Integrating Climate Change (CC), Gender, and Social Inclusion (GSI) into Planning and Budgeting in Thailand

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The objective of the NDC Support Project is to support the Royal Thai Government to achieve transformational change by using NDC implementation as a mechanism to scale up investments in climate change and deliver socially-inclusive and gender-responsive climate actions for sustainable development, thereby helping the country deliver on the commitment outlined in its NDCs and, through this, deliver on its commitment to implement the Paris Agreement and the Sustainable Development Goals. NDC Support Project is implemented in partnership with the Office of Natural Resources and Environmental Policy and Planning (ONEP), with generous support from the Swedish International Development Cooperation Agency (Sida), the Government of Sweden; the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Government of Germany; and UNDP's Climate Promise.

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Preface

The report on 'Social Dimension of Climate Change Impacts in Thailand: Analysis of Risks, Policy, Planning and Finance' was presented to government stakeholders at the inclusive, gender-responsive Climate Change Benefit Analysis (iCCBA) Workshop in September 2019 and endorsed by the iCCBA Working Group in November 2019. The report's analysis revealed that although Thailand's national climate policies, strategies and plans acknowledge climate change impacts on the poor and vulnerable populations, especially the elderly and the rural poor in the agricultural sector, there is a disconnect between policy goals and implementation guidelines with respect to poverty reduction, reducing inequalities and promoting gender equality in the context of climate change. The human dimension in Thailand's climate change policies and plans is not well defined. There are no clear definitions and criteria for vulnerable groups, nor clear strategies or indicators to reduce negative impacts on specific vulnerable groups.Gender and social inclusion (GSI) is the missing link in Thailand's national climate policies and plans.

The Royal Thai Government has expressed its commitment to overcoming gender and social inequalities. The 2017 Constitution also set out the notion of gender-responsive and socially inclusive budgeting in Section 71 which stipulates the State to take into account the different necessities and needs with respect to genders, ages and conditions of persons to ensure fairness in allocating the budget. Achieving gender equality and social inclusion is also reflected in the National Strategy (2018-2037), the country's first national long-term strategy, under Strategy 4 on Social Cohesion and Equity; the Master Plan (2018-2037) on Equality and Social Security; and the National Action Plan on Women's Development (2020-2022).

Department of Women's Affairs and Family Development (DWF) has put forward the Gender Responsive Budgeting – GRB: A Practical Handbook to guide the implementation of the GRB in Thailand which was endorsed by the Cabinet on 7 December 2021. Anchor this opportunity and the progress that Thailand has made, the Handbook for Integrating Climate Change (CC), Gender, and Social Inclusion (GSI) into Planning and Budgeting in Thailand is designed to align and complement the DWF's GRB Handbook and the Budget Bureau's Budget Formulation Guidelines. It aims to demonstrate the case on climate change in GRB and support Thai government agencies to integrate the climate change and gender-social dimensions into functional work and budgeting to increase budgetary efficiency and effectiveness and align budget allocation with the national sustainable development strategies and goals.

Contents

List of Boxes, Figures and Tables

Boxes

Figures

Tables

Introduction

1.1 Thailand's climate change policy context

Thailand is among the most vulnerable countries to the impacts of climate change. It is ranked ninth in the top 10 countries most affected by climate change on the long-term Global Climate Risk Index (CRI)[1] during 2000-2019, based on average values of events, recorded fatalities and economic losses.

Climate variability and extreme weather events have been constant challenges over the past decades for Thailand, with ever-increasing record temperatures and more frequent natural disasters, especially droughts and floods, and worsening air pollution. There are considerable variations in the topography and climate patterns in each geographical region. Climate change has had significant impacts on the lives of many people, businesses, industries and sectors in the country.

Climate change is addressed at the highest policy level under Thailand's National Strategy 2018-2037 alongside other economic and social considerations, including poverty eradication. The Climate Change Master Plan 2015-2050 reflects the National Strategy on climate change mitigation, adaptation, capacity building and cross-cutting issues. As a party to the United Nations Framework Convention on Climate Change (UNFCCC), Thailand has been implementing the Nationally Appropriate Mitigation Action (NAMA) with the primary focus on the energy and transport sectors.[2]

As a party to the 2015 Paris Agreement, Thailand has also submitted its Nationally Determined Contribution (NDC) goal to reduce greenhouse gas (GHG) emissions by 20-25 percent from the projected business-as-usual (BAU) levels by 2030. The National Adaptation Plan (NAP) approved in 2018 by the National Committee on Climate Change Policy (NCCC) focuses on the six priority sectors identified in the Climate Change Master Plan—water management, agriculture and food security, tourism, public health, human settlements and security, and natural resources management. The NAP aims to minimize risks and vulnerabilities and increase resilience towards sustainable development.[3]

Climate change adaptation and mitigation are becoming more embedded in Thailand's government structures in line with the increasing profile of climate actions in national agendas. Various sectoral policies and plans have been developed for implementation. Inter-ministerial committees have also been established to oversee climate policy development and implementation and comprehensive national systems to monitor, evaluate and report on progress.[4]

1 German Watch, Global Climate Risk Index 2021, https://www.germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf.
2 ONEP, UNDP and GEF, Thailand Third Biennial Update Report, https://unfccc.int/documents/267629.
3 ONEP, Thailand National Adaptation Plan, https://climate.onep.go.th/wp-content/uploads/2019/07/NAP.pdf.
4 ONEP, UNDP and GEF, Thailand Third Biennial Update Report, p. i.

However, constraints and gaps remain barriers to effective implementation. According to Thailand's Third Biennial Update Report, high investment costs, in particular technologies and infrastructures, and technical capacity and inter-sectoral coordination are the main barriers to mitigation. For adaptation, Thailand still needs a range of support to successfully drive the climate change adaptation agenda, such as the capacity building of sectoral and subnational agencies to integrate adaptation measures into their respective planning processes.[5]

1.2 Gender and social inclusion (GSI) and climate change (CC) policy-implementation disconnect

The report on *Social Dimension of Climate Change Impacts in Thailand: Analysis of Risks, Policy, Planning and Finance*[6] found that climate change has significant impacts on many economic and social sectors, particularly the agriculture sector which covers 47 percent of the country's land mass and one-third of the labour force. While there are multiple geographical, socio-economic and demographic dimensions to climate change vulnerabilities, climate change tends to disproportionately affect the poor and the already vulnerable, such as landless farmers, women in poor and marginalized indigenous and ethnic minority communities, aging farmers, socially isolated and at-risk occupational groups, and low-paid workers in the informal sector with little or no social security.

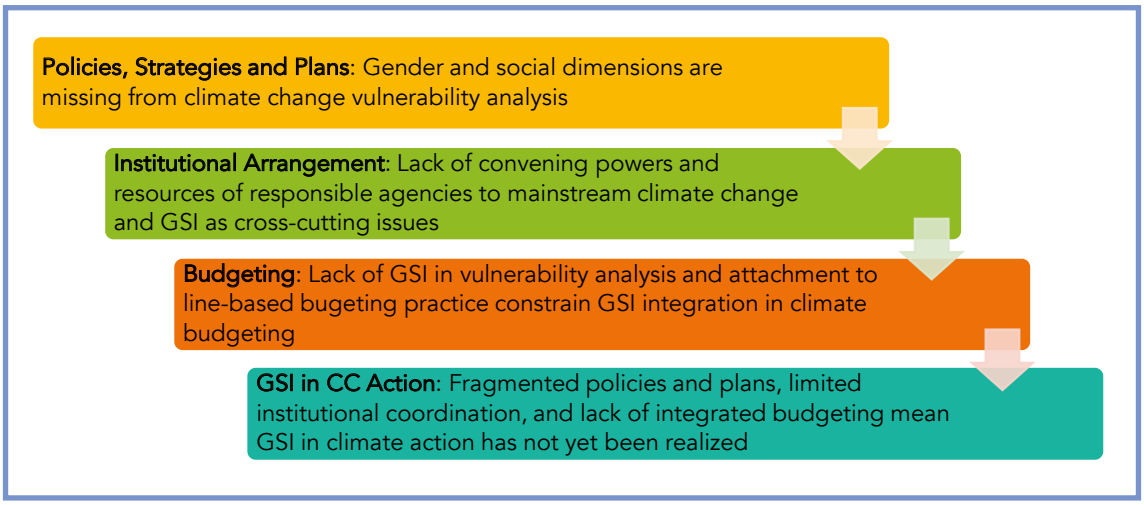
The report's analysis revealed that although Thailand's national climate policies, strategies and plans acknowledge climate change impacts on the poor and vulnerable populations, especially the elderly and the rural poor in the agricultural sector, there is a disconnect between policy goals and implementation guidelines with respect to poverty reduction, reducing inequalities and promoting gender equality in the context of climate change. The human dimension in Thailand's climate change policies and plans is not well defined. There are no clear definitions and criteria for vulnerable groups, nor clear strategies or indicators to reduce negative impacts on specific vulnerable groups.

Gender and social inclusion (GSI) is the missing link in Thailand's national climate policies and plans. Government agencies in the social sectors were initially not included in the national coordinating mechanisms on climate change (CC). The near absence of the CC-GSI linkage in existing policies, strategies and plans is reflected in its absence in

5 Ibid, pp. 77-81.
6 The report was presented to government stakeholders at the inclusive, gender-responsive Climate Change Benefit Analysis (iCCBA) Workshop in September 2019 and endorsed by the iCCBA Working Group in November 2019.

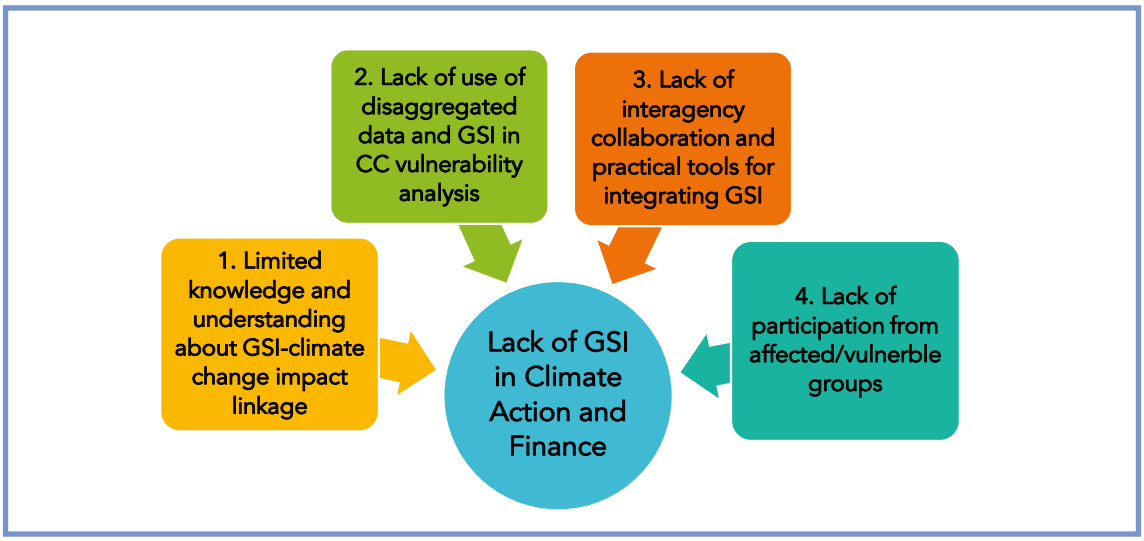
public climate change budgeting. Thailand's public budget formulation and allocation are constrained by narrow mandates across multisectoral reporting authorities and requirements (see Figure 1):

Figure 1: Gaps in integrating CC-GSI in climate change policies, strategies and plans, institutional arrangement, and budgeting in Thailand



The report identified key barriers to integrating GSI in climate action and public finance in Thailand (see Figure 2).

Figure 2: Key barriers to integrating GSI in climate action and finance in Thailand



Although climate change is treated as a significant issue at the policy and planning levels, it is generally not yet widely integrated into most agencies' functional work. As a result, most programmes and projects formulated for budget submissions in Thailand are missing both the climate change and gender-social dimensions.

1.3 Why gender and social inclusion matter in public climate investment

The capacity to manage climate risks and adapt to climate change impacts differs across population groups due to their access to power and resources, position in society, and opportunities available to them. Financial resources, understanding of gender roles and responsibilities, and access to information, finance and technology, for instance, are key contributing factors to climate resilience. The differences in adaptive capacity are embedded in the specific context of dynamic gender and social relations in a given society.[7]

In ordinary situations, gender and social inequalities already exist in society. Cultural values and norms define gender and social roles that determine responsibilities, opportunities and access to and control over resources and benefits for women and men, boys and girls, and how power is distributed across various sectors. Those with low status and limited access to power and control over resources are often marginalized and excluded from the process of decision-making that affects their environment and well-being. Climate change brings additional risks and vulnerabilities to people already in poverty or in vulnerable situations. In the absence of effective policies, climate change can deepen existing inequalities.

Inequalities have multiple facets, with the gender dimension cutting across other characteristics of affected populations, such as age, income and wealth, education, occupation, geographical location, health condition, disability, local customs, ethnicity, religion, and so on.[8] These intersecting factors influence how individuals are exposed to risks and vulnerabilities and their capacity to cope with them.

Poverty is a key factor of vulnerability. Women in low status, the poor and marginalized groups with limited resources often have less capacity to absorb climate shocks and need support to build climate resilience and opportunities to participate in the decision-making processes that affect their livelihoods and their communities.

The challenges of gender equality, poverty and climate change are intertwined. Climate resilience cannot be fully achieved without effectively addressing the gender and poverty dimensions of the challenges and creating an enabling environment for social participation in climate change action at all levels. It is crucial that climate change strategies and investments are truly gender responsive and socially inclusive, and systematically integrated into the governance systems at the national, sectoral and local levels.

7 UNEP, Global Gender and Environment Outlook Report 2016, p. 2.
8 Barbora Galvankova and UNDP, Webinar Series: Mainstreaming Gender Equality in NDCs, Session 1: Gender Analysis, 19 December 2018.

1.4 GSI-responsive approach to climate investment

Climate change response at the global level has moved towards low-emission and climate-resilient development pathways involving a broader range of the populations affected by the impacts of climate change. Climate approaches are now encouraged to be more gender-responsive and socially inclusive. The Global Climate Fund (GCF) Board adopted the Gender Policy and Action Plan in March 2015 (GCF/B.09/10). The Policy recognizes that women as well as men significantly contribute to combating climate change and therefore a gender-sensitive approach is part of this paradigm shift.[9]

The United Nations Climate Change Conference 2017 (COP23) adopted a first Gender Action Plan to support the implementation of gender-related decisions and mandates in the UNFCCC process with a set of specific activities. The Gender Action Plan's five priorities focus on:

- Capacity-building, knowledge sharing and communication to enhance stakeholders' capacity to systematically integrate gender considerations into policy and planning;
- Gender balance, participation and women's leadership in climate negotiations;
- Coherence in integrating gender in the work of UNFCCC bodies, secretariat, and other United Nations entities and stakeholders;
- Gender-responsive implementation and means of implementation of the Convention and the Paris Agreement; and
- Monitoring/reporting to improve tracking of implementation of UNFCCC gender-related mandates.[10]

Given worsening trends of climate change, both mitigation and adaptation action must be urgently accelerated. However, climate change responses should not come at the expense of sustainable socio-economic development. There should be synergies and co-benefits from climate action and sustainable development goals, including gender equality and women's social empowerment. Advancing gender equality and reducing social inequalities are not only an essential part of good governance and a way to avoid or mitigate trade-offs between climate action and sustainable development, but also lead to substantial and more balanced development co-benefits, especially for women and vulnerable populations in society.[11]

9 Green Climate Fund (GCF) and UN Women, Mainstreaming Gender in Green Climate Fund Projects: A Practical Manual to Support the Integration of Gender Equality in Climate Change Interventions and Climate Finance, 2017.
10 UNDP and FAO, Gender in Adaptation Planning for the Agriculture Sectors: Guide for Trainers, Nelson & Hill, 2019, p. 28.
11 UN Women, Leveraging Co-benefits between Gender Equality and Climate Action for Sustainable Development: Mainstreaming Gender Considerations in Climate Change Projects, 2016, p. 19.

Box 1: Benefits of GSI-responsive approach

- Contribute to gender equality (SDG 5) and social equity in society (SDG 10).
- Achieve greater, and more effective, sustainable and equitable climate change results (SDG 13).
- Strengthen equally the ability and resilience of women and men in affected population groups to address climate change and ensure that women and men will equally contribute to and benefit from climate change action.
- Address and mitigate assessed potential project risks for women and men and affected population groups from adaptation and mitigation activities.
- Contribute to reducing the gender and social gaps in climate change-exacerbated social, economic and environmental vulnerabilities.

Source: Adapted from Green Climate Fund (GCF) and UN Women, Mainstreaming Gender in Green Climate Fund Projects: A Practical Manual to Support the Integration of Gender Equality in Climate Change Interventions and Climate Finance, 2017.

1.5 Thai government budget request formulation and consideration

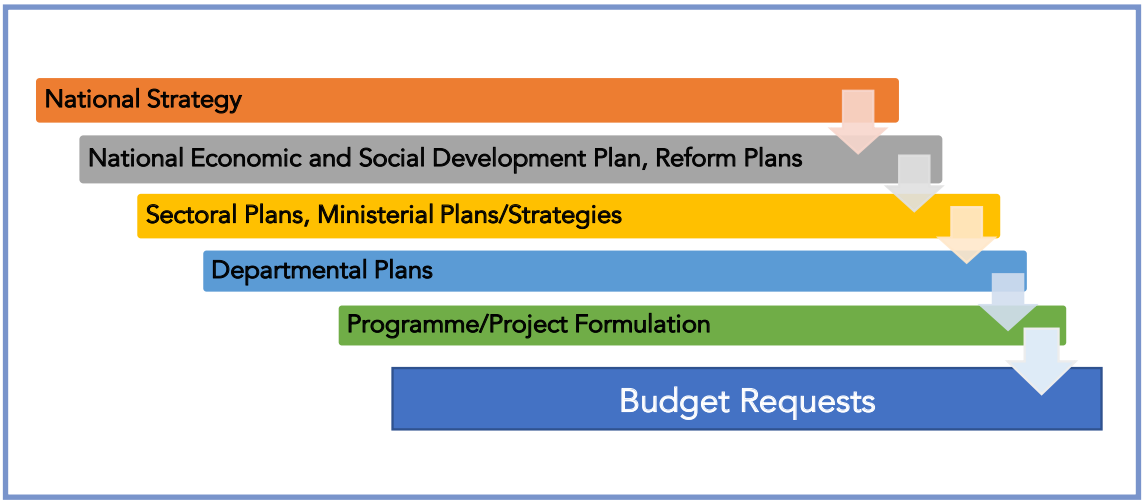
Budgeting in the Thai government sector are formulated based on long-term development strategies and plans, as well as administrative priorities of the government coalition in power. Currently, the 20-year National Strategy guides the long-term direction of Thailand's sustainable development pathway and serves as a framework for all subsequent layers of policies and plans.

The Budget Procedure Act 2018, together with its subsidiary budget guidelines and documents (i.e., Thailand's Budget Allocation Strategy for 2021 Expenditure and Thailand's Budget Formulation Guidelines for 2021 Expenditure) set requirements based on consistency between budgeting by each government agency and the National Strategy and its subsidiary policies and plans.

In formulating a budget request, each national and sub-national government agency must follow the Budget Request Guidelines of the Budget Bureau which require government agencies to comprehensively address key elements of a programme/project as follows:

- Project background, needs, stakeholders
- Result framework (goal, objectives, outputs, outcome, risks, monitoring)
- Readiness
- Problems/limitations/barriers encountered during project planning, implementation and utilization phases
- Solution to the problems identified.

Figure 3: Layers of policies and plans in Thailand



Annual budgets are limited and could normally accommodate only one-third of the total value of budgeting submitted for consideration. The Budget Bureau (BB) sets criteria for budget allocation whereby a priority would be placed on budgeting that fit with the following project criteria. A project:

- Must be undertaken in compliance with related domestic law(s) and/or international commitment(s)/agreement(s).
- Is ongoing from previous years with strong policy commitment.
- Is urgent, serving one or several government administration priorities and/or falling under one of the integrated budget plans.
- Must be undertaken to address a protracted problem that, if unaddressed, would become more serious or result in more negative impacts.
- Is expansive in terms of the number of affected persons or beneficiaries.
- Is ready for implementation and would potentially encounter future budget burdens if not immediately undertaken.

1.6 Integrating CC-GSI in planning and budgeting

There is a strong rationale for integrating CC-GSI considerations into government planning and budgeting. Climate change has become one of the core development issues in the past 15 years and the Royal Thai Government has exerted its efforts to tackle climate change challenges and fulfil its international commitments. Integrating CC-GSI considerations would strengthen the quality of budgeting in terms of effectiveness and compliance with the BB criteria, as well as forestalling potentially worsening impacts

and addressing the persistent inequalities with an integrated and inclusive approach to solutions. It is a fact that climate change is a complex and multi-faceted problem that requires integrated, multi-disciplinary solutions.

Besides financial and technical support and technology development and transfer, Thailand's Third Biennial Update Report identified capacity-building needs for adaptation, mitigation and enabling environment, in developing and strengthening skills, abilities, processes, and resource and stakeholder mobilization for planning and taking climate actions.[12]

As shown in Figure 4, the climate change agenda has been integrated into all key layers of Thailand's policies and plans. Below the 20-year National Strategy in the top layer, the National Economic and Social Development Plan and the Reform Plan address key issues within a five-year time frame. In the third layer, master plans and sectoral development plans further elaborate on how sectoral issues are to be addressed in specific detail.[13]

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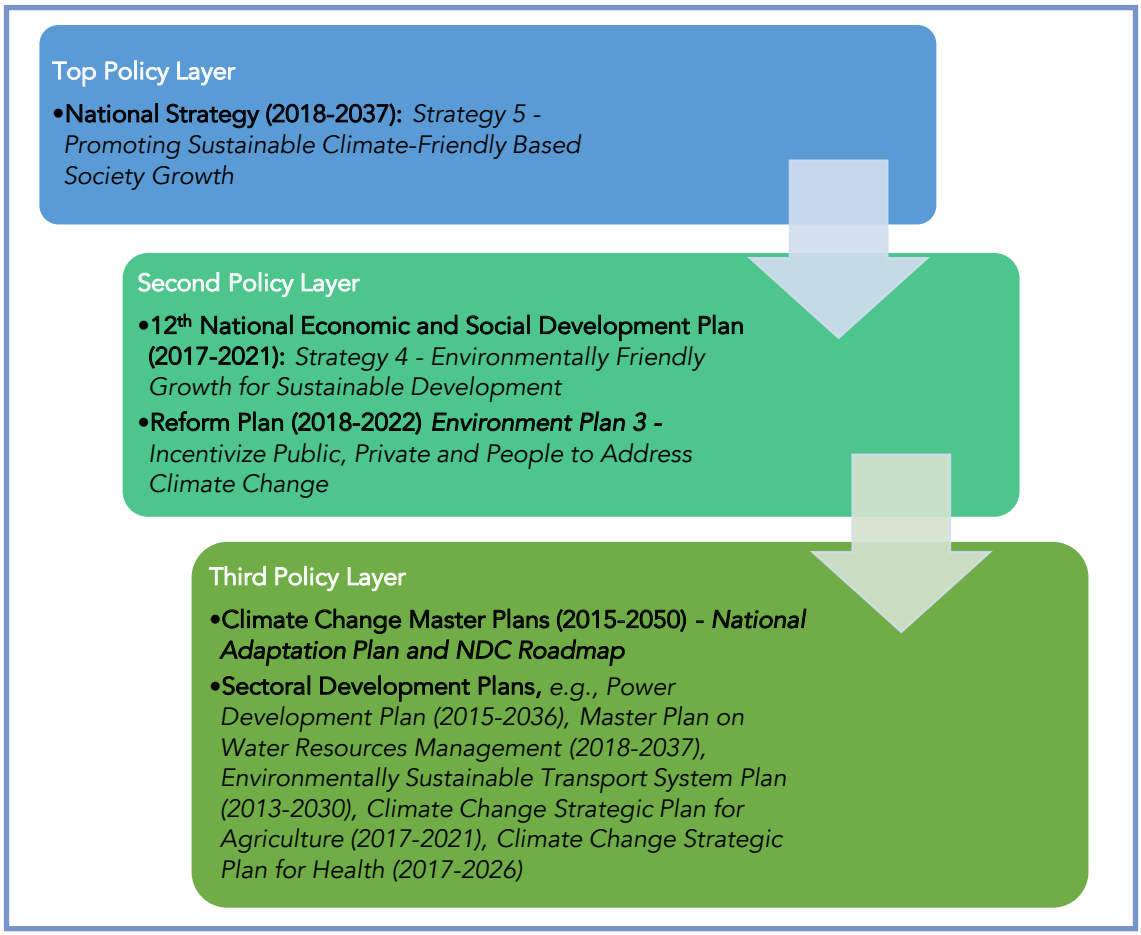
Figure 4: Climate change agenda in Thailand's policy and planning structure



12 ONEP, UNDP and GEF, *Thailand Third Biennial Update Report*, pp. 78-85.

13 The master plans generally set the long-term development directions for each specific sectoral issue while the sectoral development plans support the master plans with the five-year programmes and projects.

