other non-material benefits. Integrated management of land, water and living resources that promotes conservation and sustainable use provide the basis for maintaining ecosystem services, including those that contribute to reduced disaster risks (Millennium Ecosystem Assessment, 2005; UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Emergency Management:**

The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Environment:**

The complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon individual organisms and communities, including humans, and ultimately determine their form and survival. It is also the aggregate of social and cultural conditions that influence the life of an individual or community. The environment includes natural resources and ecosystem services that comprise essential life-supporting functions for humans, including clean water, food, materials for shelter, and livelihood generation (WWF –US and American Red Cross, 2010).

**Environmental Degradation:**

The reduction of the capacity of the environment to meet social and ecological objectives and needs. Degradation of the environment can alter the frequency and intensity of natural hazards and increase the vulnerability of communities. The types of human-induced degradation are varied and include land misuse, soil erosion and loss, desertification, wildland fires, loss of biodiversity, deforestation, mangrove destruction, land, water and air pollution, climate change, sea level rise and ozone depletion (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Exposure:**

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses. Measures of exposure can include the number of people or types of assets in an area (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Greenhouse Gases (GHGs):**

Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Hazard:**

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. Natural hazards are natural processes or phenomena, such as earthquakes, droughts and tropical cyclones, but their occurrence and scale of impact are often influenced by human-induced activities such as inappropriate land use, poor building codes and environmental degradation (UNISDR, 2009 Terminology of Disaster Risk Reduction; Estrella and Saalismaa, 2010).

**Land-use Planning:**

The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Mitigation:**

The lessening or limitation of the adverse impacts of hazards and related disasters (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Natural Resource:**

Natural resources are actual or potential sources of wealth that occur in a natural state, such as timber, water, fertile land, wildlife and minerals. A natural resource qualifies as a renewable resource if it is replenished by natural processes at a rate comparable to its rate of consumption by humans or other users. A natural resource is considered non-renewable when it exists in a fixed amount, or when it cannot be regenerated on a scale comparative to its consumption (Estrella and Saalismaa, 2010).

**Preparedness:**

The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Resilience:**

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. Resilience means the ability to “resile from” or “spring back from” a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need (UNISDR, 2009 Terminology of Disaster Risk Reduction). We can also consider resilience as the “ability to bounce forward”, which implies not just returning to the initial state as before a shock but improving from that initial state (Manyena et al., 2011).

**Risk:**

The combination of the probability of an event and its negative consequences (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Sustainable Development:**

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (UNISDR, 2009 Terminology of Disaster Risk Reduction).

**Sustainable Ecosystem:**

Imply that ecosystems are largely intact and functioning, and that human demand for ecosystem services does not impinge upon the capacity of ecosystems to maintain future generations. (Sudmeier-Rieux, K. & N. Ash, 2009).

**Vulnerability:**

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Vulnerability arises from various physical, social, economic, and environmental factors, such as poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. The losses caused by a hazard will be proportionally much greater for more vulnerable populations, e.g. those living in poverty, with weak structures, and without adequate coping capacities (UNISDR, 2009 Terminology of Disaster Risk Reduction).

# 6

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# 7

## ANNEXES





### B. HAZARD RISKS

#	HAZARD	ELEMENTS EXPOSED AND VULNERABLE TO HAZARDS					
		# of Houses	# of Schools	# of Clinics	# of Animals	Natural Resources	Infrastructure
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**C. LIST OF PARTICIPANTS**

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## 2 COMMUNITY SOCIAL MAPPING TOOL-WISE REPORTING TEMPLATE

Province		
District		
Community		
GPS Location	N: _____ E: _____	
Facilitator Name and Organization	Name: _____	Organization: _____
Prepared by		
Date		

### A. KEY PERSONS IN THE COMMUNITY

TITLE	NAME	PHONE NUMBER
Head of CDC		
Karyadar/Arbab		
Koragmal		
Mirab		
Mullah		
Health workers		
Soldiers/ANA		
Teachers		
Others		



## C. SKILLED PERSONS IN THE COMMUNITY

CATEGORY	NAME	PHONE NUMBER	LOCATION / AVAILABILITY
Doctor			
Carpenter			
Electrician			
Policeman			
Para medical worker			
Health worker			
Driver			
Swimmer			
Other			
Other			
Other			