Integrating gender and social inclusion considerations into climate change plans, projects and budgets would mean not only addressing differential needs of and distributing benefits to various population groups, especially the vulnerable groups often left behind, but also enabling and actualizing integrated solutions to complex challenges.

Reducing inequalities has been on Thailand's national agenda over the past few decades but inequalities persist. Although the absolute number of Thais living in absolute poverty has decreased, income and wealth gaps have widened, and Thailand has become one of the most unequal societies in the world. Historically poor communities remain poor and starved of resources with no power to address chronic problems in their communities, even though they may have ideas for solutions. Chronic poverty is rooted partly in wholesale policy and top-down implementation. A new approach is needed to address chronic poverty and growing inequalities, one that is a more integrated and localized approach.

Reducing poverty and social inequalities and promoting economic and environmental sustainability are Thailand's key national development strategies. A number of laws and strategic plans have been adopted to promote gender and social equality, notably the Women Development Strategy (2017-2021) and its upcoming replacement (2022-2026). Gender Responsive Budgeting (GRB) has received more policy attention in recent years and is now one of the key criteria for budget formation according to the recent Budget Formulation Guidelines, which requires government agencies at national and sub-national levels to address special and differential needs of various population groups (women, men, children, elders, etc.) to ensure equal access to and/or distribution of resources.

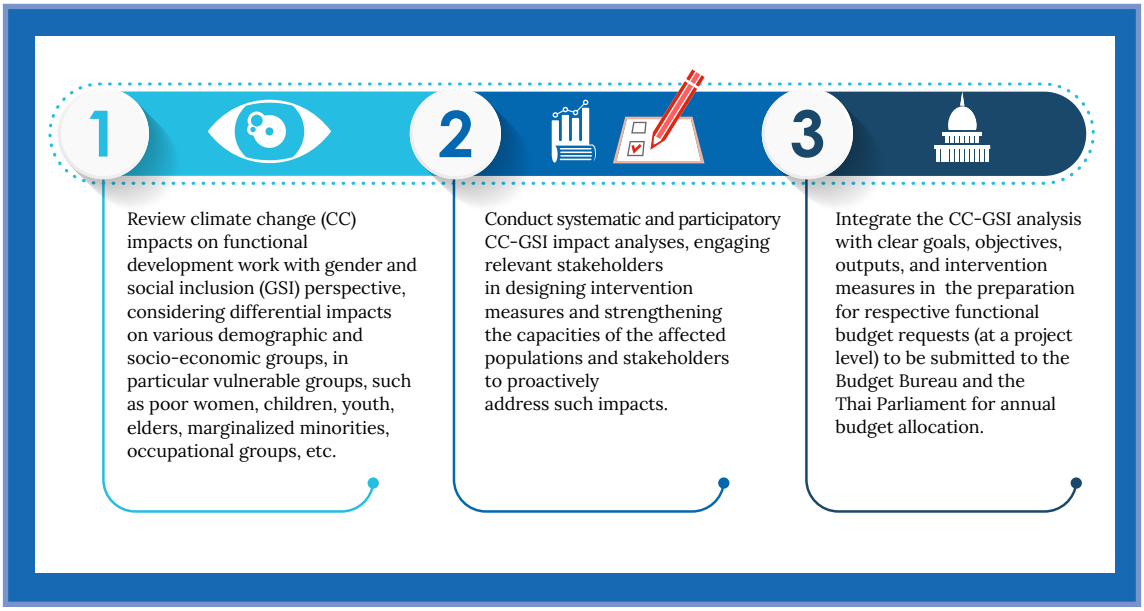
Going forward, in compliance with the budget procedure law, the budget allocation strategy and national strategic priorities, it is highly advisable that public budgeting in Thailand integrate CC-GSI considerations for budgetary efficiency and for achieving national strategic objectives and development goals.

Overview of the Handbook

2.1 What is this handbook?

The Handbook: Integrating Climate Change (CC), Gender and Social Inclusion (GSI) into Planning and Budgeting in Thailand ('CC-GSI Budgeting Handbook' for short) is a practical tool that aims to support Thai government agencies to integrate the climate change and gender-social dimensions into functional work and budgeting to increase budgetary efficiency and effectiveness and align budget allocation with the national sustainable development strategies and goals. Designed to be compatible with the existing Budget Formulation Guidelines of the BB, this handbook can be used by each government agency at national and sub-national levels to:

Box 2: Objectives of the handbook



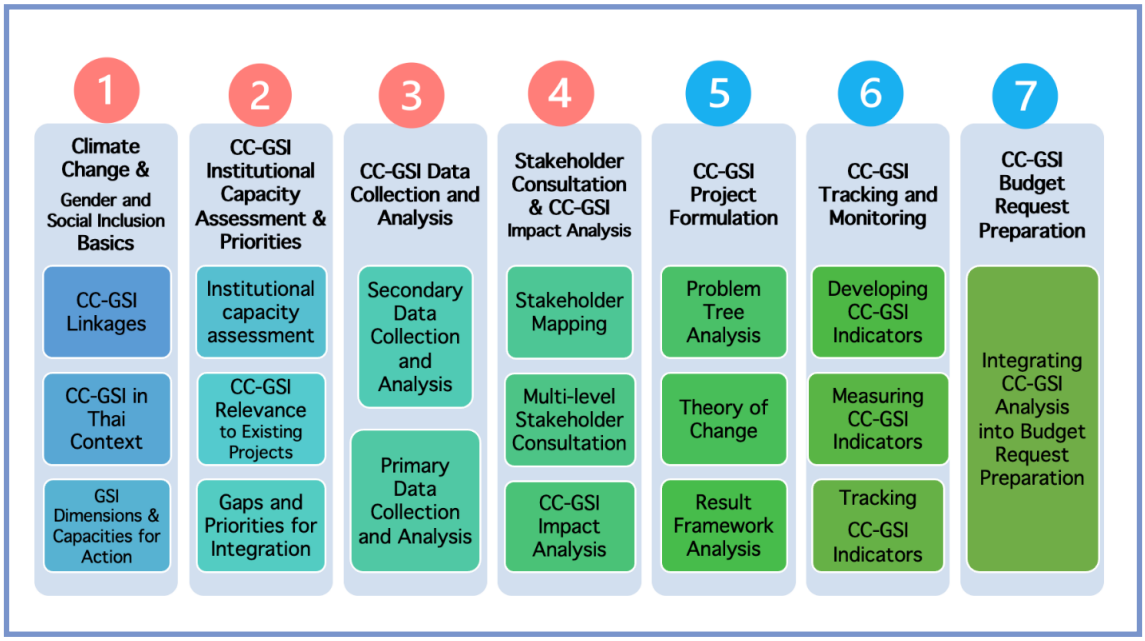
This handbook is not intended to lead government agencies to necessarily formulate new projects designed specifically to address climate change. Instead, it aims to enable them to consider more broadly and critically the potential climate change impacts that could affect their functional routine works and target beneficiaries. The handbook will provide practical tools to conduct comprehensive analyses of the impacts and to integrate such analyses with concrete adaptation/mitigation measures into their respective budget request preparation (at a project level) to serve their functional roles and responsibilities more effectively.

2.2 Contents and structure of this handbook

The first chapter of this handbook provides a brief introduction to Thailand's climate change policy within the context of national development policy and strategy. An explanation is given of the linkages between climate change and gender and social inclusion, and a rationale for CC-GS integration in public investment to achieve integrated solutions to the complex challenges of climate change. It also provides a glance at the normal process of budget request formulation in the Thai government and the criteria for budget allocation consideration by the BB.

The handbook takes a stepwise approach to guide Thai government agencies on the preparation of budgeting that integrate CC-GSI considerations. Seven practical steps make the core contents of this handbook (see Figure 5):

Figure 5: Seven practical steps for CC-GSI integration



Steps 1-4 involve institutional learning and capacity assessment on CC-GSI integration, participatory processes of research and analyses, and multi-level consultation with relevant stakeholders. The findings from these steps provide a basis for project formulation/integration and effective budget request preparation in Steps 5-7. These steps need not necessarily be conducted in a strict consecutive sequence, but they have logical coherence. Figure 5 shows key activities and tools in each step.

The last chapter of the handbook provides some recommendations to government agencies on institutional coordinating mechanisms and capacity building for technical knowledge.

2.3 How to use this handbook

This handbook can be used to support government agencies in Thailand at national and sub-national levels in the preparation for budgeting (at a project level) that integrate climate change and GSI considerations. This handbook is not intended to serve as a general guidebook on project formulation and implementation since each government agency could rely on other materials. Rather, this handbook focuses specifically on how to integrate CC-GSI considerations into existing functional routine works and functional budget request formulation.

For an overview of CC-GSI integration, a government agency can first take a glance through all sections of the handbook. Then, it can consider specific steps and tools described in more detail. Step 7 pulls all analyses obtained from Steps 1-6 to support the preparation of budgeting in accordance with the Budget Bureau's requirements.

2.4 Who should use this handbook

Climate change (CC) and gender and social inclusion (GSI) are cross-cutting issues and thus all government agencies should take into consideration potential climate change impacts on various gender and social groups among their target beneficiaries. The degree of relevance may vary according to the mandate, functional roles and responsibilities of individual agencies.

The candidates for being the main users of this handbook are government ministries and agencies in the sectors identified as climate change priority sectors for mitigation and adaptation. This includes Ministries of Energy, Transport, Industry, Agriculture and Cooperatives, Natural Resources and Environment, Public Health, Tourism, Interior, and Social Development and Human Security, and government agencies with relevant specific mandates such as water management, waste management, rural development and disaster prevention.

Those with roles in research and education such as the Ministry of Education, Ministry of Higher Education, Science, Research and Innovation and research and educational institutions should also consider how they can improve public awareness and understanding of climate change and its impacts on Thai society and future development.

Officials at the operational level responsible for project planning and budget preparation are the primary target users of this handbook.

2.5 How is this handbook linked with Thai government guidelines

This budget request preparation part of this handbook is closely linked with the Budget Formulation Guidelines of the Budget Bureau. The tools in this handbook can be used alongside each government department's guidelines on project planning and the official BB guideline to prepare a budget request at the project level. While a government agency may consult regular materials related to project formulation and implementation for detailed concepts, steps, approaches, illustrations, etc., this handbook provides practical tools for CC-GSI integration throughout the planning process, from situation analysis through budget request preparation.

How to Integrate CC-GSI in Planning and Budgeting

This handbook takes a practical, stepwise approach to support government agencies at national and subnational levels to integrate climate change (CC) and gender and social inclusion (GSI) considerations into planning and budgeting in their functional work.

An overview

The seven steps combine a process of integrating CC-GSI considerations towards gender-responsive and socially inclusive planning of routine work and/or special interventions and budget request preparation.

Step 1: Climate change-gender and social inclusion (CC-GSI) basics are crucial foundations of the process. It is important to have a basic understanding of climate change and the gender and social dimensions of climate change impacts and vulnerabilities before starting the process of CC-GSI integration.

Step 2: CC-GSI institutional capacity assessment and priorities. Government agencies need to review and assess their capacity to integrate CC-GSI. They should identify how CC-GSI is relevant to existing projects and programmes, as well as priorities and gaps for integrating CC-GSI considerations into their functional routines and budgets.

Step 3: CC-GSI data collection and analysis involves a participatory process of evidence base building with secondary and primary data that are disaggregated along key demographics, such as gender, age and type of household, and socio-economic variables, such as geographical location, income and occupation. In this step, relevant stakeholders, especially potentially affected communities, should be consulted for inputs to ensure accurate and up-to-date evidence.

Step 4: Stakeholder consultation and CC-GSI impact analysis build on the findings from Step 3. In this step, participatory and in-depth impact analyses are conducted based on collected data with inputs from affected communities/sectors and key stakeholders. Findings are shared with relevant stakeholders at multiple levels to facilitate multilateral inter-agency collaboration in a two-way fashion, bottom-up as well as top-down.

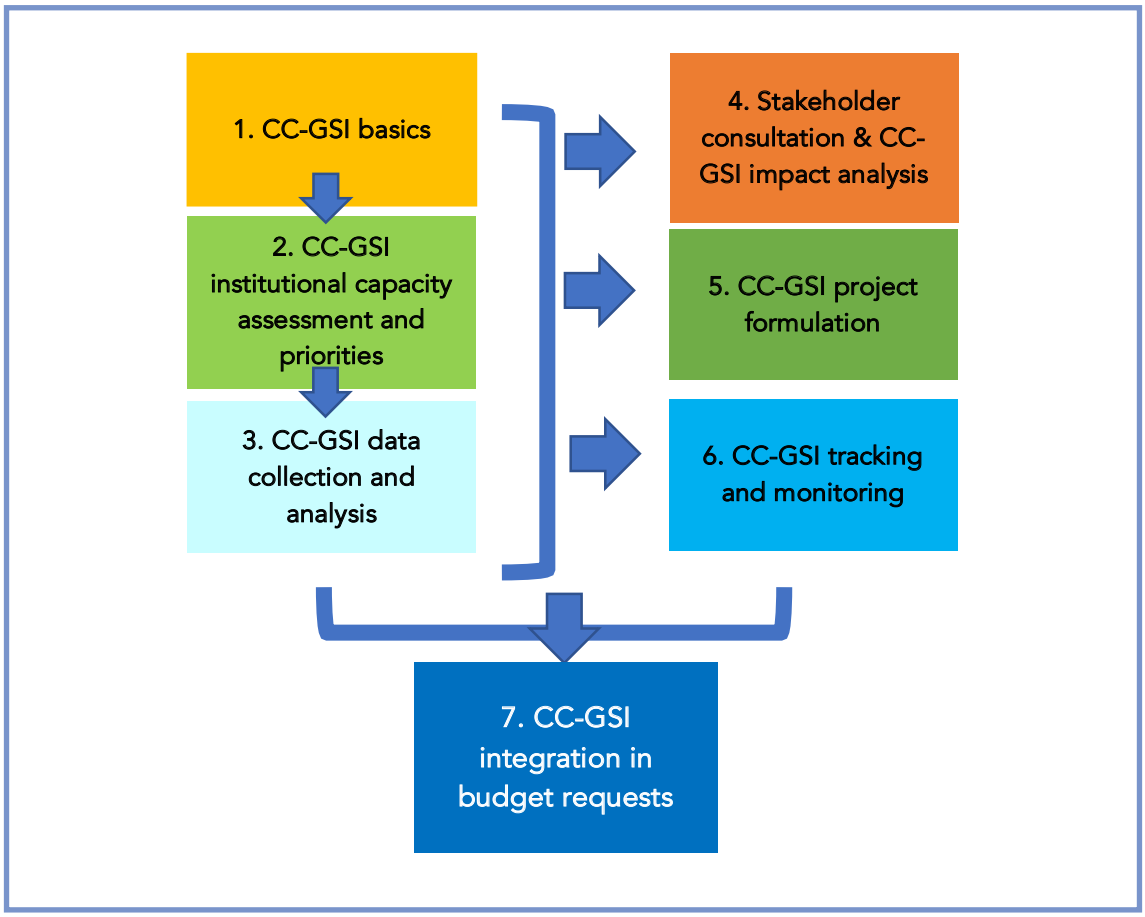
Step 5: CC-GSI project formulation is done with the evidence base and multilateral consultations from Steps 2-4. With appropriate technical support and cooperation from appropriate agency/agencies, communities can identify their priorities and localized solutions to address the climate impacts, as well as co-benefits for affected population groups. This step gives guidance on selecting intervention options to be integrated or implemented alongside other functional activities.

Step 6: CC-GSI tracking and monitoring is necessary to ensure efficiency, effectiveness and long-term sustainability of the intervention and the integration of CC-GSI in the process.

Step 7: CC-GSI integrated budget request preparation is done according to the Budget Bureau guidelines. This concludes the process before the budget request is submitted to the BB.

The logical coherence among the seven practical steps is visualized in Figure 6.

Figure 6: Logical coherence in steps to integrate CC-GSI considerations



STEP 1:
CC-GSI BASICS

Step 1 gives a quick briefing on "CC-GSI Basics." What is climate change? What is gender and social inclusion? How are CC and GSI linked? These are basic questions that need to be well understood before an integration of CC-GSI can begin.

CC-GSI Basics comes in three parts. Tool 1.1: Climate Change Basics discusses the definition of Climate Change (CC) and climate risks and vulnerabilities for Thailand. Tool 1.2: Gender and Social Inclusion Basics explains what is meant by Gender and Social Inclusion (GSI) and how it is relevant to climate change impacts in the Thai context. Those with expert knowledge on either climate change or GSI may choose to skip the relevant part, but most readers are advised to familiarize or refresh their knowledge on both aspects. Finally, Tool 1.3: GSI Dimensions in Climate Change Vulnerabilities and Capacities for Action gives examples of GSI dimensions in different climate sectors.

Tool 1.1: Climate Change Basics

1) What is climate change?

Climate change has more than one definition. The United Nations Framework Convention on Climate Change Conference (UNFCCC) defines climate change as "a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable periods."[14] The Intergovernmental Panel on Climate Change (IPCC) defines it as "a change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer," whether due to natural variability or as a result of human activity.[15]

14 United Nations, United Nations Framework Convention on Climate Change Conference, 1992, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

15 IPCC, Glossary, https://www.ipcc.ch/sr15/chapter/glossary/.

Simply put, climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural such as through variations in the solar cycle. But since the industrial revolution around the 18th century, human activities have been the main driver of climate change, primarily due to burning of fossil fuels like coal, oil and gas. Burning fossil fuels generates greenhouse gas (GHG) emissions that act like a blanket wrapped around the Earth, trapping the sun's heat and raising temperatures, causing global warming.[16]

GHG emissions that have contributed to climate change are for example those from burning fuels in factories and cars, heating and cooling systems in houses and buildings, deforestation, waste, and landfills. Energy, industry, transport, buildings, agriculture, and land use are among the main emitters of GHGs.

Climate change has impacts on natural ecosystems and human societies. The impacts are, for example, more frequent and severe flooding, intense droughts, water scarcity, wildfires, melting polar ice, rising sea levels, catastrophic storms, and declining biodiversity in plant and animal species and marine life. For humans, climate change can affect our safety and security such as in health, food production, housing and livelihoods. People living in small island nations and many poor and developing countries are more vulnerable to climate impacts due to less adaptive capacity. Conditions like sea-level rise and saltwater intrusion have forced communities in parts of the planet to relocate, and protracted droughts are putting millions of people at risk of famine. In the future, the number of 'climate refugees' is expected to rise.[17]

2) What are climate change risks for Thailand?

A comprehensive assessment of risks and projected impacts of climate changes would consider how changes in atmospheric conditions (e.g., temperature, precipitation) translate to impacts on physical (e.g., droughts and floods, erosion of beaches and slopes, sea level rise), ecological (e.g., forest fires), and human systems and assets (e.g., casualties, infrastructure damage).[18]

Along with the impacts on the natural earth and human systems are the social and economic impacts. Box 4 shows metrics used to quantify the socio-economic impacts.

16 United Nations, What Is Climate Change?, https://www.un.org/en/climatechange/what-is-climate-change.
17 Ibid.
18 Lavell, A., M. Oppenheimer, C. Diop, J. Hess, R. Lempert, J. Li, R. Muir-Wood, and S. Myeong, 2012: Climate change: New dimensions in disaster risk, exposure, vulnerability, and resilience. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)). A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 25-64.

Box 3: What does "climate risks" mean?

Climate risks involve a range of hazards. Some climate hazards are slow in their onset such as in temperature and precipitation leading to droughts or agricultural losses, while others occur suddenly such as tropical storms and floods. Climate variability and extreme events, irrespective of attribution to climate change, and their adverse impacts on humans and ecosystems, are now widely recognized as not just a future threat but are increasingly being experienced worldwide.

Source: UNFCCC, https://unfccc.int/topics/resilience/resources/climate-related-risks-and-extreme-events.

Box 4: Metrics to quantify socio-economic impacts of climate change

- Human casualties and injuries
- Number of permanently or temporarily displaced people
- Number of directly and indirectly affected persons
- Impacts on properties, measured in terms of numbers of buildings damaged or destroyed
- Impacts on infrastructure and lifelines
- Impacts on ecosystem services
- Impacts on crops and agricultural systems
- Impacts on disease vectors
- Impacts on psychological well-being and sense of security
- Financial or economic loss (including insurance loss)
- Impacts on coping capacity and need for external assistance

Source: Below, R., A. Wirtz and D. Guha-Sapir, 2009: Disaster Category Classification and Peril Terminology for Operational Purposes. Common Accord Centre for Research on the Epidemiology of Disasters (CRED) and Munich Re, Brussels, Belgium and Munich, Germany, cred.be/sites/default/files/DisCatClass_264.pdf, cited in Lavell et al., A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, p. 42.

Thailand is ranked among the top 10 countries most affected by impacts of climate change in the Global Climate Risk Index during the past two decades (2000-2019).

Thailand's Assessment Report of Climate Change (TARCC) published in 2013 showed high levels of climate risks during 1970-2009, highlighting significant climate change trends in Thailand, including more frequent extreme weather events.[19]

19 ONEP and MoNRE, *ร่างแผนการปรับตัวต่อการเปลี่ยนแปลงสภาพภูมิอากาศแห่งชาติ:* Draft Thailand's National Adaptation Plan, pp. 21-23; *อัศมน ลิ่มสกุล และ แสงจันทร์ ลิ่มจิรากาล* 2011, cited in ONEP, Thailand Climate Change Master Plan 2015-2050, 2015, p. 33.

In recent years Thai media have more frequently reported: "the worst flood" and "the worst drought" in decades and the highest record temperatures of 44 degree Celsius and above in several provinces. Box 5 highlights climate change trends in Thailand since the 1950s.[20]

Box 5: Climate change trends in Thailand

Temperature rise by 1° Celsius during 1955-2009 at a faster rate per decade than the global average (0.174° vs. 0.126° Celsius)

- Expected to rise further 0.5°-1.5° Celsius over the next 20 years, and 2-4 degrees Celsius by 2099

Changes in patterns of precipitation

- Less frequent and less continuous rainfalls since 1955
- Shortened but more intense rainfalls
- Rainfalls over reduced geographical areas

More record-breaking temperatures during hot season in recent years

2016 – 44.6° C Mae Hong Son (28 Aril)
2016 – 44.5° C Sukhothai (11 May)
1960 – 44.5° C Uttaradit (27 April)
2016 – 44.3° C Sukhothai (12 April)
2019 – 44.2° C Lampang (18 April)
2016 – 44.1° C Sukhothai (13 May)

1959 – 44.1° C Nan (12 April)
1958 – 44.1° C Mae Hong Son (25 April)
2016 – 44.0° C Kamphaeng Phet (26 April)
2016 – 44.0° C Sukhothai (7 May)
2016 – 44.0° C Lamphun (12 May)
2010 – 44.0° C Mae Hong Son (15 May)
1957 – 44.0° C Tak (25 April)

More frequent extreme events

Severe floods

- Worst flood in decades in 2011 in Chao Phraya River Basin from heaviest recorded rainfalls in 60 years

Extended period of drought

- Worst drought in decades in 2015

Number of more severe storms has increased every decade since 1970s

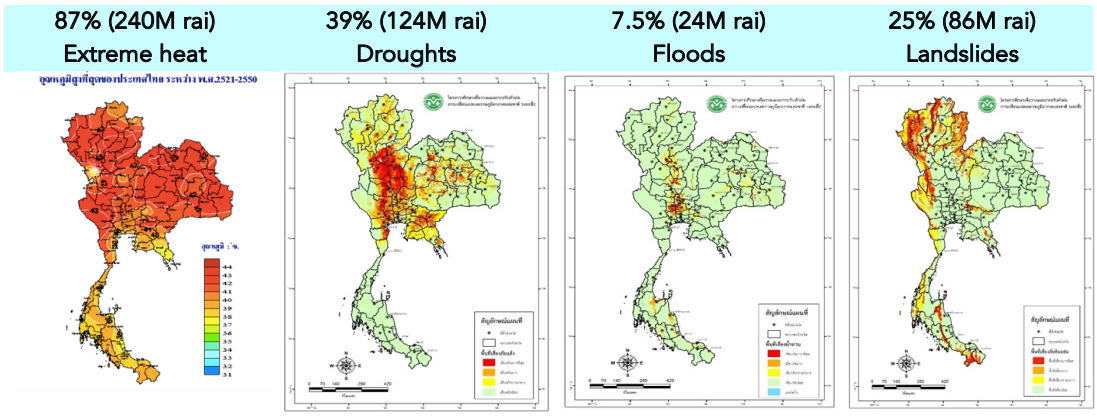
- Each year, more hot days and fewer 'cold' days

Source: ONEP, Thailand Climate Change Master Plan 2015-2050, 2015.

20 Below, R., A. Wirtz and D. Guha-Sapir, 2009: Disaster Category Classification and Peril Terminology for Operational Purposes. Common Accord Centre for Research on the Epidemiology of Disasters (CRED) and Munich Re, Brussels, Belgium and Munich, Germany, cred.be/sites/default/files/DisCatClass_264.pdf, cited in ibid, p. 42.

Thailand has a total land area of 340 million rai, including 47 percent agricultural area, 21 percent non-agricultural land, and 32 percent forest land. As much as 87 percent of Thailand's land mass is exposed to extreme heat (temperature over 40° Celsius), 39 percent to droughts, 7.5 percent to floods, and 25 percent to landslides (see Figure 7).

Figure 7: Thailand's geographical exposures to extreme weather events



Consequences of climate change impacts on vast geographical areas and millions of the population have been evident in the past few decades (see Box 6).

Box 6: Climate change impacts in Thailand

Floods	Droughts	Extreme heat	Diseases
(2009-2013) • ***50 provinces affected*** • ***1,493 deaths*** *related to natural disaster* *(2011)* *Worst floods in 60 years* • ***THB 1.43 trillion in*** *damages & loss* • ***13M people*** *affected* • ***11.2M rai of farmland flooded*** • ***680 deaths***	*(2015, 2016, 2019)* ***Worst droughts in decades*** *(2009-2013)* • ***14M people affected*** *(1994)* • ***17M rai of agricultural land affected***	***(2013-2016)*** ***Heat-related death rates increased from 0.77 to 5.28 per 100,000*** • ***Farmers, labourer, elderly, school children*** ***(since 2016)*** ***More record-breaking highest temperatures over 44 degrees Celsius in 8 provinces***	*(since 2011)* ***Rising death cases from dengue fever, malaria, respiratory illness, food and water borne diseases among:*** • *Children (5-14)* • *Farmers, youth (15-24)* • *Infants, children (0-4), elderly (over 65)*

Source: Busakorn Suriyasarn and Pawin Talernsri, Social Dimension of Climate Impacts in Thailand: Analysis of Risks, Policy, Planning and Finance, UNDP, 2019.

Besides floods, droughts, extreme heat and diseases, storms, sea level rise and increased salinization of water are other climate change impacts affecting many millions of people in Thailand. Based on the information cited in various climate change policy documents, Thailand's future climate change risks are summarized in Box 7.

Box 7: Thailand's future climate change risks

Floods

Most vulnerable to floods: central & western regions

- Flooding in high flood-risk areas will persist
- High flood-risk areas: central and upper northern regions along main rivers, i.e., Chao Phraya, Yom, Nan
- Flood-prone agricultural areas
- Highest flood-risk areas: 1.3M rai for rice cultivation in central region
- Highest repeated flood risk areas: central floodplain; low coastal areas in the east and the south
- Flooding in and around Bangkok will become more severe when adding rise of sea levels
- Top 10 flood-prone provinces: Nakhon Sawan, Phra Nakhon Si Ayutthaya, Surat Thani, Suphan Buri, Phitsanulok, Pichit, Sukhothai, Roi Et, Nakhon Ratchasima and Sisaket

Droughts

Most vulnerable to droughts: northern region

- Hot season to become longer: 5-6 months, 7-8 in some areas
- Drought-prone agricultural areas
- Highest drought-risk areas: 13M rai in northern region
- Top 10 drought-prone provinces: Nakhon Sawan, Phetchabun, Nakhon Ratchasima, Phitsanulok, Kanchanaburi, Chiang Mai, Kamphaeng Phet, Sa Kaeo, Lampang and Chaiyaphum
- Water shortages: supply will not meet growing demand
- Demand for water is expected to rise in all sectors

Changes in patterns of precipitation

Most vulnerable to precipitation pattern changes: western coastal areas, followed by river deltas of Mae Klong River and Pattani River

- Rainfall distribution will be geographically limited over the next 20 years
- Increased rainfalls over the Mekong River delta

Extreme heat

- Temperature will rise in most parts of Thailand
- More severe heat in: Suphan Buri, Kanchanaburi, Phichit, Nakhon Sawan

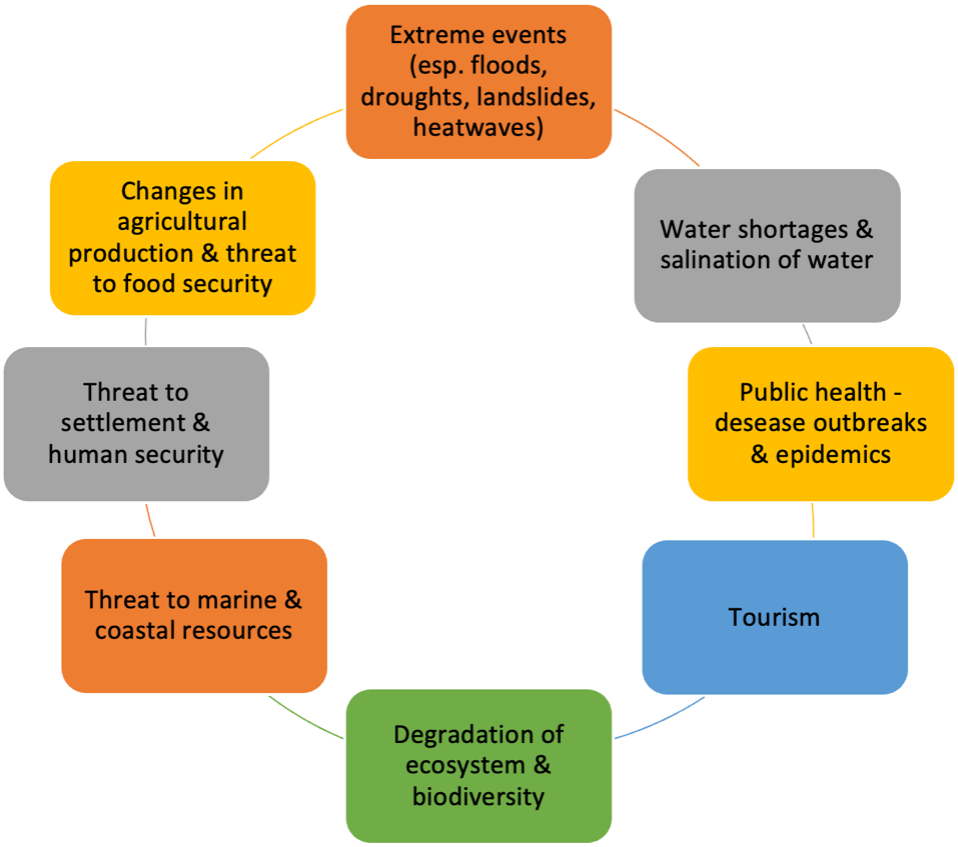
Diseases

- Heat-related death rate to rise among elderly population
- By 2050-2059, twice as many people will have dengue fever than in 2006
- By 2070, 70 million people will be affected by malaria

Source: Busakorn Suriyasarn and Pawin Talernsri, Social Dimension of Climate Impacts in Thailand: Analysis of Risks, Policy, Planning and Finance, UNDP, 2019.

Extreme weather events are not the only threat to Thailand because of climate change impacts. Figure 8 shows key climate change threats for Thailand.

Figure 8: Key climate change threats for Thailand



"Thailand must prepare to face and manage climate change impacts… Climate change is a significant threat to achieving sustainable development, economic growth, poverty reduction, quality of life improvement, balance of the ecosystems, healthy biodiversity, and good quality environment."
—*Thailand's Climate Change Master Plan (2015-2050)*

3) Thailand's climate change sectors

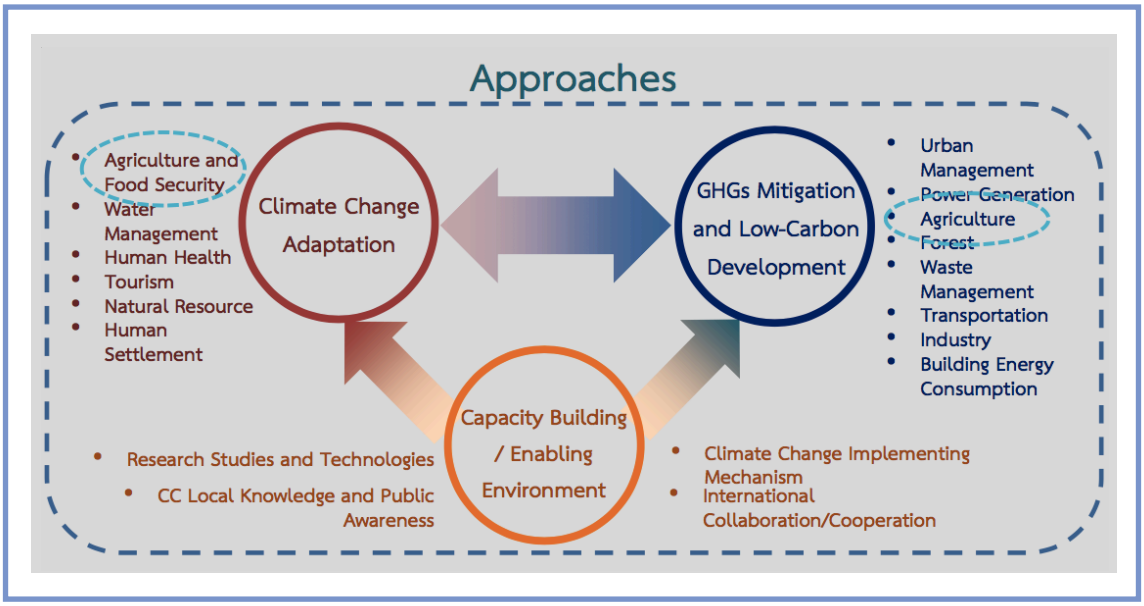
Thailand's Climate Change Master Plan (2015-2050) identified the following climate change-affected sectors:

- Water management
- Agriculture and food security
- Public health
- Natural resources management and forestry
- Human settlement and security
- Tourism
- Power generation
- Transport
- Building and energy consumption
- Industry
- Waste management
- Urban management.

Thailand has adopted a three-pronged approach to address climate change:

- Climate change adaptation
- GHG emission mitigation and low-carbon development
- Capacity building for an enabling environment.

Figure 9: Thailand's three-pronged approach to address climate change



Source: ONEP.

The long-term goals set to be achieved by 2050 include measurable positive outcomes from the adaptation and mitigation efforts and strengthened capacity for sustaining a low-carbon and climate-resilient society at all levels.

Tool 1.2: Gender and Social Inclusion Basics

Everyone lives in a changing climate, but climate change does not affect everyone equally. Impacts of climate change are experienced differently by people of different gender, age, social and economic group, geographical location, relationship with the environment, and other factors.

For example, floods and droughts are among the top climate change impacts in Thailand and have affected some population groups more than others. The most affected groups by the past floods and droughts in Thailand have been farmers and agricultural laborers, poor farming households, low-income groups working in the informal economy, and wage earners in trade and labor-intensive manufacturing and service sectors.

But what does gender and social inclusion have to do with climate change? First, let's examine what the meanings of "gender" and "social inclusion."

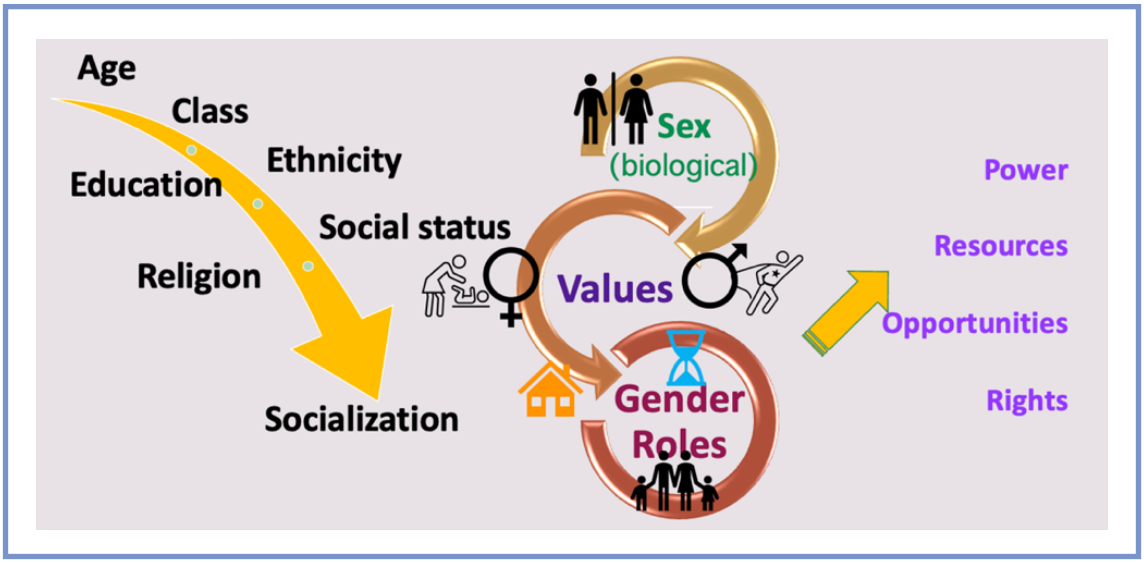
1) What is gender and social inclusion (GSI)?

"Gender" encompasses more than biology. From childhood to old age, girls and boys, women and men are socialized with social norms and values and are assigned "gender roles" and responsibilities based on their sex. Boys and girls grow up learning through socialization what is expected of them, what they are allowed or not allowed to do, and how a boy, a girl, a man and a woman is valued in the family and society. These expectations and assigned roles with a confluence of other factors such as age, class, education, family upbringing, ethnicity, religion, social status, define the attributes, opportunities or constraints, as well as access to power and resources for individuals in society. They also define the social and power relations between women and men (see Figure 10).

In this way, gender is a social construct of attributes, roles, opportunities, and relationships associated with being male or female. However, this social construct is context- and time-specific. For example, what is considered normal in one culture may be prohibited in another, and what is normal today was not allowed in the old days. In other words, gender roles, expectations and norms are not fixed. They are defined within a specific culture and can and do change over time.

In most societies, there are differences and inequalities in how women and men are valued and assigned roles and responsibilities. These differences and inequalities, especially in access to decision-making power and resources, can be addressed with the empowerment of population groups, groups that tend to

Figure 10: What is gender?



be women and poor, lack access to power and resources or face discrimination based on age, class, income, education, ethnicity, religion or legal status. Therefore, gender has a complex dynamic and contains multiple dimensions that should be considered.

"Social inclusion" refers to the process of improving the terms of individuals and population groups to take part in society and the process of improving the ability, opportunity, and dignity of those disadvantaged based on their identity to take part in society.

Given that climate change impacts are multifaceted and multidimensional, multiple relevant aspects should be considered and addressed. By integrating "gender and social inclusion" (GSI) considerations, climate change impacts and vulnerabilities can be better understood, solutions address the real problems, and the affected people are supported and not left behind.

2) GSI considerations

Consider the following three real cases that illustrate climate change impacts. What dimensions do you see in each case?

a. **Women and children are at a greater risk of respiratory diseases from household air pollution.**

In Thailand a significant proportion of rural poor Thai households still rely on polluting cooking fuels (primarily firewood and charcoal), especially in the northeast (42%) and the north (25%).

b. **During 2013-2016, the rates of death from extreme heat in Thailand rose from 0.77 to 5.28 per 100,000 population.**

Farmers, people aged over 60, general laborers and students under 15 years old are at higher risk.

c. **The Committee on the Elimination of All Forms of Discrimination Against Women (CEDAW) observed that rural women in Thailand, in particular indigenous women and women from ethnic and religious minorities, continue to:**

- be disproportionately poor and have limited economic opportunities
- face restrictions to their right to land and natural resources due to land acquisition for development projects, mining and other extractive industries, and the zoning of national parks

d. be excluded from decision-making bodies and structures at national and local levels and from policy-making processes on issues that affect them.

Source: CEDAW Concluding Observations on state of gender equality – Thailand 2017, p. 11.

The environmental impact in each case above is felt by particular groups of people. The clear dimensions are gender and age, with poverty and other specific socio-economic factors adding to the vulnerabilities of these affected population groups. Let's consider each case.

In case a, why are women and children at a greater risk of respiratory diseases from household air pollution?

- An obvious answer is that they are often the ones who do the cooking. Presumably, women and children from poor households that still use polluting cooking fuels like firewood and charcoal are at a greater risk than women and children in higher income households that are likely to use non-polluting cooking energy like gas or electricity. Geographically, at-risk women and children are concentrated in the northeast and the north, which have a higher usage of polluting cooking fuels. Further questions can be asked, such as in which type of communities are these women and children likely to live? An assumption can be made that they are likely to live in communities in poor rural areas with access to firewood and charcoal, and possibly where the practice of cooking inside the house is still common, e.g., in indigenous highland communities. However, these assumptions need to be tested and confirmed by empirical data.

In case b, why did death rates from extreme heat increase among farmers, people over the age of 60, general laborers and students under the age of 15?

- Farmers work in the fields during the daytime, hence are more exposed to the sun and extreme heat. General manual laborers are more exposed for the same reason. The elderly and young children generally have more fragile health compared to healthy adults. However, while the elderly can be expected to have underlying health conditions that make them more susceptible to harm from extreme heat, some questions need further investigation: to what extent are young teenagers at risk of death from extreme heat; are they more exposed to extreme heat at home or school, etc.

In case c, why are women from indigenous, and ethnic or religious minorities disproportionately poorer and excluded from economic opportunities, rights and the decision-making process?

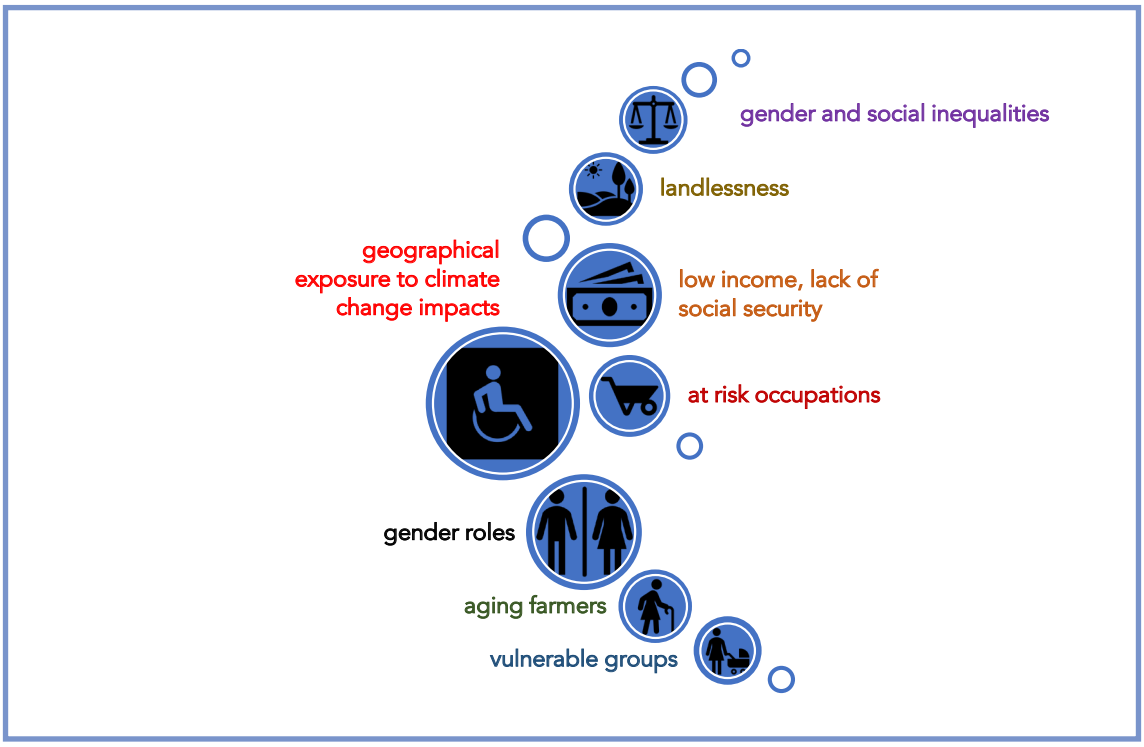
- Thai women in general play strong economic roles in their families and communities. Why is the situation different with this group of women? Answers may lie in the physical, social and cultural environments in which these women live. Indigenous, ethnic and religious communities tend to have traditions and customs that put women in a lower status than men. Such communities also tend to have lower education, income and opportunities than the average population. In traditional communities, women and girls are less likely to play leadership roles or have a say in important decision-making in their families or communities. However, in many instances, women from such communities overcome traditional cultural or religious barriers to assert their rights to use natural resources, an important means to their livelihoods, sometimes at a cost to their safety and liberty in the face of political or policy barriers that often limit the participation.