**D. VULNERABLE PERSONS IN THE COMMUNITY****LANDLESS OR SHARECROPPING HOUSEHOLDS**

#	Name of Head of Household	House #
1		
2		
3		
4		
5		

**FEMALE-HEADED HOUSEHOLDS**

#	Name of Head of Household	House #
1		
2		
3		
4		

**WIDOWS**

#	Name of Head of Household	House #
1		
2		
3		
4		
5		

**INTERNALLY DISPLACED PERSONS (IDPs)**

#	Name of Head of Household	House #
1		
2		
3		
4		
5		

**DISABLED PERSONS**

#	Name	House #	Age	Sex	Description of Disability
1					
2					
3					
4					
5					

**E. COMMUNITY SOCIAL MAP**

*[Include a photo or copy of the map here]*

**F. COMMUNITY SOCIAL VULNERABILITIES AND CAPACITIES**

HAZARD	COMMUNITY ELEMENTS	WHAT?	WHERE?	WHEN?	WHY?	CAPACITY?
Flood	Vulnerable Populations	<i>[What groups of persons (disabled, poor, women, etc.) are vulnerable?]</i>	<i>[Where are they located? Are they concentrated in a vulnerable area?]</i>	<i>[When are these groups most vulnerable?]</i>	<i>[Why are these groups more vulnerable than others in the community?]</i>	<i>[What capacity or skills do these groups have to help cope with this hazard?]</i>
	Community Capacity	<i>[What groups of people (doctors, engineers, etc.) are available for emergency response and recovery?]</i>	<i>[Where are they located? How accessible are they?]</i>	<i>[When are their services most needed? Before, during, after, or combination?]</i>	<i>[Why are their skills valuable for coping with this hazard?]</i>	<i>[What concrete skills are the most needed from these groups for coping with this hazard?]</i>
	Social institutions	<i>[What social institutions (family networks, offices, etc.) are vulnerable]</i>	<i>[Are there important or vulnerable locations in the community for these social institutions?]</i>	<i>[When are these social institutions impacted by this hazard?]</i>	<i>[Why are social institutions vulnerable to this hazard?]</i>	<i>[What capacity do social institutions have to help cope with this hazard?]</i>
Landslide	Vulnerable Populations					
	Community Capacity					
	Social institutions					

Drought	Vulnerable Populations					
	Community Capacity					
	Social institutions					
Earthquake	Vulnerable Populations					
	Community Capacity					
	Social institutions					

**G. LIST OF PARTICIPANTS**

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## 3

### HAZARD AND VULNERABILITY MAPPING TOOL-WISE REPORTING TEMPLATE

Province		
District		
Community		
GPS Location	N: _____ E: _____	
Facilitator Name and Organization	Name: _____	Organization: _____
Prepared by		
Date		

#### A. LIST OF SAFE LOCATIONS

HAZARD	SHELTER OR SAFE PLACE <i>[Are these shelters when this hazard strikes?]</i>	TYPE OF SHELTER <i>[What kind of shelter is it?]</i>	CAPACITY <i>[How many people can fit?]</i>	ACCESS ROUTES <i>[Are these safe ways to reach it?]</i>
Floods				
Landslide				
Earthquake				
Other				
Other				
Other				

## B. INFRASTRUCTURE INVENTORY

CATEGORY	INFRASTRUCTURE TYPE	QUANTITY <i>[how many of these exist?]</i>	NOTES/REMARKS <i>[Is it impacted or used in a special way when hazards strike?]</i>
Roads and Transportation	Main roads		
	SubRoads		
	Bridges		
	Other		
Buildings and Structures	Schools		
	Health Clinic		
	Mosque		
	CDC Meeting hall		
	Community Hall		
	Food bank		
	Seed bank		
	Fodder bank		
Water Resources	Culverts		
	Tube well		
	Water supply project		
	Irrigation system		
	Other		
Energy	Micro hydroelectric		
	Fuelwood		
	Solar		
	Other		

## C. HAZARD VULNERABILITY

HAZARD	COMMUNITY ELEMENTS	WHAT?	WHERE?	WHEN?	WHY?	CAPACITY?
Flood	Infrastructure (roads, bridges, etc.)	<i>[What infrastructure is vulnerable to this hazard?]</i>	<i>[Where is this infrastructure located?]</i>	<i>[When is this infrastructure impacted by this hazard?]</i>	<i>[Why is infrastructure vulnerable to this hazard?]</i>	<i>[How can this infrastructure help provide vital services in time of emergency?]</i>
	Physical Structures (mosques, schools, etc.)	<i>[What groups of people (doctors, engineers, etc.) are available for emergency response and recovery?]</i>	<i>[Where are they located? How accessible are they?]</i>	<i>[When are their services most needed? Before, during, after, or combination?]</i>	<i>[Why are their skills valuable for coping with this hazard?]</i>	<i>[What concrete skills are the most needed from these groups for coping with this hazard?]</i>
Landslide	Infrastructure					
	Physical Structures					