Cases	GSI dimensions
a. Household air pollution	Gender, age, poverty, geography, income
b. Death from extreme heat	Age, occupation, working conditions
c. CEDAW observations	Gender, poverty, ethnicity, religion, rights, participation

3) Vulnerability factors

These three cases illustrate multiple dimensions of impacts of climate change, with gender and age being just two among many others, and that not all people experience climate change impacts equally or in the same way. Who they are, where they live, life circumstances, resources available to them and other factors can play a part in their ability to manage the impacts (see Figure 11).

Figure 11: Vulnerability factors



Questions for policymakers, planners and implementing agencies:

- What can be done to address the needs of specific affected population groups?
- What are effective ways to support affected populations and communities to manage climate change risks and reduce their vulnerabilities?
- What are practical and inclusive ways to support affected population groups and communities to build climate resilience and sustainable solutions to the potential impacts of climate change?
- Are there any existing functional programmes or projects in the agency in which the CC-GSI issues can be incorporated and addressed with integrated solutions to the larger national developmental context?

4) Why integrate GSI in climate policy, planning and budgets?

Integrating gender and social inclusion is crucial in achieving effective climate change policy, planning and financing because it strengthens national climate change response by ensuring that:

- Climate policies and interventions are appropriate to the local context by addressing the different perspectives, roles, rights, needs and priorities of women and men and vulnerable groups as equal stakeholders.

- Climate approaches are more inclusive, efficient, responsive and provide broader and equitable shared benefits to all groups of people, especially the most vulnerable.
- Women and men in all population groups have equal opportunities to participate and act as active agents of change in decision-making and implementation at the national, regional and local levels of adaptation and mitigation.
- Where gender and social equity gaps exist in the distribution of power, resources, services and participation, disadvantaged groups are supported and empowered to overcome social, cultural or institutional constraints and barriers to meaningful engagement, and that their knowledge, concerns and experiences are considered.
- Resources are mobilized strategically to ensure equal participation and equitable distribution, especially at the local level, and climate investment is designed to address and not exacerbate gender and social inequalities.
- Development and transfer of environmentally sound technologies promote equitable access, education and training opportunities for all women and men to use as means and tools for climate change mitigation and adaptation.[21]

Tool 1.3: GSI Dimensions in Climate Change Vulnerabilities and Capacities for Action

When addressing affected populations in general or specific vulnerable groups, it is important to emphasize that affected individuals and communities have the capacity to be active change agents in climate action. Government policies and plans are often implemented with less-than-ideal participation from the affected communities, even though they often know the problems they are facing more than anyone because it is their lived experience. The challenge is how to include them in the process of finding solutions.

Table 1.1: GSI dimensions in climate change vulnerabilities and capacities for action shows CC and GSI linkages and pathways to investigate how women and men and different population groups can be vulnerable to climate change impacts, their potential capacities for action, and policies and institutional framework to support an enabling environment for GSI-responsive climate change mitigation and adaptation action in various climate change-affected sectors.

21 Source: European Capacity Building Initiative (ecbi), Pocket Guide to Gender Equality Under the UNFCCC, 2018, p. 7; Huyer, S., *Gender Equality in National Climate Action: Planning for Gender-Responsive Nationally Determined Contributions,* UNDP, Global Gender and Climate Alliance (GGCA), and Ministry for Foreign Affairs of Finland, 2016, p. 8.

Table 1.1: GSI dimensions in climate change vulnerabilities and capacities for action

Sector	Vulnerabilities: Demography and impacts	Capacities for action: Roles of women and vulnerable/ affected groups, existing policies and institutional framework
Climate Change Mitigation (Reduced Emissions From:)		
Energy access and power generation	• Share of single-headed (female/ male), skipped generation, low-income households without energy access • Impacts vulnerable groups (e.g., women, elders, rural/ indigenous/ethnic minority/ migrant poor) are experiencing due to lack of energy access	• Roles of women (vs. men) in household energy use • Share of women and men in the energy labor market and type of occupation • Policies and institutional framework to promote gender equality in energy/power generation • Policies and institutional framework to promote equitable access to energy/power
Low-emission transport	• Share of women vs. men, children/youth vs. elders, low vs. high income groups using public transport • Share of women vs. men, children/youth vs. elders, low vs. high income groups without access	• Roles of women (vs. men) in the community/family in low-emission transport use pattern • Share of women and men in the low-emission transport labor market and type of occupation • Policies and institutional framework to promote gender equality in (low-emission) transport sector
	• Impacts vulnerable groups (e.g., children, elders, women, rural/ indigenous/ethnic minority/ migrant poor) are experiencing due to lack of or poor-quality transport	• Policies and institutional framework to promote equitable access to public transport
Buildings, cities, industries and appliances	• Share of women among building occupants, users of public/ communal infrastructure, users of appliances • Share of women and vulnerable groups in energy/fuel poverty • Impacts women and vulnerable groups (poor, marginalized populations) are experiencing due to inefficient patterns of resource use in buildings, cities, industries and/or by appliances (health, poverty)	• Roles of women (vs. men) in the buildings, cities, industries regarding resources/energy use patterns • Share of women and men in the relevant labor market and type of occupation • Policies and institutional framework to promote gender equality in buildings, cities, industries • Policies and institutional framework to promote equitable access to resources/energy use in buildings, cities, industries

Sector	Vulnerabilities: Demography and impacts	Capacities for action: Roles of women and vulnerable/ affected groups, existing policies and institutional framework
Forestry and land use	• Share of women and vulnerable groups (rural/indigenous/ethnic minority poor) among forest and land users • Impacts women, men and vulnerable groups are experiencing due to inefficient patterns of forest/land use	• Share of women and men in the labor market and type of occupation in forestry and land use • Policies and institutional framework to promote gender equality in forestry and land use • Policies and institutional framework to promote equitable access to resources in forestry and land use
Result area	**Vulnerabilities:** **Demography and impacts**	**Capacities for action: Roles of women and vulnerable/affected groups, existing policies and institutional framework**
Climate Change Adaptation		
Most vulnerable people and communities	• Share and number of population groups/communities most vulnerable climate risks and impacts (disaggregated age, sex, income, occupation, geographical region, etc.) • Share and number of women/ girls, children, elders, people with poor health conditions or disabilities, unemployed among vulnerable groups and communities	• Roles of women and vulnerable/ affected groups in targeted communities • Share of women and men and vulnerable groups in the relevant labor market and type of occupation • Policies and institutional framework to address vulnerabilities
Health and well-being & food and water security	• Share and number of vulnerable groups (pregnant women and nursing mothers, children under 5, children under 15, elders, rural/indigenous/ethnic minority/migrant poor, people with poor health conditions or disabilities, unemployed) with increased exposure to water or food insecurity or health-related hazards	• Roles of women and vulnerable/ affected groups in targeted communities • Share of women and men and vulnerable groups in the relevant labor market and type of occupation • Policies and institutional framework to address vulnerabilities

Sector	Vulnerabilities: Demography and impacts	Capacities for action: Roles of women and vulnerable/ affected groups, existing policies and institutional framework
Infrastructure and built environment	• Share of women and vulnerable groups (elders, youth, rural/ indigenous/ethnic minority/ migrant poor, people with disabilities) lacking access to adequate infrastructure (road, water supply, sanitation, flood protection, housing, energy access, etc.)	• Roles of women and vulnerable/ affected groups in the design and maintenance of infrastructure and the built environment • Share of women and men and vulnerable groups in the relevant labor market and type of occupation • Policies and institutional framework to promote equal access to adequate infrastructure
Ecosystem and ecosystem services	• Share of women and vulnerable groups (elders, youth, rural/ indigenous/ethnic minority/ migrant poor, people with disabilities) depending on ecosystem and ecosystem services for livelihoods	• Roles of women, elders and youth in the community/household with reference to national resource use • Share of women and men and vulnerable groups in the relevant labor market and type of occupation • Policies and institutional framework to promote gender and social equity in access to ecosystem services

Source: Adapted from Green Climate Fund (GCF) and UN Women, *Mainstreaming Gender in Green Climate Fund Projects: A Practical Manual to Support the Integration of Gender Equality in Climate Change Interventions and Climate Finance, 2017*, Table 4 Identifying gender-related vulnerabilities and capacities for change in GCF projects, pp. 30-31.

STEP 2:
CC-GSI INSTITUTIONAL CAPACITY ASSESSMENT AND PRIORITIES

Agencies with direct responsibility in climate change policymaking, planning and implementation should review and assess to what extent they are currently integrating GSI in climate change-related work, for example, climate risk and vulnerability analysis in a specific geographical area or sector; climate change planning at the ministerial, sectoral, provincial or local levels; and developing climate change projects in affected communities.

Agencies that do not have a direct climate change mandate should review to what extent they are currently including relevant climate change and GSI considerations in functional work.

Step 2 provides two simple checklists to assess existing institutional or community capacity for CC-GSI integration.

- Tool 2.1: Checklist – Institutional Capacity to Integrate CC-GSI helps agencies to review if their existing programmes or projects have considered CC-GSI considerations in policy and planning, research and data collection and analysis, stakeholder engagement, and budgeting.

  Agencies can use this checklist to identify to what extent CC-GSI is relevant to existing projects and programmes, as well as gaps and priorities for integrating CC-GSI considerations into their functional routines and budgets. By identifying the gaps and priorities for GSI integration, appropriate tools and measures, institutional capacity development and interagency collaboration can then be identified for effective action or targeted interventions.

- Tool 2.2: Checklist – Community Capacity to Integrate CC-GSI. Agencies at the national and provincial levels may conduct targeted interventions as part of routine work. Checklist 2 helps agencies review and assess local capacity at the target area/sector or community level to integrate CC-GSI in project development or implementation.

- Tool 2.3: Identifying CC-GSI Action, Gaps and Priorities discusses how to analyze the results of the checklists and identify steps to fill the capacity gaps and priorities to act for CC-GSI integration.

Tool 2.1: Checklist – Institutional Capacity to Integrate CC-GSI

Guideline: Please answer the following questions by putting a ✓ check mark in the appropriate column. If more than half of your answers are "Yes," your agency is on the right track to integrating CC-GSI in your functional work. If more than half of your answers are "No" or "Not sure," more focused efforts are needed to improve the capacity of your agency to integrate CC-GSI.

Does your agency:	Yes	No	Not Sure
Policy and planning			
1. Have a climate change action plan?			
2. Have a climate change-related programme or project?			
3. Have a gender equality policy or action plan?			
4. Have a policy or action plan to promote social participation?			
5. Have a programme/project that targets women and/or vulnerable groups (specifically or as part of a larger target group)?			
Research, data collection and analysis			
6. Collect data on impacts of climate change?			
7. Collect data about impacts of climate change on affected population?			
8. Collect data about affected population groups disaggregated by gender, age and other variables such as income, occupation?			
9. Conduct a situation analysis that includes the needs and priorities of vulnerable groups before designing an intervention?			
10. Conduct a gender analysis (to identify needs and priorities of women and men, girls and boys) before designing or implementing a programme or project?			
11. Analyze gender and social dimensions of the data collected, e.g., what do men and women, boys and girls do and how they are affected (by climate impacts) differently, access and control over resources (money, education, knowledge, skills, technology, time use, information, access to loans and credit) between men and women and among different population groups, decision-making patterns in the family and community, extent of existing gender and social inequalities?			

Does your agency:	Yes	No	Not Sure
Research, data collection and analysis			
12. Have a gender unit or gender focal who provides a gender perspective within the agency?			
13. Seek outside expertise on gender and vulnerable groups, e.g., consult with the Office of Women and Family Affairs Development, NGOs, or women's and community organizations?			
14. Routinely engage relevant stakeholders in the target area in the planning and implementation of an intervention?			
15. Ensure that views and needs of women and men, girls and boys, and vulnerable or potentially affected groups are sought before, during and after programme/project implementation?			
16. Develop gender-responsive or target group-specific indicators to measure progress towards gender equality or social participation in programmes/projects?			
Research, data collection and analysis			
17. Have a climate budget component integrated in routine budget proposals?			
18. Allocate budgets to programmes/projects that target women and/or vulnerable groups?			
19. Formulate gender-responsive budgets or budgets for vulnerable groups-specific activities with a tracking system to monitor and evaluate progress towards the programme/project goals?			
20. At the budget review stage, analyze to what extent women and men, girls and boys, or targeted vulnerable groups benefit from the resources allocated and to what extent the resource allocations meet the needs and priorities of the intended beneficiaries?			

Source: Adapted from ILO, *Gender Mainstreaming Strategies in Decent Work Promotion: Programming Tools (GEMS Toolkit),* ILO: Bangkok, 2010, Tool 3: How to review GEMS in your organization, Checklist 3.3.1 What is the GEMS capacity of your organization? and Checklist 3.3.2 How much do you use GEMS in your organization?, pp. 28-30.

Tool 2.2: Checklist – Local Capacity to Integrate CC-GSI

Guideline: Please respond to the following statements as it happens in the target area/sector or community by putting a ✓ check mark in the appropriate column. If more than half of your responses are "Yes," the target area/sector is on track to integrate GSI in climate action. If more than half of your responses are "No" or "Not sure," more focused efforts are needed to improve the local capacity to integrate CC-GSI.

In the target area/sector/community:	Yes	No	Not Sure
Participation and decision-making			
1. Meetings have been held at least once on climate change and environmental problems, such as drought, flood, extreme heat, wildfire, water scarcity, soil erosion, salinization, seasonal air pollution, overfishing, new crop diseases?			
2. Some action has been taken to address the climate change related problem(s) discussed.			
3. Meetings are usually attended more or less equally by both men and women.			
4. Meetings are usually attended by members of the affected community from various socio-economic groups and backgrounds.			
5. Vulnerable people or people affected by certain problems or situations are consulted on what needs to be done that concern them before a decision is made.			
6. Representatives of women, youth and vulnerable groups have opportunities to give their inputs in the decision-making process.			
Resource distribution			
7. There are local projects that aim to address climate change-related or environmental problems (e.g., drought, flood, crop failure, extreme heat, wildfire, water scarcity, soil erosion or salinization, air pollution, overfishing, new crop diseases).			
8. Resources are used to benefit the people who are truly affected in such local projects or when a natural disaster occurs.			
9. There are programmes/projects that specifically target women, children, elders and/or specific vulnerable groups.			
10. Adequate budgets are allocated to projects that target women children, elders and/or specific vulnerable groups.			

In the target area/sector/community:	Yes	No	Not Sure
Data management			
11. There is a written history of the area/sector/community.			
12. A map is kept and maintained that identifies key local landmarks and development (e.g., schools, hospitals or health clinics, temples, city hall, community centers, factories, markets, water sources, public parks, recreation facilities).			
13. There is a map of climate/environmental hazards (e.g., the locations that are prone to drought, flooding, storms, wildfires, landslides, garbage dumps, polluted areas).			
14. Data are routinely collected for planning and evaluation that are disaggregated by sex, age, household type and other important variables such as occupation and income.			
15. Community members are engaged in the data collection and management (such as being interviewed for data collection, serving as community data collectors).			

Tool 2.3: Identifying CC-GSI Action, Gaps and Priorities

1) Review the answers in the checklist and highlight to what extent your agency has acted on the following key areas:

- **CC-GSI policy and programming**
  - Climate change is addressed (with an existing policy, action plan, programme/project, intervention or initiative).
  - Gender equality promotion is addressed (with an existing policy, action plan, programme/project, intervention, or initiative).
  - Social participation/inclusion is promoted (through an existing policy or action plan, or a programme/project, intervention or initiative that targets specific affected/vulnerable groups).

- **CC-GSI data collection and analysis**
  - Data collected on climate change risks and impacts in each sector and/or area
  - Data collected on the population affected by the impacts of climate change
  - Data disaggregated by gender, age and other important variables
  - Systematic reviews and analyses conducted on climate change risks, impacts and vulnerabilities
  - Gender analysis conducted to identify the needs and priorities of people from different gender and age groups as part of the systematic reviews and analyses
  - Situation analyses identify climate change impacts on different population groups (e.g., by gender, age, household type, employment status, occupation, rural/urban, income)
  - Situation analyses include the needs and priorities of affected and vulnerable populations
  - Inputs from affected population groups, in particular their needs and priorities, are considered in the design and planning of the interventions

- **Social participation and stakeholder consultation on CC-GSI**
  - Inputs from affected population groups in the target area or sector sought and included in the analysis, project design and planning
  - Relevant stakeholders in government agencies, as well as those representing affected population groups in the target sector/area, consulted in the project planning process

- Efforts made to ensure participation in stakeholder consultation for historically or typically vulnerable and disadvantaged groups, such as poor women, landless farmers, indigenous, ethnic, or religious minorities, migrant workers, people with disabilities, elderly, LGBTIQ people
- Outside expertise consulted on gender and social inclusion, such as the Office of Women and Family Affairs Development, NGOs or women's and community organizations
- Gender-responsive and/or target group-specific indicators developed and used to measure progress towards gender equality or social participation/ inclusion in programmes/projects

- **CC-GSI budgeting**

- Climate change budget component included in routine budgeting
- Gender-responsive budgeting conducted
- Budget allocated to specific programme/project that targets specific population groups or specific target area
- Budget allocated to climate change programme/project that targets specific affected population group(s) or target area
- Tracking system established to monitor the progress of gender-responsive budgeting or budgeting for specific vulnerable/affected groups
- Budget review conducted to measure equitable outcome, and the extent resource allocation meets the needs and priorities of intended beneficiaries

2) Identify CC-GSI linkages, gaps and barriers in planning and implementation of (functional) work of the agency/sector/community:

- Linkages and gaps in climate change programming
- Linkages and gaps in gender and social inclusion programming
- Linkages and gaps in climate change data collection and analysis
- Linkages and gaps in GSI data collection and analysis
- CC-GSI linkages and gaps in stakeholder consultation
- Barriers to CC-GSI integration in programming
- Barriers to CC-GSI integration in budget request formulation

3) Summarize the assessment of CC-GSI integration capacity

- Overall, how do you rate CC-GSI integration capacity of your agency?
- What are the areas where CC-GSI have already been addressed by your agency?
- What are the gaps where CC-GSI have not yet been addressed by your agency?
- What are the key issues, barriers or challenges in integrating CC-GSI in the work of your agency?

- Common issues are, for instance: lack of knowledge about climate change and/or GSI and CC-GSI linkages; lack of CC or GSI expertise at the policy and planning level; lack of disaggregated CC-GSI data and analysis; limited resource allocation (budget, personnel); institutional priorities; leadership support; lack of policy continuity or strategic planning; intra-agency and interagency collaboration; top-down initiative does not translate to effective implementation at the local level.

4) Identify the relevance and priorities for CC-GSI integration in your agency's work:

- **Planners can identify CC-GSI relevance to the agency's existing functional work by matching the identified CC-GSI actions, linkages and gaps with the agency's mandate, responsibilities and goals, and highlight and prioritize such actions and gaps in order of relevance.**
- **A brainstorming exercise is advisable within the agency along with consultation with key stakeholders to identify key priorities and an appropriate direction or focus of CC-GSI integration (see as a reference guide to identify areas of concern and areas for action Briefing Note: CC-GSI capacity assessment & warning signs of inequalities and Box 8: GSI dimensions in climate change vulnerabilities and capacities for action).**
- **What priorities should be addressed first?**

  - If knowledge gaps about CC-GSI linkages or data gaps exist, crucial first steps are to fill the knowledge and data gaps. Understanding CC-GSI basics and disaggregated data collection are a necessary foundation for CC-GSI analysis.
  - Improving institutional capacity to integrate CC-GSI may simply start with a training or technical workshop on CC-GSI basic knowledge and CC-GSI linkage for relevant personnel (in particular, officials with planning and budget request preparation responsibilities).
  - The data collection process can start with available secondary data first from the agency's own database, research, and statistical institutions, and other relevant agencies.

- **With a basic understanding of CC-GSI linkage, a secondary data set and a CC-GSI integration direction or focus, the agency would be in a better position to undertake systematic primary data collection and analysis with inputs from key stakeholders. Step 3 provides a guide on CC-GSI data collection and analysis.**

Briefing Note: CC-GSI integration capacity assessment & warning signs of inequalities

CC-GSI integration capacity assessment is an activity that involves:

- ✓ Identifying key climate change (CC) issues in each agency, sector or geographical area.
- ✓ Identifying gender and social inclusion (GSI) issues to be addressed in the climate change context in each agency, sector or geographical area.
- ✓ Assessing the capacity to integrate CC-GSI issues in the agency, sector or community.
- ✓ Identifying gaps in CC-GSI integration capacities and capacity development needs.
- ✓ Describing vertical and horizontal engagement and collaboration in a given sector/area at the national, regional, provincial, district, subdistrict or village level.
- ✓ Identifying priority issues to be addressed, tools and institutional collaboration needed to conduct gender-responsive and socially inclusive climate change interventions in mitigation, adaptation or creating an enabling environment for climate action.

Climate change impacts tend to exacerbate existing inequalities and vulnerabilities, which are multi-faceted. Most societies, especially where traditional values and norms still prevail, have varying aspects of gender and social inequalities. Demographic and socio-economic factors, such as gender, age, class, income, education, occupation, ethnicity, disability, and cultural and political contexts, play a role.

The following are some warning signs of existing gender and social inequalities in a society or community.

- Power relations between men and women are unbalanced in the family, business, organizational, political or religious spheres.
- Unemployment is disproportionately high among either (young) men or women, or specific population groups.
- Many poor families are headed by a single parent or an elderly member with low education or skipped generation (grandparents living with grandchildren).
- Access to basic services such as electricity, water, transport, education, health care, telephone, internet and social services (e.g., social security, employment services) is sharply unequal between men and women or among different population groups (e.g., different age groups, types of households, occupational/income groups, ethnicities) or different geographical locations

(e.g., rural vs. urban, inside vs. outside special economic zones).

- Health and livelihoods of poor and marginalized communities are disproportionately affected by natural disasters and climate change impacts such as floods, droughts, extreme heat, storms, coastal erosion, forest fires, air pollution, waste and diseases.
- Poor minority groups lack legal status or are in conflict with state authorities or big businesses about sources of livelihood.
- There are male-dominated (often technical) jobs and female-dominated (often service) occupations, or women and men are not paid the same wage for equal work.
- There are few women or few representatives of disadvantaged groups in formal or informal decision-making structures and processes (e.g., national, provincial or district administration, local organizations, business associations, farmers' groups).
- There are high incidences of labor and sexual exploitation, teenage pregnancy, domestic violence, gender-based violence, political/sectarian violence.
- Family responsibilities are strictly and unequally divided (with usually women and girls shouldering more household responsibilities and excluded from public life, and men making major decisions in the family and in public life).

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STEP 3: **CC-GSI DATA COLLECTION AND ANALYSIS**

Before diving into any action, it is important to see "the big picture." When a target issue/sector/area has been identified as the focus of CC-GSI integration, the first step is to explore the broader context of that focus. Be it agriculture, health, transport, renewable energy, biodiversity, green recovery or any other focus, at any given level or geographical coverage, e.g., national, regional, provincial, district or community.

Tool 3.1: How to Collect Secondary CC-GSI Data for Broader Context

Scan through relevant key factors such as physical location, demography, economy, politics, local governance, decision-making structure, gender roles and relations, and socio-cultural context. These factors constitute the local environment in which the issue/sector/area should be explored and analyzed to form a basis for action. It is crucial that the implementing agency understand how these different factors shape the sectoral/institutional/local conditions and interests, and influence or challenge potential interventions.

Objectives:	• To gather available quantitative and qualitative secondary data related to the target issue/sector/area • To identify data gaps for primary data to be collected further
Time:	A few days to many weeks depending on the scope of the study, complexity and amount of data involved
Methods:	Desk review, email or phone contacts, some physical visits
Tools:	• Table 2.1: Sample list of secondary CC-GSI data sources • Table 2.2: Broad context worksheet

Typically, a first step involves a desk review and collection of secondary data, including policy and strategic plan documents, research reports and analyses on the relevant topics, and available statistics at the national, provincial or local level, which serve as background information for CC-GSI analysis. Agencies may conduct their data collection and analysis or hire outside researchers to do the work. The following are practical steps to collect secondary data relevant to the identified focus.

1) Identify CC-GSI secondary data sources

- Brainstorm and list potential data sources at the national level. Data sources will be identified as relevant to the sector, area or issue of focus. The data to be collected are two main categories: climate change (CC) related, and gender and social inclusion (GSI) related, but socio-economic and poverty data and local governance context will also be needed. (See table 3.2: Guiding questions for CC-GSI data collection and analysis.)

- Start with key government agencies which regularly collect national data and major research and policy institutes, in particular the National Statistical Office (NSO), and the National Economic and Social Development Council (NESDC). These agencies provide regular national statistics and policy analyses that can be used as background information, for example, periodic poverty and inequality reports by NESDC provide in-depth analyses of multiple dimensions of poverty and inequalities in different geographical, rural/urban areas and comparative social and economic indicators and among different population groups over long periods.[22]

- Line ministries collect data in their respective sectors such as the Ministry of Interior, Ministry of Agriculture and Cooperatives, Ministry of Public Health, Ministry of Transport, Ministry of Energy, Ministry of Natural Resources and Environment and Ministry of Social Development and Human Security.

- Departments and offices under line ministries are potential data sources in specific areas (e.g., energy, transport, industry, local administration and development, land development, agricultural development, water and irrigation, forestry, fishery, meteorology, human or environmental health, vulnerable groups), for example, Electricity Generating Authority of Thailand, Department of Land Transport, Department of Industrial Works, Department of Community Development, Departments of Land Development, Irrigation, Fishery, Rice and Livestock, Department of Health, Departments of Marine and Coastal Resources, Water Resources, Groundwater Resources and Environmental Quality Promotion, Thai Meteorological Department under Ministry of Digital Economy and Society, Office of Women's Affairs and Family Development.

22 NESDC, Poverty and Inequality Report 2020, https://www.nesdc.go.th/ewt_dl_link.php?nid=11972.

- Identify government data sources at the sub-national and local levels. Often these are the provincial, district and local offices of the line ministries and departments.

- Identify non-governmental data sources, including private, public or university-affiliated research institutions. Besides research institutions affiliated with major national universities, explore local universities and research institutions in the target geographical location as they tend to have a body of knowledge specific to the locality. Private research institutes also tend to have up-to-date data in specific areas.

- Compile a list of potential data sources as a reference and checklist. (See an example in Table 2.1: Sample list of secondary data sources.)

2) Collect CC-GSI secondary data from identified sources

- Do a quick online search on relevant data sources to identify data readily available for collection. Review if available data are disaggregated by key variables such as geographical location (region, province, district, rural/urban), gender, age, education, income, employment status, occupation, disability, legal status, ethnicity, and religion.

- Physical visits or digital contacts with identified agencies are recommended. Personal discussions with officials in charge of data collection can help clarify data availability, disaggregation, collection process and reliability.

- Collect available research reports and analyses relevant to the target sector/issue/area being reviewed. Screen for analyses or observations on the affected population that provide GSI dimensions.

- Multidimensional poverty data at the national and provincial levels are available at Thai People Map and Analytics Platform (TPMAP) https://www.tpmap.in.th which visualizes Thailand's poverty data with the Multidimensional Poverty Index (MPI) in five dimensions: health, well-being, access to public services, income and education. While TPMAP data are very useful, they do not give the gender and other key socio-economic dimensions, which need to be collected.

- Collect readily available data and systematically store them in appropriate folders for use.

- Collect any data specific to special vulnerable groups, such as population living below the poverty line, people in at-risk occupations, poor women/men, the elderly, women in maternity, children under five, unemployed youth, people

with marginal livelihoods, people with disabilities, people with underlying health conditions and vulnerable households.

- At the sub-national level, local offices under the Ministry of Interior and Ministry of Agriculture and Cooperatives and Ministry of Health will often have basic data on the population under their jurisdiction. The data may or may not be systematically disaggregated by sex, age group or household. But there is generally some information about household members, age groups and agricultural or economic activities at the district down to Tambon Administrative Office (TAO or Or Bor Tor) and village levels.

3) Secondary community data

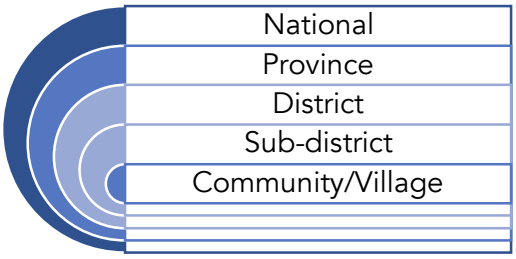
- If the project involves data collection at the local community level, contact local Or Bor Tor and the village head for available data on the local population and locality. The types of data that may be available at the community level are:

  - Community history
  - Number of households
  - Population data, possibly by gender and age group (e.g., elderly, children under five, people with disabilities, bed-bound patients)
  - Number of births and deaths (including deaths from disasters)
  - Number of students
  - Tambon map, village map with landmarks such as schools, temples, health clinics, markets, rivers, mountains and forests, and public common resources such as roads, water pumps, ponds and reservoirs.
  - Seasonal community calendar
  - Group or association memberships such as farmers' group, women's group, youth group, elderly group, local lending or cooperative group
  - Community administrative structure

- Generally available data collected at the community level can be used as background information and to form a general picture of the community. The data should be double-checked and updated through community consultation or survey (see participatory action research in the next section).

4) Drawing a broader context

- Analyze the data collected and findings from existing studies to draw a broader context as relevant, at the national to sub-national (provincial, district, sub-district/tambon, or community/village) level.



- The broader context should cover the following aspects:

  - o key climate change sector/issue/focus
  - o target sector/area and population
  - o physical environment
  - o environmental and climate profile
  - o economics
  - o local governance and politics
  - o cultural context and gender relations
  - o special vulnerable groups
  - o climate, social and economic trends to watch.

- Use the tool in Table 2.2: Broad context worksheet to summarize the aspects above.

- List any data gaps to inform the design of primary data collection.

- Identify any linkages that show how the local circumstance is shaped by the broader context.

5) Reporting, data sharing and data management

- Report the key findings from the secondary data analysis, drawing the emerging themes from the aspects listed under 4). This preliminary report serves as a basis for further investigation, for example, in participatory action research, which typically involves community survey and/or focus group discussion, and stakeholder consultation. The report should identify data gaps for primary data collection.

- Highlight the key findings and visualize the key data (e.g., infographics or charts of major climate risks visualizing the numbers of people affected, vulnerable geographical locations and groups of people most at risk of climate impacts disaggregated by age, gender, occupation, income, poverty levels, trends). Visualized data are easy to understand and handy to share with the organization and partners. They are also useful in communicating with stakeholders, as well as policymakers and the public (where applicable).

- Systematize and maintain raw data in a database (both quantitative and qualitative data). The data storage should be organized, easy to access and sharable. For example, the database can be stored online or in the cloud for online access both within the project or organization and among partner organizations for research and collaboration purposes.

- Quality data sources are regularly updated. Efforts should be made within the organization or in a collaborative partnership to share data points, store and maintain the data in an up-to-date fashion to facilitate research and multilateral collaboration.

Box 8: Key observations on CC-GSI data collection in Thailand

- Data are important for policy formulation, action planning and budgeting.
- Data exist in various organizations and sources but are often not well organized, appropriately disaggregated or effectively analyzed for use, or shared across organizations.
- Connecting the data points and critical data analysis increase data value and usability.
- Thailand lacks disaggregated data and critical data analysis with gender and social dimensions for effective climate change action at all levels. There is a need to develop a usable and sharable database on climate change with social and gender dimensions, in particular for planning and budgeting.
- There are usually gaps in secondary data. These gaps can be filled with collection of primary data. The best way to obtain accurate and actionable data at the local level is through participatory action research.
- Accurate and up-to-date data on climate change with gender and socio-economic dimensions will enhance the quality and efficiency of climate change programmes and projects of line ministries at the national, subnational and local levels.
- Actionable data in the climate change context need to be disaggregated by important demographic and socio-economic variables, including gender, age, employment status, occupation, economic activities, income, poverty levels, rural/urban, ethnicity, among others.
- Consider developing systematic CC-GSI data collection and management at the community, institutional, sectoral and national levels.

Table 2.1: Sample list of secondary data sources

Type of agencies	Agencies
Research	Thailand Institute of Scientific and Technological Research
	National Science and Technology Development Agency
	Thailand Development Research Institute
	Social Research Institute, Chiangmai University
	Institute for Population and Social Research, Mahidol University
	Social Research Institute, Chulalongkorn University
	College of Population Studies, Chulalongkorn University
	Health Systems Research Institute
	Thai National Institute of Health, Department of Medical Science
	Puey Ungphakorn Institute for Economic Research, Bank of Thailand
	Research for Social Development Institute, Khon Kaen University
	Research and Development Office, Prince of Songkla University
Economic/finance	National Economic and Social Development Commission
	Bank of Thailand
	Thai Women Empowerment Fund, Department of Community Development, Ministry of Interior
	National Village and Urban Community Fund Office
Social Welfare	Department of Children and Youth, Ministry of Social Development and Human Security
	Department of Older Persons, Ministry of Social Development and Human Security
	Department of Women's Affair and Family Development, Ministry of Social Development and Human Security
	Department for Empowerment of Persons with Disabilities, Ministry of Social Development and Human Security
	Department of Social Development and Welfare, Ministry of Social Development and Human Security
	Department of Community Development, Ministry of Interior (Basic Information)
	Ministry of Public Health
	Comptroller General's Department, Ministry of Finance (Integrated Social Welfare Database System)
	Social Security Office, Ministry of Labour
	Department of Labour Protection and Welfare, Ministry of Labour
	Community Organizations Development Institute
	Bureau of Community Strengthening, Community Development Department, Ministry of Interior

Type of agencies	Agencies
Agriculture	Department of Agriculture, Ministry of Agriculture and Cooperatives
	Land Development Department, Ministry of Agriculture and Cooperatives
	Department of Agricultural Extension, Ministry of Agriculture and Cooperatives
	Office of Agricultural Economics, Ministry of Agriculture and Cooperatives
	Department of Fisheries, Ministry of Agriculture and Cooperatives
	Rice Department, Ministry of Agriculture and Cooperatives
	Department of Livestock Development, Ministry of Agriculture and Cooperatives
	The Office of Farmer's Reconstruction and Development Fund
Water	Royal Irrigation Department, Ministry of Agriculture and Cooperatives
	Hydro Informatics Institute
	Wastewater Management Authority
Environment	Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment
	Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment
	Department of Water Resources, Ministry of Natural Resources and Environment
	Pollution Control Department, Ministry of Natural Resources and Environment
	Environmental Quality Promotion Department, Ministry of Natural Resources and Environment
	Department of National Parks, Wildlife and Plant Conservation, Ministry of Natural Resources and Environment
	Royal Forest Department, Ministry of Natural Resources and Environment
	Thailand Greenhouse Gas Management Organization
Energy	Energy Policy and Planning Office, Ministry of Energy
	Department of Alternative Energy Development and Efficiency, Ministry of Energy
	Department of Energy Business, Ministry of Energy
	Electricity Generating Authority of Thailand
	Metropolitan Electricity Authority
	Provincial Electricity Authority

Type of agencies	Agencies
Industry	Department of Industrial Works, Ministry of Industry
	Department of Mineral Fuels, Ministry of Industry
	Department of Primary Industries and Mines, Ministry of Industry
	Industrial Estate Authority of Thailand
	Office of Industrial Economics, Ministry of Industry
Science and Information Technology	Thai Meteorological Department, Ministry of Digital Economy and Society
	National Statistical Office, Ministry of Digital Economy and Society
	Geo-Informatics and Space Technology Development Agency
Transport	Civil Aviation Authority of Thailand
	Port Authority of Thailand
	Office of Transport and Traffic Policy and Planning, Ministry of Transport
	Department of Land Transport, Ministry of Transport
	State Railway of Thailand

Table 2.2: Broad context worksheet

Compile and synthesize secondary data using the following as a rough guide to draw a broad context of the sector/issue of focus. Fill in available information. Data gaps may be addressed with data sharing with other agencies and/or primary data collection.

Broad Context	Descriptions
1 Key climate change sector/issue/focus:	
2 Target sector/area and population profile	
a) Geographical coverage	• Nationwide, region, province, district: _____ • Rural/urban: _____
b) Population	• Population size: _____ • Density: (sparsely or densely populated?) _____ • Gender distribution: male_____% female_____% • Age distribution: 0-5 _____% 6-14 _____% 15-24 _____% 25-59 _____% 60+ _____% • Household types: two-parents _____% single-mother _____% single-father _____% single _____%

Broad Context	Descriptions
3 Physical environment	
a) Topography, physical surface area or terrains	• Size of geographical area: _____ • What are the dominant geographical features? (e.g., coastal, mountainous, plateau, flood plain, river delta/basin, forest, agricultural land, dry land, swamp, wetland) • What are the common forms of transport? • Is transport easily accessible, e.g., to schools, hospitals, major city, local government offices? If not, what are the barriers? Which groups of population typically face such barriers?
b) Basic infrastructure	• Describe existing basic infrastructure (e.g., housing, roads, public transport, water supply, electricity, energy access, sanitation/waste management, health facilities, irrigation systems, flood protection, dams, or reservoirs): • Do all population have access and use of the basic infrastructure? If not, who typically do not have access or cannot use them?
c) Public commons	• Describe shared public facilities or resources (especially at community level, e.g., water wells/pumps/tanks, waste depositories, parks, community forest, rivers/canals/ponds, public spaces such as temples, schools or community halls, village vegetable plots): • Do all population have access and use these facilities and resources? If not, who typically do not have access or cannot use them?
4 Environmental and climate profile	
a) Main climate/ environmental issues/ risks	• Highlight key issues (e.g., waste, air/water pollution, aggressive urbanization or agricultural practices, biodiversity loss, landslide, deforestation, conflicts in community rights and access to natural resources, extreme heat, flood, drought, water scarcity, soil erosion, coastal erosion, salinization, newly emerging diseases):

Broad Context	Descriptions
b) Extreme weather events and natural disasters	• What are common or frequent natural disasters (e.g., flood, drought, landslide, storm, storm surge, extreme heat, wildfire)? • How frequent do these natural disasters occur and what are the patterns? (Describe historical record, if any.)
c) Key environmental or climate impacts	• What are known environmental or climate change impacts on the local population (e.g., waste/water/air pollution, water scarcity, crop failures, change in agricultural patterns, food insecurity, damages to housing, deaths and harm to public health and safety, disruption and damage to businesses and livelihoods, economic losses in industry or sector, increased poverty, unemployment, migration)? • What statistics are available on people affected by these natural disasters or climate impacts (e.g., deaths, injuries, losses of property, illnesses)? • Are the statistics disaggregated by age, gender, occupation or other variables? • Are there particular vulnerable population groups facing impacts of climate change? If so, in what way are they vulnerable?
d) Adaptation, mitigation interventions to address climate change	• What intervention (adaptation or mitigation) measures have been initiated or implemented to address existing or past environmental and climate change challenges? • What were the results of such measures, if any?
5 Economic profile	
a) Main features of local economy	• Describe key economic sectors (e.g., agriculture or non-agriculture, formal industry, key income-generating activities in the formal economy, local SMEs): • Who are the dominant employers in the area?

Broad Context	Descriptions
b) Main sources of income and livelihoods	• Describe how people make a living and earn income (e.g., wages, farm or business income, welfare assistance, loans): • What are the employment patterns (e.g., percentages of people working in formal jobs vs. informal economy, common occupations, percentages of those with social security)?
	• Are there differences in the levels of income between women and men, and different population groups, and in access to social security?
c) Multidimensional Poverty Index (MPI)	• Identify poverty rates in the target area, disaggregated by gender, age, education, occupation: • Check Thai People Map and Analytics Platform – TPMAP data https://www.tpmap.in.th with Multidimensional Poverty Index – MPI, in five dimensions: health, well-being, access to public services, income and education. Identify relevant statistics: • Is indebtedness common among the population? Differences along gender, age, occupation lines? Describe typical sources of loans and what loans are typically spent on:
6 Local governance and politics	
a) Local governance	• Describe institutional arrangement of local administrative bodies, responsiveness to local needs, transparency:
b) Local politics	• Describe the general level of participation of people in social, political and environmental activities as well as the decision-making process (e.g., who are the main actors, roles of civic groups): • What are key contentious issues (e.g., water supply/access, land disputes, road access, waste management, agricultural burning, water/air pollution, community rights, overfishing)?

Broad Context	Descriptions
c) Governing environmental, climate-related policy	• What are existing laws, policies, agreements that provide guidelines for cooperation and conflict resolutions (e.g., issue specific laws or regulations, such as on access to natural or common resources, community rights, disaster prevention plans)?
7 Cultural context and gender relations	
a) Cultural context	• Describe the role of religion, local customs and norms, social relations among women and men and different groups of local population:
b) Gender relations	• Describe the roles of women and men in family, economic and public domains, decision-making power of women relative to men: • To what extent are women and disadvantaged minority groups represented in environmental and climate-related organizations or programme/project management?
8 Special vulnerable groups	
• Identify typical disadvantaged or vulnerable population groups with limited capacity to manage climate shocks (e.g., the elderly, people with disabilities, population groups living below poverty line, young children (0-5 years old), single mothers, people in at-risk occupations, unemployed youth):	
9 Climate, social and economic trends to watch	
10 Data gaps	

Tool 3.2: How to Collect Primary CC-GSI Data through Participatory Action Research (PAR)

Secondary data provide background information or can serve as a baseline, but they are tailored to the needs of a specific project and hence insufficient. Secondary data may also be flawed or out of date. To get an accurate picture of the current situation and specific information, up-to-date primary data are needed. The data gaps identified from secondary data analysis provide pointers on what types of primary data should be collected for a CC-GSI analysis.

This section provides guidance on how to collect primary data at the local level as part of participatory action research (PAR), primarily involving a community survey to collect quantitative and qualitative data.

A PAR should be designed not only to fill the data gaps, but also to seek participation and inputs from relevant stakeholders in the process of data collection and analysis (see Box 9 for PAR definition and approach).

Objectives:	To collect primary data on climate change with gender and social dimensions at the community level for climate vulnerability analysis as input for design of intervention, planning and budgeting.
Time:	A few days to many weeks depending on the scope of the study, complexity and amount of data involved
Methods:	Community survey, focus group discussion, community meeting and workshop, and other methods in PAR
Tools:	• Table 3.1: Typical stages of participatory action research (PAR) • Table 3.2: Guiding questions for CC-GSI data collection and analysis • Table 3.3: Primary data collection methods • Table 3.4: Data variables and research for CC-GSI community survey

Box 9: What is participatory action research (PAR)?

Participatory action research (PAR) is an approach to collaborative research and action used to gather information on social and environmental issues. PAR approach involves researchers, participants and communities collaborating to understand a problematic situation to find solutions or build a sustainable practice.

PAR is an umbrella term for research that engages stakeholders in each step of the research process, from defining the research problems and research questions, to collecting and analyzing data, and making recommendations.

The focus of PAR is action to improve a situation through collective learning and active research participants and stakeholders making collaborative efforts to formulate evidence-based public knowledge and make positive social change. It challenges inequality and engages multiple voices and perspectives, including the vulnerable groups.

PAR is a recommended approach for information gathering on a particular issue on the directly affected population to use that information for their benefit. PAR is hence often used in community development and sustainable livelihoods, such as in situation assessment and project planning and evaluation. Research topics may range from fisheries and forestry to farming systems, biodiversity and natural resource management to tourism, and climate change to participatory budgeting for local governance. PAR uses a range of quantitative and qualitative methods, such as survey, questionnaire, interviews, focus group, participatory observation, videography, photography, mapping and diagramming, and computer analysis.

Sources: Institute of Development Studies, https://www.participatorymethods.org/glossary/participatory-action-research; Learning for Sustainability, Participatory action research, https://learningforsustainability.net/action-research/; Delve, https://delvetool.com/blog/participatoryaction

1) Define the scope of work

Once secondary CC-GSI data have been collected, compiled and synthesized, a summary of the broader context and the identified data gaps provide pointers for primary data collection (refer to results from the Table 2.2: Broad context worksheet in the previous section). The next step is to define the scope of a participatory action research study by identifying the:

- central issue or sector of focus
- research objectives

- expected outcomes of the research
- geographical area of coverage
- target population
- timeline for research process
- relevant agencies and actors (e.g., responsible/implementing government agency; researchers; key officials/practitioners; and known stakeholders, including relevant government agencies, NGOs, CSOs, community leaders, activists, donors).

Ideally, the process above should already involve consulting with some key actors and stakeholders. The responsible agency can initially sketch a research proposal to be consulted with stakeholders (more in Step 4). A proposed action research project should aim to produce evidence-based and actionable data and pathway to integrate CC-GSI into the agency's agenda and thereby increase the efficiency and effectiveness of existing programmes or projects, or a new initiative. Some guiding principles are:

- Conduct sector- or area-specific gender and poverty analysis along with climate change vulnerability and impact assessment.
- Generate gender and poverty disaggregated data as a part of the data collection and analysis on climate change vulnerabilities and impacts.
- Propose climate relevant plans, programmes and budgets that are gender-responsive, do not exacerbate existing inequalities, and address poverty reduction.
- Establish and maintain on-going monitoring and evaluation systems based on CC-GSI disaggregated baseline data.
- Promote engagement and participation of civic and community-based organizations representing women, the poor and vulnerable groups.
- Provide equitable access to and benefit from sharing of climate-related investments, particularly for poor women and marginalized groups.
- Involve relevant government agencies and engage civil society and community organizations, women's groups, youth groups, research institutions, private sector, and political entities (e.g., parliamentary committees) in joint learning and communication.