Drought	Infrastructure					
	Physical Structures					
Earthquake	Infrastructure					
	Physical Structures					

**D. COMMUNITY HAZARD MAP**

*[Include a photo or copy of the map here]*

**E. LIST OF PARTICIPANTS**

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## 4 Natural Resource and Livelihood Mapping Tool-wise Reporting Template

Province		
District		
Community		
GPS Location	N: _____ E: _____	
Facilitator Name and Organization	Name: _____	Organization: _____
Prepared by		
Date		

### A. NATURAL RESOURCE INVENTORY

NATURAL RESOURCE	DETAILS	QUANTITY <i>[how many are there?]</i>	HAZARD IMPACTS (Y/N) <i>[Is it impacted by any hazards? Which ones?]</i>	IMPACT DETAILS <i>[How is it impacted by each hazard?]</i>
Water Resources	River			
	Stream			
	Spring			
	Water storage pond			
	Bridges			
	wetland			
	Drinking water			
	Well			
Other				
Land	Agriculture			
	Garden (Private)			
	Garden (communal)			
	Waste land			
	Other			
Forest and Rangelands	Native forest			
	Woodlots			
	Rangelands (private)			
	Rangelands (communal)			
	Other			

## B. LIVELIHOODS AND MODES OF PRODUCTION

SOCIAL MAP#	NAME OF HEAD OF HOUSEHOLD	LIVELIHOOD OPTIONS																
		Agriculture	Share cropper	Daily Labour	Rural Artisan	Office Worker	Livestock rearing	Skilled worker	ANSF	Teacher	shop keeper	Mason	Carpenter	Veterinarian	Barber	Butcher	Blacksmith	Non Resident

## C. LIVESTOCK DETAILS

SOCIAL MAP#	NAME OF HEAD OF HOUSEHOLD	LIVESTOCK TYPE AND QUANTITY						
		OX	Cows and calves	Sheep and Goats	Poultry	Horses	Donkeys	Other

## D. HAZARD VULNERABILITY

HAZARD	COMMUNITY ELEMENTS	WHAT?	WHERE?	WHEN?	WHY?	CAPACITY?
Flood	Natural Resources (forests, rivers, grasslands, springs, etc.)	<i>[What natural resources are vulnerable to this hazard?]</i>	<i>[Where is this natural resource located?]</i>	<i>[When is this natural resource impacted by this hazard?]</i>	<i>[Why is this natural resource vulnerable to this hazard?]</i>	<i>[How can this natural resource help provide vital services in time of emergency?]</i>
	Livelihoods (skills, knowledge and experience)	<i>[What livelihoods are vulnerable to this hazard?]</i>	<i>[Where are these livelihoods practiced?]</i>	<i>[When are these livelihoods most impacted by this hazard?]</i>	<i>[Why are these livelihoods vulnerable to this hazard?]</i>	<i>[How can these livelihoods skills/knowledge help provide vital services in time of emergency?]</i>
Landslide	Natural Resources					
	Livelihoods					
Drought	Natural Resources					
	Livelihoods					
Earthquake	Natural Resources					
	Livelihoods					

**E. NATURAL RESOURCES AND LIVELIHOODS MAP**

*[Include a photo or copy of the map here]*

**C. LIST OF PARTICIPANTS**

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## 5

SEASONAL CALENDAR  
TOOL-WISE REPORTING TEMPLATE

Province		
District		
Community		
GPS Location	N: _____ E: _____	
Facilitator Name and Organization	Name: _____	Organization: _____
Prepared by		
Date		

## A. SEASONAL EVENT ANALYSIS

SECTOR/AREA	ACTIVITY	CHANGE AND VARIATION ACROSS YEARS <i>[How has this timing or nature of this activity changed over the years?]</i>	IMPACTS <i>[What impacts has this had on the community? Are these positive or negative?]</i>	COPING STRATEGIES <i>[How has the community adapted to cope with these impacts?]</i>
Agriculture and Food Security	Crop planting schedule			
	Crop varieties cultivated			
	Pests and diseases			
	Animal husbandry			
	Food availability			
	Nutrituion			
	Other			

Transportation	Seasonal road closures			
	Vehicle type			
	Emergency access			
	Other			
Climate and Weather	Rain			
	Snow			
	High temperatures			
	Low temperatures			
	Other			
Natural Hazards	Flood			
	Drought			
	Landslide			
	Avalanche			
	Other			