2) Plan a participatory action research (PAR)

PAR offers a democratic model for knowledge making and utilization. PAR process is collaborative and involves discussion, information sharing, pooling skills and working together among players and stakeholders—i.e., recurrent stages of planning, action and reflection, and evaluation at the end of the project.[23] In planning a PAR, the responsible agency would need to not only define the scope of the research project and possibly prepare a rough research proposal, but also to identify key stakeholders (relevant agencies and actors as described above).

23 Rachel Pain, Geoff Whitman and David Milledge (Durham University) & Lune Rivers Trust, Participatory Action Research Toolkit: An Introduction to Using PAR as an Approach to Learning, Research and Action, 2011, http://communitylearningpartnership.org/wp-content/uploads/2017/01/PARtoolkit.pdf.

At first, it may be somewhat overwhelming to start a participatory process because climate change is a cross-cutting issue that potentially involves many players and stakeholders. The following questions are likely to be asked:

- ***Who will be involved in conducting this PAR?*** – Typically, the responsible agency will start the process of PAR and design a rough research plan, or terms of references to hire outside experts if it does not have PAR expertise in house. The outside experts may be professional consultants or university researchers, or an experienced team or organization (who may not necessarily need to have typical academic credentials but have a deep understanding of the given issue and/or expertise in conducting PAR at the community level, especially if community engagement is of particular importance).

- ***What roles will researchers play in PAR?*** – Researchers, either in-house or outside experts, will guide the process, provide training, use specific methods, help with developing research tools and data analysis, facilitate discussions, document results of activities and inputs, draft findings, and reports, etc. PAR researchers do not conduct research in the traditional sense but rather play a role of facilitators, assisting and encouraging participation and communication among participants and stakeholders throughout the process.

  In a small PAR project where involving all parties is manageable, all participants and stakeholders could follow the whole process through. In a large PAR project, it is common to have a small team of researchers involved in the planning and undertaking of the entire PAR project, drawing in the larger group of participants and stakeholders in different stages of the research. However, it is important that researchers do not let their views predominate over others in making decisions.

- ***What roles will participants and stakeholders play in PAR?*** – PAR is driven by participants. Actors and stakeholders involved in a PAR should be involved in the process very early on. A team of researchers may start a PAR process, but participants and stakeholders take part in shaping the research direction and process, from sharing information and inputs, and validating findings, if not also defining the research design and questions, to proposing recommendations and collectively making decisions towards the desired change at the end of the process. Usually, the act of participation is part of the desired change.

- ***How to conduct collaborative research?*** – Ideally, the research team/ responsible agency should consult potential participants and stakeholders early on about the research plan and process, schedule for activities, and expected outputs and outcomes. Discussion should be conducted, and agreements obtained on the research agenda, research methods, data to be collected, ownership of the research, how to work together, when to meet, etc. In other words, there should be a research action plan.

Basically, the "5Ws" is a useful way of planning and organizing decision-making actions to be taken:

- WHAT will be done?
- WHO will be involved?
- WHERE will it take place?
- WHEN will each stage happen?
- HOW will we do it?

(Refer to Table 3.1: Typical stages of participatory action research (PAR) for what a PAR process usually looks like.)

- Any research plan is likely to change as the research progresses due to various factors. For instance, the schedule may change due to change in participants' availability, some planned activities may turn out to be impractical or inappropriate, or unforeseen situations, new ideas or data may surface. Some activities may need to be adjusted in terms of timing or format. Physical activities may be changed to virtual activities. It is important, as far as possible, that participants and stakeholders in the PAR have fair opportunities to suggest changes and the research planners be flexible and prepared to adjust the process as needed.

Table 3.1: Typical stages of participatory action research (PAR)

PAR involves recurrent stages of planning, action and reflection, and ends with evaluation. The following are typical stages but there is no fixed blueprint PAR or must-have methods.

Phase	Action	Outputs
Action	• Map stakeholders, establish relationships and common agenda • Explore linkages with existing projects/programmes • Collaboratively decide on issues	✓ List of relevant stakeholders ✓ Common agenda (and linkages with any existing projects/ programmes) ✓ Issue(s) of focus
Reflection	on issues of focus, basic knowledge, research design, potential benefits and any concerns for ethics and accountability (e.g., how to avoid potential harm to individuals or groups involved, political considerations)	✓ Set of basic agreed knowledge (based on secondary data analysis & information sharing) ✓ Identified data gaps ✓ Proposed PAR design and framework (operational and ethical)

Phase	Action	Outputs
Action	• Build relationships • Identify roles and responsibilities, and resources • Collectively design research processes and tools • Discuss potential outcomes	✓ Institutional/collaborative arrangement (who will do what, when, how) – e.g., a working group ✓ Research plan with timeline ✓ Expected outcomes ✓ Draft research tools
Reflection	on research questions, design, working relationships and information and resources required	✓ Approved research design ✓ Research questions ✓ Approved research tools (e.g., questionnaire, format of focus group discussion)
Action	• Work together on data collection and information sharing • Enable participation of all research participants and stakeholders, with special attention to underrepresented groups • Collaboratively analyze findings	✓ Completion of data collection activities such as field interviewer training, community survey, focus groups/interviews ✓ Consultation workshops at provincial/district/community level ✓ Presentation of preliminary findings
Reflection	on collaboration: Has it worked well? What can be improved?	✓ Feedback on research process and findings ✓ Additional inputs from stakeholders ✓ Recommendations for improvement
Action	• Finalize research findings (incorporating inputs from stakeholders) • Collaborative plan next steps	✓ Final research findings presentation and validation workshop ✓ Action plan for next steps
Evaluation	of PAR action and process as a whole	✓ Evaluation report with key lessons learned, policy recommendations

Source: Adapted from Rachel Pain, Geoff Whitman and David Milledge (Durham University) & Lune Rivers Trust, *Participatory Action Research Toolkit: An Introduction to Using PAR as an Approach to Learning, Research and Action*, 2011, http://communitylearningpartnership.org/wp-content/uploads/2017/01/PARtoolkit.pdf.

3) Example of a PAR process

During late 2020 to late 2021, a pilot project was initiated and implemented under the National Working Group in iCCBA (inclusive, gender-responsive Climate Change Benefit Analysis) and a collaboration of UNDP, ONEP and OAE. The pilot project employed the PAR approach in two pilot provinces, Maha Sarakham and Uthaithani. The PAR process provided an opportunity for various Thai government agencies, as well as researchers and local communities, to jointly learn how to conduct and collaborate on GSI-integrated climate change vulnerability and impact analysis on a small scale to develop an effective model to integrate GSI in climate-related project planning and budgeting.

Box 10 provides an example of the PAR process in Maha Sarakham province, which involves CC-GSI integrated participatory action research design and implementation with inclusive, multi-level stakeholder consultations, CC-GSI community survey and impact analysis, and CC-GSI integrated project formulation by the community.

Box 10: Participatory action research process in Maha Sarakham Province

<table>
<tr><th>Action</th><th>Outputs</th></tr>
<tr><th>Actors & Stakeholders</th><th>Actors & Stakeholders</th></tr>
<tr><td>Key actors at national level:
• National Working Group (NWG) on iCCBA under National Committee on Climate Change Committee (NCCC)
• Office of Natural Resources and Environment Policy and Planning (ONEP), MONRE
• Office of Agriculture Economics (OAE), MOAC</td><td rowspan="2">National level action:
• National Working Group on iCCBA approved a pilot study project to integrate CC-GSI
• OAE expressed interest for a pilot project in agriculture
• NDC Support Project consultation with OAE on pilot site selection criteria (climate change vulnerabilities, food and water insecurity, high percentage of population relying on agricultural income)
• NWG on iCCBA approved Maha Sarakham and Uthaithani as pilot sites (August 2020)
• NDC Support Project commissioned CC-GSI secondary data collection at national and provincial levels for pilot study context in two provinces*</td></tr>
<tr><td>Technical/research support:
• NDC Support Project, UNDP
• Research team, Maha Sarakham University</td></tr>
<tr><td colspan="2">*NOTE on CC-GSI secondary data observations: 1) very limited data linking climate change physical impacts (e.g., floods, droughts, coastal erosion) and socio-economic profile of households or individuals, and impact data largely based on geographical area; 2) CC-GSI data very limited below provincial level; 3) dearth of data beyond impacts of floods and droughts; 4) not all farmers affected by impacts of climate change included in farmer registration database; 5) lack of data on severity of impacts and capacity to manage impacts; 6) gender dimension in data limited only to gender of household head, no data analysis in other dimensions, e.g., gender roles and responsibilities, gender division of labor; and 7) lack of evidence-based, actionable data at provincial level and lower.</td></tr>
</table>

Action	Outputs
Stakeholders at provincial level: • Maha Sarakham Provincial Office • Maha Sarakham Provincial Office of Natural Resources and Environment • Maha Sarakham Agriculture and Cooperative Office • Maha Sarakham Provincial Office for Local Administrative Development • Maha Sarakham Provincial Irrigation Office, Regional Irrigation Office 6 • Water Resource Regional Office 4 • Maha Sarakham Land Development Station • Maha Sarakham Forestry Center, Forest Land Management Regional Office 7 • Maha Sarakham Land Office • Maha Sarakham Energy Office • Maha Sarakham Provincial Social Development and Human Security Office • Maha Sarakham Provincial Public Health Office • Maha Sarakham Provincial Disaster Prevention and Mitigation Office	Subnational action facilitated by Maha Sarakham University research team; UNDP & ONEP support
	• **First provincial consultation** (12 Nov 2020) o Introduction to CC-GSI integration o Secondary data & information sharing • Collective selection of pilot district
	• **District-level consultation** in Phayak Phoompisai District (December 2020) o Potential site visits by research team o Sharing of secondary data o Meeting with relevant local agencies o Project site identified (3 villages in Mekdam Community)
	• **Development of research tools & capacity** o Questionnaire and focus group for community survey, community workshops o Training field interviewers o Questionnaire field testing
	• **Community survey and data analysis (Jan-Mar 2021)** o Secondary community data o Quantitative community survey o Focus groups o Data analysis and summary of initial findings
Stakeholders at district and local level: • Phayak Phoompisai District • Mekdam Tambon Administration Office • Baan Mekdam Moo 1 • Baan Don Pai Ngam Moo 8 • Baan Dong Duan Moo 20	• **Stakeholder mapping and selection of key population groups in the community** o Community leaders and state officials (4 men & 3 women) o Women's groups/leaders (6 women) o Youth (5 men & 1 woman) o Elders and persons with disabilities (4 men & 3 women)
NOTES: • Community survey on climate change vulnerabilities and impacts were conducted with 220 households in 3 villages of Mekdam Community. • NCD Support Project and Maha Sarakham University research team conducted a detailed preparation on contents, process and methodology before executing each consultation workshop.	• **First community workshop (3 April 2021)** o Climate change education o Discussion of gender and social vulnerability on climate change impacts o Presentation and validation of findings on climate change impacts on different population groups in the community o Gap and need analysis o SWOT analysis

<table>
<tr><th>Action</th><th>Outputs</th></tr>
<tr><td>Mekdam Community identified droughts and unsustainable water resources and supply as the main priority issues for the community, and proposed two projects to address the problem:
1) Dredging main community water source, Lam Phang Shoo Creek, preventing bank erosion and building a check dam
2) Installing a solar water pump system</td><td>• Second community workshop (20 June 2021)
o Problem tree analysis
o Theory of Change
o Identifying community priorities
o Stakeholder mapping and analysis
o Community project formulation</td></tr>
<tr><td>Discussion topics at final provincial consultation:
• Process through which Mekdam community formed community projects
• Stakeholder consultation process from provincial to local levels
• Participatory data collection in the community
• GSI dimensions in climate change impacts
• Integration of GSI dimension in climate change projects
• Key findings from Maha Sarakham pilot site
• Community consultation process in project development
• Potential budget resources for projects</td><td>• Final provincial consultation on community projects and budget resources (17 August 2021)
o Presentation of research findings to provincial government agencies
o Presentation of community projects by community representatives
o Consultation on community projects – discussion of compatible existing projects or programmes
o Recommendations on project/budget proposal channels and procedures, and available budget resources.</td></tr>
<tr><td colspan="2">Relevant responsible government agencies identified for Mekdam community projects</td></tr>
<tr><td>Project 1: Dredging Lam Phang Shoo Creek, bank erosion prevention & check dam
1. Maha Sarakham Provincial Irrigation Office, Regional Irrigation Office 6
2. Water Resource Regional Office 4
3. Maha Sarakham Land Development Station
4. Maha Sarakham Forestry Center, Forest Land Management Regional Office 7
5. Maha Sarakham Land Office
6. Maha Sarakham Provincial Office</td><td>Project 2: Solar water pump system
1. Water Resource Regional Office 4
2. Maha Sarakham Energy Office
3. Maha Sarakham Provincial Office of Natural Resources and Environment
4. Maha Sarakham Provincial Office
5. Maha Sarakham Agriculture and Cooperative Office</td></tr>
<tr><td colspan="2">Source: 3rd Workshop Report: Technical Coordination Consultant – Gender-Responsive and Socially Inclusive Public Climate Finance in Maha Sarakham, by Department of Agricultural Technology, Faculty of Technology, Mahasarakham University, under NCD Support Project, UNDP, 23 August 2021.</td></tr>
</table>

4) Explore guiding questions for CC-GSI data collection and analysis

CC-GSI data collection in participatory action research need to be contextualized with both the CC and GSI perspectives. To see the CC-GSI dimensions in the target area, sector or population, there are five primary questions that guide the research inquiry:

1) What is the context?
2) Who has what?
3) Who does what?
4) Who decides?
5) Who benefits?

Each of these five guiding questions will have its own subsidiary set of questions to help identify and investigate: 1) the broader context; 2) available resources; 3) economic and income-generating activities, roles, and responsibilities of people in the target sector/area; 4) decision-making structure and power relations; and 5) potential beneficiaries in the target sector/area. Additionally, is the target sector, area or population being served by any existing programmes or projects under the responsible agency or other government agencies? (See Table 3.2: Guiding questions for CC-GSI data collection and analysis for more detailed questions).

Some of these questions may have answers from secondary data, but as already mentioned, secondary data may not be up to date or may be flawed, therefore primary data are needed to ascertain the current situation. The sets of questions in Table 3.4 can be used as a guide throughout the project cycle, starting with framing the questions for data collection and other research activities, from desk reviews to surveys, interviews, focus groups and consultations with stakeholders.

5) What is CC-GSI analysis?

CC-GSI analysis is an analysis that integrates gender and social considerations in a climate change situation analysis. It is an essential step to ensure that a climate action will be gender responsive and socially inclusive. Integrating GSI in a climate change analysis can help to uncover existing gender and social inequalities that could be worsened by a climate action that is “people blind” or “gender blind” (action that lacks a people’s dimension, does not address who specifically will be the beneficiaries, or action that implements the same measures for everyone, men or women, without considerations for different gender and other social contexts that may affect the effectiveness and equity in the outcomes). We learn through various international studies, and a Thailand national analysis,[24] that climate change does not affect everyone equally or in the same way (see Box 11).

24 Busakorn Suriyasarn and Pawin Talernsri, *Social Dimension of Climate Impacts in Thailand: Analysis of Risks, Policy, Planning and Finance*, UNDP, 2019.

Box 11: GSI dimensions in climate change impacts

• **Unequal impacts on population groups** o Different groups, different risks and vulnerabilities • **Different experiences in gender, individual, household, social dimensions** o Different roles and responsibilities o Different opportunities, resources and access to information, technology and decision making o Varied capacity to manage risks.	• Poverty is a key factor of vulnerability. • Climate change impacts exacerbate existing inequalities and vulnerabilities. • Women, the poor and marginalized populations have less capacity to absorb climate shocks o Need support to build climate resilience and opportunities to participate in decision making that affects their lives and livelihoods.

Given that different population groups may be differently affected by climate change impacts and may have varied capacities to absorb climate shocks and manage climate risks, it is hence important to understand these differences. Interventions that do not consider these different dimensions are likely to be ineffective solutions and leave the most vulnerable behind.

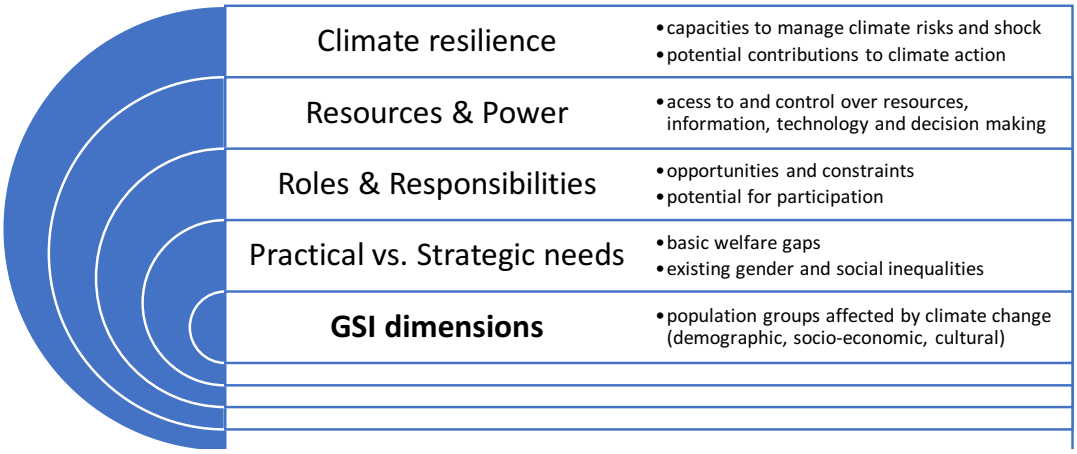
Box 12: What are practical and strategic needs?

• **Practical needs** are basic needs or survival needs, e.g., food, water, shelter, income, clothing and healthcare. Meeting practical needs is about economic security, improving living and working conditions of girls and boys, women and men. 	• **Strategic needs** are the needs for equality and empowerment of both women and men, girls and boys, e.g., sharing of family care and decision making, equal access to resources, information, education, training and technology. Meeting strategic needs is about redressing inequalities. 

Different population groups have different lived experiences, needs and capacities, but they all have potential to manage their own situations, if given necessary support and opportunities. Everyone has basic survival needs such as shelter, food, water and healthcare. All government policies and programmes at the very minimum aim to address these practical needs to ensure survival, health, security and safety of the populace. However, there is another kind of needs that are no less important for the well-being of the populace and for national development: strategic needs. These are the needs to redress inequalities and promote equal opportunities so that all populations can enjoy equitable outcomes from the decisions, policies and

programmes that affect their lives and their communities. It is crucial that in any interventions both practical and strategic needs are identified and addressed (see Box 12).

CC-GSI analysis helps identify the practical and strategic needs of the target population, their priorities, and challenges, as well as opportunities and constraints for them to act on climate change. CC-GSI analysis can help implementers to better understand the local context and identify effective ways to promote and facilitate potential contributions of women and men from different population groups to the desired climate action and how they can benefit more equitably from it.



While all populations affected by the impacts of climate change are potential beneficiaries of interventions, disproportionately affected poor and vulnerable populations are often the core beneficiaries and stakeholders. Success of any given intervention can be measured by assessing whether women and men from different segments in the affected communities are visible and constructively engaged in the process not only as beneficiaries but also as capable change agents with opportunities to contribute meaningfully for long-term resilience and sustainability. For example, they should be engaged in:

- Collecting, sharing and storing CC-GSI data at the community level.
- Identifying gender and social inclusion issues (e.g., who are special vulnerable groups and why) in climate planning and investments.
- Assessing practical and strategic needs and concerns and proposing ideas for local solutions.
- Representing their respective communities in all consultation and decision-making processes.
- Developing a monitoring and evaluation system of the interventions or investments undertaken.
- Institutionalizing equitable access to public investment and resource sharing.

6) Design a community survey

The guiding questions and CC-GSI analysis discussed above provide an in-depth means to formulate research questions to investigate the situation and existing dimensions in the chosen sector/area/issue of focus. To obtain primary actionable data, research tools are needed to collect the data.

Community survey in a participatory action research (PAR) project may involve a combination of data collection methods, such as questionnaire, focus group, field survey, community consultation, among others. Different data collection methods have different strengths and weaknesses and are suitable for different situations and purposes. Table 3.3: Primary data collection methods gives a quick introduction to commonly used methods of primary data collection, including direct observation, focus group, interview, questionnaire and survey.

Where gender and socio-economic data gaps exist and statistical comparisons are needed for policy decision making or project formulation that affect many people, a survey is a good option for quantitative data collection. However, the cost for this method is generally higher than other methods.

For target areas with a small population size (such as a community with only a few hundred households), a complete household survey is possible. In cases where the population size is larger than a few hundred households, some form of sampling will be required. Targeted sampling with inclusive selection is recommended to ensure representation of the population from different socio-economic groups, including vulnerable groups.

In a survey in each target area, a combination of data collection methods may be used, for example, questionnaire or survey for quantitative data collection, and focus groups or interviews and structured community consultation workshops for qualitative data collection. Whatever method(s) chosen, it is important that the demographic data are disaggregated by gender, age and other key variables such as household type, education, occupation, income and disability in the research questions and in data analysis.

For designing data collection tools in a community survey, Table 3.4: Data variables and research questions for CC-GSI community survey provides possible individual and household demographic variables and data categories, including household resources and resilience, roles and responsibilities & opportunities and constraints, household experience of climate change impacts & adaptation and mitigation, and community profile. These possible lists of data variables and categories may be used as applicable and may be further refined or adapted as suitable for a specific sector of issue of focus and selected research methods.

7) CC-GSI data analysis in a participatory process

In CC-GSI data analysis, individual and household GSI variables should be cross-tabulated, cross-analyzed and compared, for example, how men vs. women, boys vs. girls, older vs. young age groups, those in different education/income levels, different occupations, different types of households, those living inside and outside irrigated areas, compare in terms of exposure to/experience of climate change impacts, access and control over resources, participation in decision making process, climate risk management capacity, etc.

The quantitative demographic data of a given target sector or area can be enriched with qualitative data and community perspectives drawn from focus groups, community meetings or workshops that investigate the existing arrangement of resource sharing and power structure, as well as the roles and responsibilities of members, and the decision-making process within the sector/area or community.

First, the decision-making structure can inform how priorities can be identified and agreed upon in a participatory process. If the existing structure is not open to all affected groups to provide inputs, a question should be asked: how can the process be made more participatory? The process that is less than participatory is not necessarily so by design or too difficult to address. Sometimes it is so because things have been done in a certain way by habit. A shift in perspective and some encouragement and persuasion may be needed to move things in slightly different ways.

Table 3.2: Guiding questions for CC-GSI data collection and analysis

The following five sets of questions outline the context of a gender-responsive and socially inclusive investigation. These sets of questions can be used as guidelines throughout the project cycle from the planning and implementation to monitoring and evaluation stages. Starting with secondary and primary data collection for situation analysis, these guidelines help frame the questions for desk reviews, surveys, interviews, focus groups and consultations with stakeholders. Not every question needs to be asked in each PAR project and some may be more important or more relevant than others. Where there is relevance, related questions in both CC and GSI columns should be asked together to cover both CC and GSI dimensions.

1. What is the broader context?	
Environment & Climate Change (CC)	**Gender and Social Inclusion (GSI)**
• What is the main geographic location and features of the target area (e.g., where in the country and region it is situated, rural or urban, sparsely or densely populated, the type of earth surface such as mountainous, on foothills, on a plateau, on a river delta/ basin or a flood plain, low lying area near or below sea level, coastal)?	• What demographic data are available for the target area or sector? • Are the available data disaggregated by key demographic variables (e.g., province, rural/urban, sex, age, income, education, occupation, health or disability, ethnicity/ legal status)?

1. What is the broader context?	
Environment & Climate Change (CC)	**Gender and Social Inclusion (GSI)**
• What are common natural disasters and extreme weather events (e.g., flood, drought, landslide, storm, wildfire, storm surge, extreme heat)? • How frequent do these natural disasters occur and what are the patterns? • What are the environmental conditions and concerning issues in the target area/sector (e.g., waste, air or water pollution, loss of biodiversity, deforestation, aggressive urbanization/industrialization, conflicts in community rights and access to natural resources, newly emerging diseases)? • What are known climate change risks and vulnerabilities? • Which economic sectors are at risk of natural disasters and climate change? • What are known climate change impacts (e.g., water scarcity, crop failures, change in agricultural patterns, food insecurity, deaths and harms to public health and safety, new diseases, disruption and damage to businesses and livelihoods, economic losses in industry or sector, increased poverty, unemployment, migration)? • What intervention (adaptation or mitigation) measures have been initiated or implemented to address existing or past environmental and climate change challenges? What were the results of such measures, if any? • How can local politics and social relations be described in the target area or sector?	• Do existing demographic data offer a poverty dimension? (See TPMAP data https://www.tpmap.in.th with MPI in 5 dimensions: health, well-being, access to public services, income and education.) • What household types exist in the target area or sector (e.g., two-parent household, single-mother/father household, skipped generation household)? • What kinds of gender and socio-economic inequalities exist? • What statistics are available on people affected by natural or climate-related disasters or pollution (e.g., deaths, injuries, losses of property, illnesses)? o Are the statistics disaggregated by age, sex, occupation or other variables? • Are there particular vulnerable population groups facing impacts of climate change? If so, in what way are they vulnerable? • What are the practical and strategic needs and priorities of people affected by climate change in the specific area or sector? o Are needs and priorities different for men and women, people of different age, income, occupation, social or income groups? • What is the legal status of women and men, boys and girls from vulnerable groups (e.g., citizen, undocumented minority, migrant, stateless)? • What are common beliefs or stereotypes related to gender or particular social/ethnic/religious groups in the community or larger society?
2. Who has what?	
Economic Resources	**Gender and Social Inclusion (GSI)**
• What are the main features of the local economy (e.g., key economic sectors)? • What are the main sources of livelihoods in the target area or sector? • What are the sources of income of people in the target area or sector (e.g., wages, farm or business income, welfare assistance)?	• What are the levels of incomes and wages for women and men in the target area or sector (in general as well as in specific vulnerable groups)? Describe differentials, if any. • What are the levels and types of education for girls and boys, women and men in the target area or sector (in general as well as in specific vulnerable groups)? Describe differentials, if any.

2. Who has what?	
Economic Resources	**Gender and Social Inclusion (GSI)**
• What are the current conditions of public health and social security (e.g., physical and mental well-being, nutrition, health services, social safety net)? • What are the natural resources available in or for the community (e.g., river, lake, sea, forest, swamp)? • What are public commons or community resources (e.g., roads, electricity, canals, irrigation, public transportation, water pumps, dams or reservoirs, wells, water tanks, village vegetable plots, waste depositories or processing plants, parks, community spaces such as temples, schools or community halls, health clinics or hospitals)? • Who has access to available natural and common community resources? • Are there any restrictions to access and usage of these natural and common community resources? Describe restrictions, if any. • What is the situation of land ownership (for agricultural and non-agricultural purposes)? • What are other productive resources and assets and who can use them (e.g., house, vehicles, household appliances, farming tools, business tools, cell phones, computers)? • What are the main areas of household spending (e.g., food, household expenses such as electricity, gas, cellphone, internet access, school-related expenses for children, health, debt service)? • What financial resources are available in the target area or sector for climate change initiatives (e.g., state budgets, village funds, public or private loans, green bonds, private investments, social enterprises, public-private climate finance, governmental or non-governmental aid, market-based finance such as climate markets and payments for ecosystem services)?	• What are the levels and types of education for girls and boys, women and men in the target area or sector (in general as well as in specific vulnerable groups)? Describe differentials, if any. • What are existing economic and social inequalities? • Are there any differentials in the levels of access and usage of available natural resources and public commons between women and men, or people of different age, occupation, social or legal status? • Who are actually using these natural and common community resources? • Are there any gender differentials in access to household resources? Describe differentials, if any. For example: o land or farmland ownership (in whose names, male or female?) o financial access such as bank accounts (in whose names, male or female?) o household cash (who keeps the purse?) o loans (who took out loans, from which sources, in whose names, male or female?) o major work tools (e.g., farming tools, business tools, cars, trucks, motorcycles) o technology (e.g., computers, cell phones) • Who normally goes to meetings, extension services or training (men or women, young or old)? o Have women and disadvantaged or vulnerable groups been given equal opportunities to participate in income-generating or capacity development activities? • Are there differentials among different groups of people in access to financial resources? o Do women and disadvantaged or vulnerable groups have equal access to financial resources? • What barriers exist that prevent specific groups people from accessing available financial resources?

3. Who does what?	
Employment & Social Resources	**Gender and Social Inclusion (GSI)**
• What are the main occupations and economic activities of people in the target area or sector? • What are the levels of employment and unemployment in the target area or sector? • Who are the community leaders? • What are the roles and responsibilities of community leaders? • What are the key community activities all year round? (Check community calendar.) • Who normally participates in community activities? • What NGOs, civic groups, business groups and interest or pressure groups exist in the target area or sector? • What roles and influence do any of these organizations or groups have in the community, target area or sector? • What community-based human resources (individual, organizational) are available in the target area or sector? What is their expertise? • Do existing human resources in relevant organizations have understanding or expertise on gender equality and social participation?	• What is the typical division of labor between men and women, young and old members of the community in the specific sector/area? o Are there jobs typically assigned to only men or women, boys or girls? o Are there jobs typically assigned to older or younger people? • What are the patterns of participation in economic activities between men and women or among different social or income groups? o Are there patterns of employment in formal vs. informal economy? o Are working hours different for women and men or people from different social groups? o Is there any difference in choices of crops cultivated by women and men, or farmers from different income groups? o Are some groups of people left out of economic or social activities? If yes, why? • What is a typical division of labor within the household? o Who typically manages the household? o Who usually takes care of children and/or the elderly or the sick? o How much time is spent on domestic chores and care tasks in the family by women compared to men?
4. Who decides?	
Local Governance & Politics	**Gender and Social Inclusion (GSI)**
• What is the institutional arrangement in local governance? o What governmental organizations exist in local administration in the target area or sector? o What are the authorities and mandates of these organizations? o How do these organizations function and coordinate with one another? o To what extent are local interests represented in the local governing bodies? o Are there local elected bodies? If yes, what are their mandates? • How transparent is the local governance system?	• What is the general level of participation of people in social, political and environmental activities and the decision-making process in the target area or sector? • What are the levels of participation of women, the poor and vulnerable population groups in social, political and environmental activities and the decision-making process? • Who controls, manages or makes decisions about household resources, assets and finances (women or men)? For example: o Do women and men have a fair share in household decision-making (e.g., on children's education, on buying a car, truck or smart phone, on choices of cooking fuel)?

4. Who decides?	
Local Governance & Politics	**Gender and Social Inclusion (GSI)**
• How responsive are local authorities to local needs? • Are there any gaps in local authorities and responsibilities? Describe, if any. • To what extent do NGOs, civic groups, business groups, interest or pressure groups exert influence on local policies or management, especially on environmental and climate-related issues? • How are conflicts usually resolved in the community? • What mechanisms exist for equal and meaningful participation in local decision-making process to form policies and plans, address problems, propose new initiatives or develop community budgeting?	o Who decides on how the family land or farmland should be used? o Who decides on family investment? • How are men and women involved in community decision-making that involves their livelihoods or political participation? o Who usually represents the household in community meetings? • Do women and men belong to cooperatives or other types of economic, political or social organizations? o What are such organizations and are there any different patterns of membership between men and women, and among people from different social or income groups? • To what extent are women and disadvantaged or vulnerable groups represented in leadership positions in (environmental or climate-related) programme management, how goods and services are used and how resources and benefits are distributed in the community or organization?
5. Who benefits?	
Climate Co-benefits	**Gender and Social Inclusion (GSI)**
• What benefits have any existing or past climate adaptation and mitigation measures been provided in the target area or sector by any government agency or other entities? • Who are the main beneficiaries of the existing or past intervention measures? o Did the benefits reach the intended beneficiaries? If not, why not? • Have the existing or past intervention measures created jobs or livelihood opportunities for people in the target area or sector? • Have the existing or past intervention measures increased incomes of people in the target area or sector? • Have the existing or past intervention measures reduced poverty rates in the target area or sector? • Have the existing or past intervention measures improved the health and well-being of people in the target area or sector?	• Have the benefits of existing or past intervention measures been equally distributed between men and women and different population groups? If not, why not? • Have there been any intervention measures specifically designed to support and benefit special vulnerable groups (e.g., women, elderly, children, people with disabilities, disadvantaged minorities)? • Will the proposed project/programme be equally accessible to both women and men and different population groups, in particular intended beneficiaries? • Will the proposed project/programme increase the incomes of women and men among the intended beneficiaries? • Will the proposed project/programme increase or decrease the women's (or men's) workloads? • Are there provisions to support women's productive and reproductive tasks including unpaid domestic and care work?

Source: Adapted from Table 3, UN Women, *Mainstreaming Gender in Green Climate Fund Projects,* pp. 28-29.

Table 3.3: Primary data collection methods

Method	Strengths	Weaknesses	Cost
Direct Observation	• Minimal preparation required • May enable the experience of minorities or women to be observed, particularly in situations where speaking out against the norm is dangerous	• Must be done at the right moment in the right place • Does not provide information on why things occur • Presence of the observer may influence behaviors	Low
Focus Groups	• Can identify issues that need probing through another method • Allows one to observe various perceptions on an issue • Enables more people to be involved in less time than individual interviews	• Difficult to manage multiple opinions • "Group think" may occur • Individuals may not feel comfortable to dissent • Information may be limited if selection of participants is not representative	Low/ Average
Interviews	• Good for small numbers • Allows for exploration into how and why • Generates data on needs, expectations, attitudes, perceptions, beliefs and feelings	• Time-consuming • May be difficult to differentiate between those who are telling you what they think you wish to hear from those telling the truth	Low/ Average
Questionnaire (by post or email)	• Good if the intervention affects large numbers of people • Good if statistically significant results are needed	• Requires literacy • Time-consuming • Requires a distribution system (e.g., postal system, internet) for large numbers of people	Average/ High
Surveys (in-person)	• Good for interventions that affect large numbers • No literacy requirements for respondents • Good if statistical comparisons are required	• If not well trained, surveyor bias may affect responses • Requires greater resources than a questionnaire does • Does not explain how or why something happened • Not very good if the purpose of the assessment is to study complex processes • Time-consuming	High

Table 3.4: Data variables and research questions for CC-GSI community survey

It is important to define data variables for data collection and analysis. Table 3.4 provides a list of possible data categories and variables in designing data collection tools in a community survey. The first three categories—individual demographic, household data variables, and household resources & resilience—are variables largely for quantitative data collection (through a questionnaire or survey). The last three categories—roles and responsibilities & opportunities and constraints, experiences of climate change impacts & adaptation and mitigation, and community profile—are primarily for qualitative data collection (through focus group or interviews). Examples of questions are provided for some categories that can be further refined or adapted to specific context of different sectors.

1. Individual demographic variables	
• **gender** o female, male, other (LGBTIQ+) • age o 0-5, 6-14, 15-24, 25-59, 60+ • marital status o single, married, civil partnership, divorced, separated, widowed • head of household o Y/N • education o primary, lower secondary, upper secondary, vocational, bachelor's degree, graduate degree • income o (monthly or yearly figure against provincial poverty line) • disability o Y/N (if yes, identify type of disability)	• **occupation** o farmer on own land, agricultural hired laborer, general hired laborer, own account worker/business owner, family worker, homemaker, private sector employee, state employee, civil servant, freelance worker, unemployed, student, retired, other _____ • **Thai citizenship** o Y/N • **religion** • **ethnicity** • **membership in cooperative, organization or civic group** o Y/N (e.g., agricultural, occupational cooperative, savings group, women's, youth, elders' group, environmental activist group)
2. Household variables	
• number of family members o (note members aged 0-5, 6-15, 60+, with disability, bed-bound patient) • household type o extended family (3 generations – grandparents, parents, children) o nuclear family (2 parents + children) o single-headed (parent/guardian + children) o skipped generation (grandparent/s + grandchildren) o elders (only 60+ members) o single (one person living alone) • head of household	• main sources of income o (e.g., earnings, pension, welfare assistance, remittance) • household members receiving government assistance o Y/N (If yes, identify, e.g., elder, disability, mother, and infant) • main household income earner o male, female, more than one contributes • any other income-generating activities o Y/N (if yes, specify _____) • pattern of household expenses

o gender (F/M/O) o 60+ (Y/N) • engaged in agricultural activities o Y/N • household income o (monthly or yearly figure against provincial poverty line)	o food, utilities (water, oil, electricity, gas, phone, internet), transport, education, home maintenance, work tool maintenance, debt payment, etc. • any family members who migrated for work outside of home province o Y/N (if yes, F/M/O, age?)
3. Household resources & resilience	
• land/farmland ownership o Y/N (If yes, owned or rent; under whose name?) • housing o (owned, rent, living rent-free, etc.; if owned, under whose name?) • vehicles o Y/N (If yes, bicycle, motorcycle, car, truck, boat; under whose name?) Who is the main user of household vehicle? • public transport available? o Y/N • any work tools? o Y/N (If yes, specify _____; owned or rented?) • type of cooking fuels o gas, electric, firewood, coal, other • own any of the following: o TV, radio, landline phone, mobile phone, smart phone, computer, tablet?) Y/N • internet access o Y/N (If yes, Wi-Fi or cellular access?) • Use smart phone or communication device to access information? o Y/N (If yes, on what: general news, social media, weather updates (temperature, water level, rain, flood, storm), work or business, etc.) o Which platform/application: Facebook, Google, YouTube, LINE, specific Application _____	• bank account o Y/N (If yes, commercial bank, agriculture and cooperatives, another cooperative bank?; under whose name?) • savings o Y/N (If yes, in what form: cash, gold, savings account, investment) (If yes, sufficient for 3 months of household expenses? Y/N) • debt o Y/N (If yes, formal or informal loan sources?) (If yes, still able to repay debt? Y/N) • spending loan money on: o basic household expenses (food, utilities), education, investment in income generating activities, healthcare, debt service, special events (e.g., wedding, funeral) • who has the final say how income or loan is spent in the household? o (household head, varies, almost always a joint decision of all family members) • can all family members fairly access household resources when needed? o Y/N (if not, give examples) • Has any household member received education/training provided through the community? o Y/N (If yes, specify _____)

4. Roles and responsibilities & opportunities and constraints	
Patterns of division of labor and gender-/age-specific activities: Are there a traditional, cultural norms between activities for men and for women in the community? If so, how? Explain patterns (to draw community context). For example: • who is mainly responsible for housework? • who is mainly responsible for getting or buying food (e.g., going fishing, going to the market)? • who does the cooking? • who does the cleaning and washing clothes? • who fetches water, firewood (in cases there is no tap water, or cooking gas)? • who takes care of children and the sick? • who typically works outside the home? • who manages household waste? • who takes care of the animals? • who is usually in possession of the family vehicle(s)? • who uses technology (e.g., mechanical or technical work tools, computer, and social media to access information)? • who typically goes to meetings and training? • who makes the most decisions concerning matters in the private sphere and matters in the public sphere? • are there common patterns in the decision making? • if the community has in- or out-migration, who are the typical migrants (which gender or age groups)?	responsibilities likely have implications for opportunities and vulnerabilities, as well as potential coping capacity with disasters and climate change resilience. Time use patterns by different genders should also be investigated. The following are activities and time use patterns to consider. • work, livelihood, income-generating activities, housework, care work • paid work hours per day/week (income-generating) • unpaid work hour per day/week (e.g., housework, care work for children, elderly, family members with disabilities) • time of work (paid work, livelihood, income-generating activities, household management, care work) • locations of work, livelihood, income-generating activities (at home or outside home, near or far) • time spent in transportation for daily work or other activities • free time (for self, leisure activities) • time spent on public/communal activities • exposure to work-related hazards • exposure to impacts of extreme weather events • opportunities for learning or self-development (e.g., education, training)
(See Example 4a: Household decision making patterns (in farming community))	
5. Experience of climate change impacts, adaptation & mitigation	
• Experience with natural disasters or extreme events from climate change impacts? o e.g., flood, drought, storm, storm surge, extreme temperature, landslide, mudslide, wildfire, air pollution	• Has any household member received education/training about climate change management, e.g., drought resistant crops, water storage, flood protection, disaster relief, recycling, waste management?

o when? rare occurrence, repeated, seasonal, continuous, or prolonged? o level of severity • What kind of impacts have been experienced? o e.g., death, injury, damages to property, crop failure, loss of food sources, loss of job, income or means of livelihood, loss of water supply, health problems • What have you or your family done to mitigate or adapt to the impacts? To what extent was the response successful? • What key challenges remain?	o Y/N (if yes, specify _____) • Has your household ever received compensation or assistance for damages from natural disasters or climate change (e.g., compensation for crop failure or disaster relief in the case of flood or drought, water ration in the dry season, support for reconstruction of housing, skills retraining)? o Y/N (if yes, specify _____) • Are you aware of any adaptation or mitigation measures to manage natural disasters or climate change impacts? o Y/N (if yes, specify _____)
(See Example 5a: Experience of climate change impacts)	
6. Community profile	
• Topography and dominant geographical features • Historical record of natural disasters and extreme weather events o types of disasters/events (rare or repeated, seasonal or unpredictable, severity) o recorded impacts on the population (e.g., deaths, destruction of properties and infrastructure, injuries, illnesses, loss of livelihoods) • Key environmental/climate impacts and vulnerabilities o e.g., waste/water/air pollution, water scarcity, crop failures, change in agricultural patterns, food insecurity, damages to housing, deaths and harm to public health and safety, disruption and damage to businesses and livelihoods, economic losses in industry or sector, increased poverty, unemployment, migration • Built environment o types of housing, infrastructure, and facilities such as roads, public transport, water supply, electricity, energy access, sanitation/waste management, health facilities, irrigation systems, flood protection, dams, or reservoirs • Population o number of households, percent shares of women, children under 5, elderly, people with disabilities, bed-bound patients o groups exposed to extreme weather events and climate change/environmental impacts such as extreme temperature, storm surge, landslide, flooding, health-related hazards such as (household) air pollution, water contamination, toxin in food, particular diseases o groups historically affected or highly vulnerable to negative environmental or climate impacts, water or food insecurity, or being deprived of means of livelihood • main economic activities and livelihoods • patterns of division of labor by gender and age • traditional customs and norms defining gender roles and responsibilities, opportunities and constraints of women, men, different age or social groups • migration patterns, if any (with gender, age, demographic group dimensions) • decision-making patterns in family and community	

- shared natural resources
  - e.g., water sources, community forests, ecosystem services for livelihoods
  - percent shares of women and vulnerable groups with access to these resources
- shared infrastructure, public utilities and facilities
  - e.g., public transport, water supply, flood protection, energy access, health facilities.
  - who decides on use and access priorities to these infrastructure facilities?
- existing policies and institutional framework that can address vulnerabilities and promote capacities for change
  - e.g., committees, local administration offices, civic organizations
  - percent shares of women and affected groups represented in such bodies
- past or current adaptation and mitigation measures to address climate risks and vulnerabilities
  - record of success or failure, and reason for such success or failure
- climate/environmental trend to watch
- economic trend and future prospect for the community

(See example 6a: Assessment of community capacity to manage climate change risks)

Example 4a: Household decision making patterns (in farming community)

Who usually makes the decision on the following matters? (Put ✓ check mark in the appropriate box.)	Male	Female	Together	Rationale (codes[1])
1. agricultural production or job planning, e.g., choices of crops, when to start planting, size of production, which fertilizers to use				
2. sale of yields or products: when, where, under what circumstances				
3. development of production or income-generation, e.g., purchase of tools, use of new technology, skills training or upgrading				
4. household loans, e.g., for production capital, investment in income generation, education				
5. household spending management, e.g., purchase of vehicles or electronic/digital devices, home maintenance, food, utilities expenses				

6. household division of labor and sharing of responsibilities, e.g., who should do what, when, who should support whom				
7. care responsibilities in the family, e.g., for young children, elderly, the sick or persons with disabilities				
8. self-advancement opportunities for family members, e.g., education of children, training opportunities on new knowledge and skills				
9. participation in community activities, e.g., community meetings, voting on community issues on behalf of household				
Codes1: 1 = because s/he is head of household 2 = because s/he is older 3 = because s/he has higher education 4 = because s/he has the most knowledge on the matter 5 = because the matter is women/men specific 6 = because the matter needs joint decision 7 = other (specify _____)				

Example 5a: Experience of climate change impacts

Has your household experienced any of the following impacts of natural disasters or environmental impacts from climate change? (Put ✓ check mark in the appropriate box.)	Yes	No	N/A	Response (code[s2])
1. damages to housing				
2. damages to crops or agricultural production				
3. damages to business				
4. being cut off basic services, e.g., electricity, water, phone, gas				
5. being cut off road access/ travel for at least a week due to damaged roads or lack of transport				
6. water shortages for consumption in the household				
7. reduced or loss of food sources				

8. family member(s) died in a natural disaster				
9. family member(s) suffered injuries in a natural disaster				
10. family member(s) suffered an illness or died from environmental problems, a natural disaster, or change in climate patterns (e.g., heat stroke, respiratory illness from air pollution, water-borne diseases during flooding, dengue fever, chikungunya, malaria)				
11. family member(s) suffered stress, depression, anxiety, or other mental health issues from the impacts				
12. reduced working hours				
13. longer working hours				
14. reduced income				
15. increased income				
16. unemployment				
17. worsened living standards due to poorer crop yields or lack of money to buy food, water or other necessities				
18. improved living standards due to better crop yields or change in agricultural practice or livelihood				
19. children had to drop out of school or not pursue further education due to reduced income				
20. family member(s) had to migrate for work to support family				
Codes2: 0 = no action (reason: _____) 1 = purchase insurance 2 = reduce expenses 3 = change agricultural practice or choice of crops 4 = find supplementary income 5 = change job 6 = take out a loan 7 = sell assets 8 = other (specify _____)				

Example 6a: Assessment of community capacity to manage climate change risks

Guideline: The following questions can be used to assess community capacity to manage climate change risks. The questions can be used/adapted in an appropriate activity such as a community consultation workshop or a focus group. The answers can be documented and analyzed qualitatively or can be scored in a 1-5 scale, for example: 1 none, 2 low/limited, 3 average, 4 high, 5 very high.