## B. COMMUNITY TIMELINE

*[Include a photo or copy of the map here]*

**C. LIST OF PARTICIPANTS**

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## 6 TIMELINE AND TREND ANALYSIS TOOL-WISE REPORTING TEMPLATE

Province			
District			
Community			
GPS Location	N: _____ E: _____		
Facilitator Name and Organization	Name: _____	Organization: _____	
Prepared by			
Date			

### A. HAZARD HISTORY

#	HAZARD	DATE	CASUALTIES		# OF ANIMALS DEAD	# OF HOUSES DESTROYED	INFRASTRUCTURE DAMAGED
			# injured	# dead			
1							
2							
3							
4							
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**WHAT ARE THE GENERAL TRENDS WITH HAZARDS OVER THE YEARS REVIEWED?**

**WHAT TRADITIONAL SYSTEMS/PRACTICES EXIST IN THE COMMUNITY TO REDUCE IMPACT OF HAZARDS? HOW HAVE THESE CHANGED OVER TIME?**

**WHAT ARE THE CAUSES OR REASONS FOR THE CHANGES IN FREQUENCY, SEVERITY, IMPACTS OF HAZARDS OVER THE YEARS REVIEWED?**

**C. COMMUNITY TIMELINE**

*[Include a photo or copy of the timeline here]*

**D. LIST OF PARTICIPANTS**

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**B. INSTITUTIONS MAP**

*[Include a photo or copy of the timeline here]*

**C. LIST OF PARTICIPANTS**

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**B. TRANSECT WALK DIAGRAM**

*[Include a photo or copy of the timeline here]*

**C. LIST OF PARTICIPANTS**

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## ACRONYMS

<b>AMD</b>	<b>Afghanistan Meteorological Department</b>
<b>ANDMA</b>	<b>Afghanistan National Disaster Management Authority</b>
<b>ANPDF</b>	<b>Afghanistan National Peace and Development Framework</b>
<b>APAN</b>	<b>Asia Pacific Adaptation Network</b>
<b>CBDP</b>	<b>Community-based Disaster Preparedness</b>
<b>CDC</b>	<b>Community Development Council</b>
<b>CDP</b>	<b>Community Development Plan</b>
<b>CDKN</b>	<b>Climate and Development Knowledge Network</b>
<b>CSO</b>	<b>Central Statistics Organization</b>
<b>CTCN</b>	<b>Climate Technology Centre and Network</b>
<b>DDMC</b>	<b>District Disaster Management and Response Committees</b>
<b>DRM</b>	<b>Disaster Risk Management</b>
<b>DRR</b>	<b>Disaster Risk Reduction</b>
<b>EWS</b>	<b>Early Warning System</b>
<b>FEWS NET</b>	<b>Famine Early Warning System Network</b>
<b>GHG</b>	<b>Greenhouse Gas</b>
<b>HCDM</b>	<b>High Commission for Disaster Management</b>
<b>INC</b>	<b>Initial National Communication under the UNFCCC</b>
<b>IWRM</b>	<b>Integrated Water Resource Management</b>
<b>LDC</b>	<b>Least Developed Country</b>
<b>LEDS</b>	<b>Low Emission Development Strategies</b>
<b>MAIL</b>	<b>Ministry of Agriculture, Irrigation, and Livestock</b>
<b>MEA</b>	<b>Multilateral Environmental Agreement</b>
<b>MRRD</b>	<b>Ministry of Rural Rehabilitation and Development</b>
<b>NEPA</b>	<b>National Environmental Protection Agency</b>
<b>NGO</b>	<b>Non-governmental Organization</b>
<b>PDMC</b>	<b>Provincial Disaster Management and Response Committees</b>
<b>RCP</b>	<b>Representative Concentration Pathway</b>
<b>SCCF</b>	<b>Special Climate Change Fund</b>
<b>SCWAM</b>	<b>Supreme Council for Water Affairs Management</b>
<b>SDG</b>	<b>Sustainable Development Goals</b>
<b>SEAC</b>	<b>Sub-national Environmental Advisory Council</b>
<b>SFDRR</b>	<b>Sendai Framework for Disaster Risk Reduction</b>
<b>SNAP</b>	<b>Strategic National Action Plan for Disaster Risk Reduction</b>
<b>SNC</b>	<b>Second National Communication under the UNFCCC</b>
<b>UNCBD</b>	<b>United Nations Convention on Biological Diversity</b>
<b>UNCCD</b>	<b>United Nations Convention to Combat Desertification</b>
<b>UNFCCC</b>	<b>United Nations Framework Convention on Climate Change</b>
<b>USGS</b>	<b>United States Geological Survey</b>