Aspect	Community Capacity	Score
Administrative management	• What are the general conditions of basic infrastructure and services such as roads, bridges, electricity and water supply in the community (e.g., are they well maintained, are they flood proof, do they accessible in all seasons)?	
	• To what extent do community leaders take into consideration climate change risks and vulnerabilities when making economic and social development programmes for the community?	
	• Does the community have climate change related projects or activities or had them in the past (e.g., related to flood, drought, climate-smart agriculture, water rationing in dry season, community waste management, community reforestation)?	
	• To what extent have different groups of climate change-affected people (e.g., women, men, elders, youth, farmers or affected occupational groups, indigenous people/ethnic minorities, people with disabilities) been represented in the decision-making process concerning climate action by the community?	
	• To what extent does the community have reserved funding for activities related to climate change risk reduction?	
	• To what extent is information about weather forecasts, climate risks or disaster prevention (e.g., extreme temperature, PM2.5 level, flood, storm, sea level, new diseases) shared in the community that can be used for public and personal health and safety, and/or planning daily activities such as outdoor work, farming, fishing, managing livestock?	
Economic and social inclusion	• To what extent does the income and livelihood of people in the community depend on external economy, markets and services, e.g, tourism, seeds and fertilizers, jobs outside the community?	

	• To what extent does the community have a support system or a safety net for vulnerable groups, such as elders, people with disabilities or health conditions, pregnant women, young children?	
	• Is there any social system or network or established group within the community that can potentially support the community, including vulnerable groups, during disasters and post disasters? If so, how effective is it?	
	• To what extent has the community received a government budget, grant, revolving fund or loan for job creation, skills training, or income-generating activities?	
	• To what extent has any climate-related project addressed the needs of vulnerable groups (i.e., ensuring access to basic survival needs and supported their participation in community activities)?	
Natural resources and environment	• To what extent do people in the community rely on natural resources for their livelihood (e.g., forest, water, soil, minerals)?	
	• To what extent is the community managing natural resources in the community (e.g., community forest, watershed management)?	
	• To what extent are people who rely on natural resources for their livelihoods represented in the decision-making process concerning management of natural resources?	
	• To what extent does the community use information related to climate risks and types of risks in planning and conserving natural resources within the community?	
	• To what extent does the community help reduce climate risks through natural resource revitalization?	
	• To what extent do people in the community understand and appreciate the value of ecosystem services and natural resources?	
Land use and infrastructure development	• To what extent is information related to physical infrastructure development accessible to all people in the community?	

	• To what extent does the community use risk assessment information, land use plan or climate change risks in making decisions on construction of buildings/houses/structures in the community?	
	• To what extent does the construction design typically take into consideration potential risks and impacts from natural disasters to minimize potential losses and damages?	
	• To what extent have people in the community, including vulnerable groups, received information and training related to government policies or guidelines on safe and sustainable land use and safe housing construction?	
Risk assessment	• To what extent do people in the community understand risks and impacts from climate change on the local economy and livelihood?	
	• Has the community conducted any vulnerability or impact assessment of climate change risks?	
	• To what extent has the community considered the risks for special vulnerable groups and prepared for response (e.g., elders, young children, pregnant women and nursing mothers, people with disabilities, bed-bound patients, the indigent)?	
Early warning	• To what extent does the community use communication channels, public announcement system or other tools for early warning information in emergency?	
	• To what extent do members of the community (men, women, elders, children, youth, people with disabilities, indigenous and ethnic minority groups, migrants, etc.) have access to information about weather forecasts, climate risks or disaster prevention (e.g., extreme temperature, PM2.5 level, flood, storm, sea level, new diseases)?	
	• To what extent is information shared used effectively by different groups of people for public and personal health and safety (e.g., wearing masks against PM2.5, disease prevention, avoiding extreme heat, avoiding impending disaster) and planning daily activities such as work commute, outdoor activities, health and safety precautions, farming, deep sea fishing, managing livestock?	
	• To what extent is a safe zone available in a timely manner during disasters?	

	• Has any early warning training or disaster preparation been conducted in the community?	
Emergency response	• Does the community have an emergency response plan in case of climate emergency (e.g., flood, storm, extreme drought, landslide, epidemic or pandemic)? • If yes, are all members of the community aware of existing emergency response plan?	
	• To what extent does the community have measures in place to ensure the safety of residential housing and public buildings in a natural disaster?	
	• To what extent are women and youth involved in the planning, execution and decision-making concerning emergency response?	
	• Has any training been provided for emergency response to protect lives, assets and livelihood?	
	• Does the community have enough food stocks and other necessary resources for survival during emergency?	
Post-emergency Rehabilitation	• Does the community have a rehabilitation plan for damages caused by natural disasters and extreme climate events?	
	• To what extent does the community make use of information regarding rehabilitation support from government agencies?	
	• To what extent has the community successfully sought the support mechanism of government agencies and others for rehabilitation after a natural disaster or an extreme climate event?	
	• Does the community have any reserved fund for rehabilitation after a natural disaster or an extreme climate event?	

STEP 4: **STAKEHOLDER CONSULTATION AND CC-GSI IMPACT ANALYSIS**

In discussing issues, making decisions and planning projects, it is important that the right people are consulted, especially those who will be affected. In any issue that affects a community or society, there are different actors who play different roles and likely have different interests, needs, perspectives, objectives and concerns. They likely have something to gain or lose. Anyone who has something to gain or lose from a project is called a "stakeholder."

Good planning involves stakeholders early in the process of consultation. Good planning will facilitate effective implementation and help the project to achieve set goals. It will also help identify risks and opportunities. Identifying the right stakeholders is part of the planning process, while collective decision making will help leverage maximum co-benefits for all concerned.

This step provides tools to help identify who is or might be involved in a project under development. This process is called "stakeholder mapping" followed by "stakeholder analysis" which identifies who will be impacted by the project, how they are involved, how different stakeholders might influence the success of the project, and how they should be constructively engaged.

Box 13: What is stakeholder consultation?

Stakeholder consultation involves identifying and addressing the needs of beneficiaries in an efficient manner by maximizing resources.

Different stakeholders bring in different ideas to the discussion and add a broader perspective to the problem or challenge to be tackled.

Stakeholders' different views may sometimes be in conflict. One way to minimize conflicts and maximize co-benefits is to engage as many stakeholders as possible, including potential beneficiaries, in the decision-making process.

Source: Grassroots Collective, *Grassroots Hub, Handbook 1: Tools for Effective Project Planning in Community Development,* p. 4.

In climate change (CC) and gender and social inclusion (GSI) integration, stakeholder mapping and analysis will involve listing stakeholders from various sectors relevant to the sector/issue of focus, identifying GSI priority groups—e.g., people from given gender, age, occupational groups, vulnerable groups—to broaden perspectives on vulnerabilities and resilience to climate impacts, and understanding how they could be engaged meaningfully in the project design and implementation. Subsequently, results from stakeholder mapping and analysis provide information to the overall CC-GSI impact analysis to form a basis for a project formulation.

Tool 4.1: Stakeholder Mapping

It is a good practice to engage many relevant stakeholders, especially those directly affected, to share ideas and inputs on how they have experienced the impacts of climate change. Different groups of people may have different perspectives and lived experiences and can potentially identify varied challenges, opportunities and solutions to identified problems.

Stakeholder consultation will help minimize conflicts and maximize co-benefits from the project.

Tip: Identifying stakeholders

Who are the stakeholders will vary depending on the issue or project. Stakeholders for a project relating to agriculture, health and transport, will naturally be different. However, as a rule for any project there will be those directly involved such as a responsible agency/organization/group, and other organizations or groups that are involved in one way or another or may have influence in the sector or target area. Importantly, there will be people or groups directly impacted by the project positively or negatively.

1) Categories of stakeholders

There are three general categories of stakeholders: key stakeholders, primary stakeholders and secondary stakeholders (see Box 14 for definitions). Stakeholders can also be defined as internal or external to the project.

Box 14: Categories of stakeholders

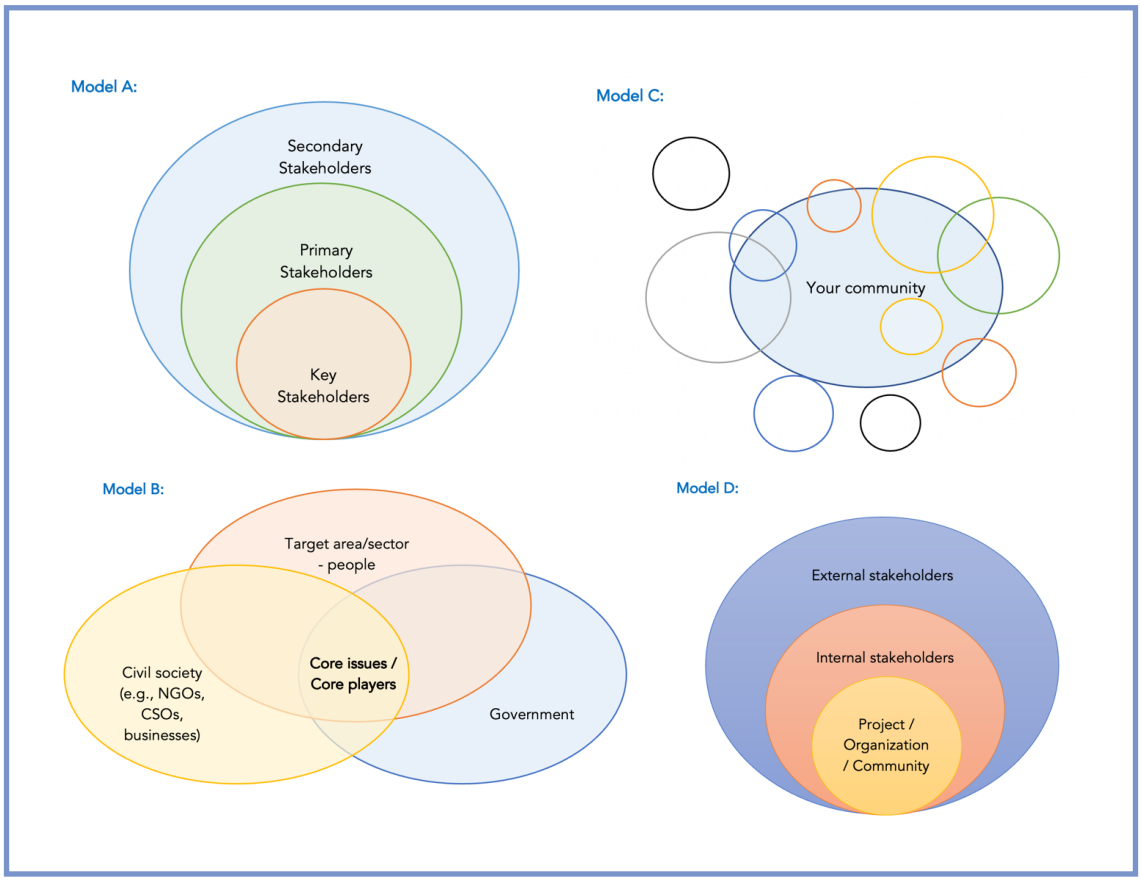
1. Key Stakeholders	2. Primary Stakeholders	3. Secondary Stakeholders
People, groups or institutions who can significantly influence or are particularly important to the success of the project	People or groups who are directly impacted by the project • ***Beneficiaries*** – positively impacted • ***Dis-beneficiaries*** – negatively impacted	All other people or groups who have a stake or interest in the proposed project or are indirectly impacted by the project
(Stakeholders in all three categories can be impacted positively or negatively.)		
Stakeholders can be *internal* or *external* to the project.		
Internal – People and groups who are directly impacted or are part of the implementing team or participatory design process		***External*** – People and groups who are not directly involved in project design, however, have influence over its success or are impacted indirectly (other government agencies, NGOs, businesses)

Source: Grassroots Collective, *Grassroots Hub, Handbook 1: Tools for Effective Project Planning in Community Development*, pp. 32-33.

2) Mapping stakeholders

Depending on how you approach the project, there are several ways to do stakeholder mapping. Figure 12 shows four different models to map stakeholders at various levels. Models A and B are recommended for stakeholder mapping at the national and sectoral levels. Model C is the simplest and recommended for stakeholder mapping at the community level. Model D is applicable at any level, especially in initial brainstorming within a team, project or organization.

Figure 12: Stakeholder Venn Diagram models



- Whichever model(s) used, a stakeholder mapping exercise should produce a list of stakeholders agreed among participants that should be included in the project development. Ideally, stakeholders should be grouped as (1) key stakeholders, (2) primary stakeholders and (3) secondary stakeholders.
- Where possible, explore and discuss the potential level of involvement of each stakeholder in the project being considered, and their potential stance, whether they might support or oppose the project.

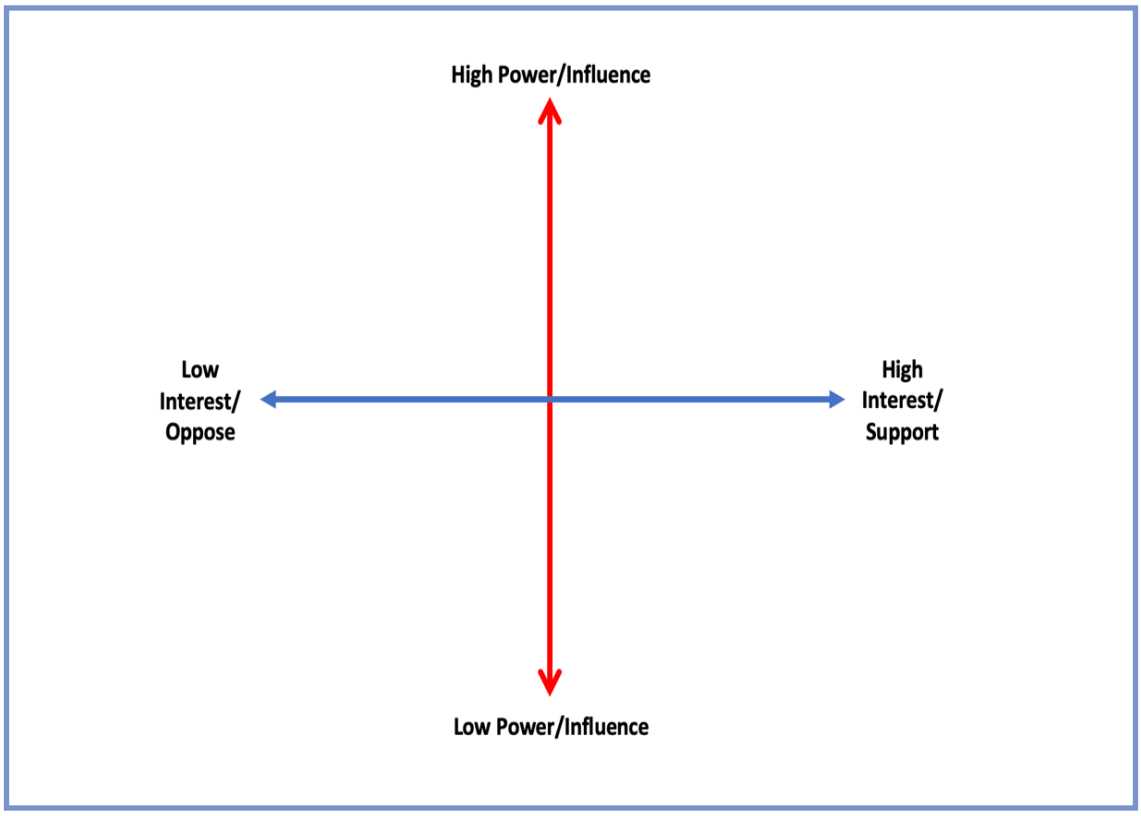
Tool 4.2: Stakeholder Analysis

Stakeholder analysis is a participatory process that is best achieved by directly consulting with actual stakeholders. After initial brainstorming within a team, a good way to start with a participatory approach is by holding a focus group or workshop with primary stakeholders. Overall, this analysis would assess how the various influential stakeholders will influence the project and facilitate the practical and appropriate cooperation strategy.

1) Stakeholder power-interest grid

The stakeholder mapping exercise should produce a list of potential stakeholders. The next step is to analyze the power/influence and the level of interest to participate in the project among the stakeholders identified. At this stage, stakeholders' involvement can be prioritized, and a cooperation strategy developed for different groups of stakeholders. Figure 13 offers a useful tool to analyze the power and interest of stakeholders.

Figure 13: Stakeholder power-interest grid



- Draw a large grid with a vertical axis and horizontal axis as in Figure 13.
- The vertical axis represents level of power/influence of stakeholders in relation to the project: low power/influence at the bottom and high power/influence at the top.
- The horizontal axis represents level of interest of stakeholders in the project: low interest or oppose on the left end and high interest or support on the right end.
- Plot the grid. Mark each zone of the four zones of the grid with a number: 1, 2, 3, 4. Each zone has a different level of power/influence and interest/support.

2 High power/influence but Low interest/support	1 High power/influence and High interest/support
4 Low power/influence and Low interest/support	3 Low power/influence but High interest/support

- Different levels of power-interest for different zones could indicate different levels of support or motivation to participate in the project and levels of influence in the success of the project.
- Go through the stakeholder list and with your best existing knowledge place each stakeholder in a zone.

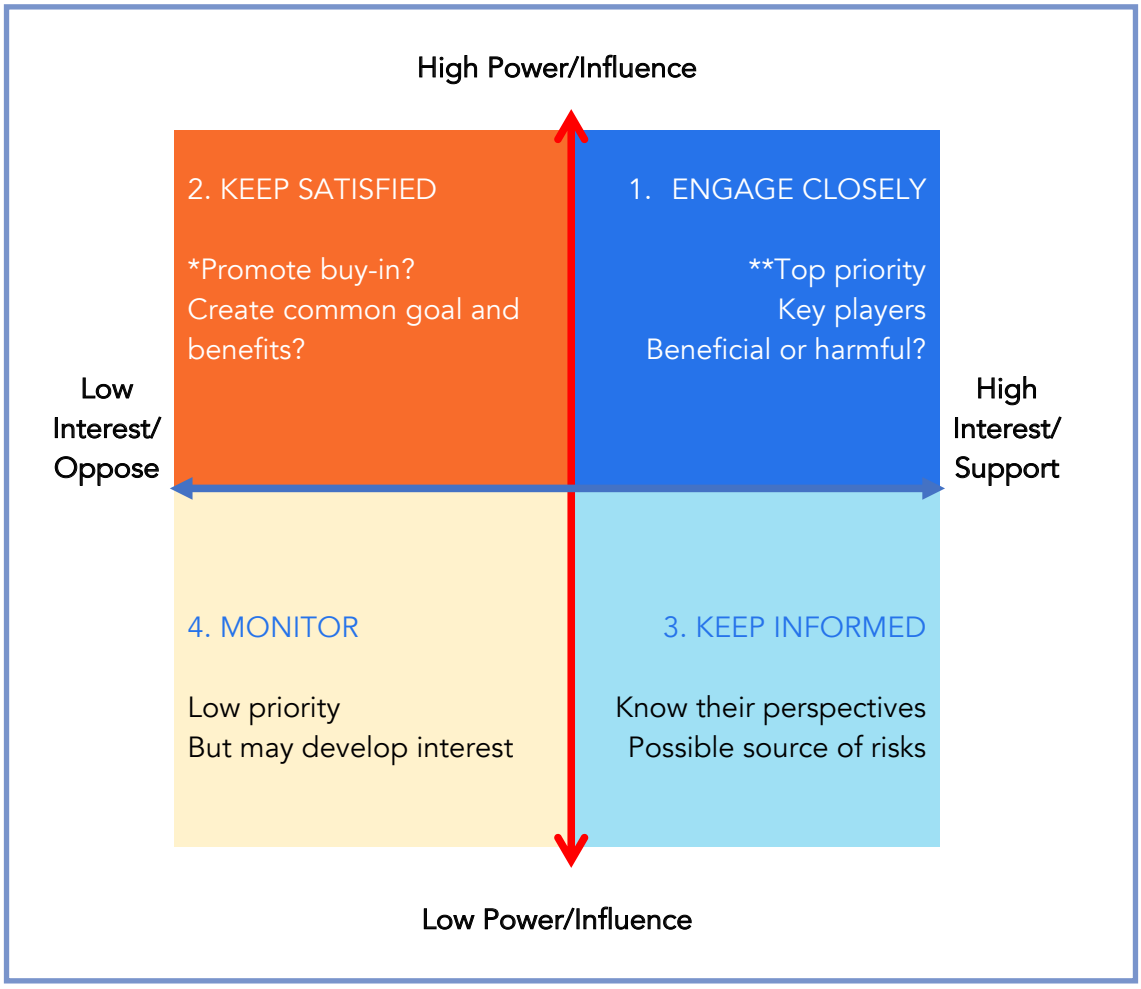
Tip: How to know stakeholders' power, interest and potential support

It is not possible to know the level of power/influence, interest or motivation of all stakeholders. We may not know the level of support to expect either. The best way to know is to talk directly with each stakeholder.

2) Strategic engagement with stakeholders

Stakeholders have different levels of power/influence and interest/support. Engagement with different groups of stakeholders should be prioritized and strategized. Engagement strategies can be identified as shown in Figure 14.

Figure 14: Stakeholder engagement strategies



- Group 1, High power-High interest: Top priority. These are key players and should be engaged closely. However, their high level of power-interest may not automatically or always translate to the benefits for the project. There could be adverse effects from their high power-interest if their goals are not aligned with the project.
- Group 2, High power-Low interest: Keep satisfied. These may be important players who have power and influence for the success of the project but may need to be persuaded to be on board. Common understanding, goals and benefits may need to be established.

- Group 3, Low power-High interest: Keep informed. It is important to know the perspectives of this group of stakeholders and watch out for possible risk factors.
- Group 4, Low power-Low interest: Low priority. Monitor. This group may seem uninterested with low potential inputs, but they may develop interest later.
- Communication is important for all groups of stakeholders. Information should be shared regularly with the groups with high interest, whereas careful and strategic communication may be needed for the low-interest groups or groups that are likely to oppose the project.
- Watch out for potential concerns or points of conflict that may need to be addressed. It is always good to have allies, build common understanding and share common goals and benefits.
- Stakeholders may change their position, for example, those with low interest or likely opposition may later become supporters or allies when circumstances change or when they receive more information.

3) Stakeholder analysis summary

Results from a stakeholder mapping exercise and stakeholder analysis using the power-interest grid above can be summarized in a table such as an example below. Table 4.1 can be used as a reference for a project planning and future implementation.

Table 4.1: Stakeholder analysis table

Stakeholders	Power-Interest	Impacts by project (+/-)	Contribution to project	Risk factors	Strategy

Recently a new perspective has emerged that not only humans can be stakeholders. Natural resources and the ecosystems can also be stakeholders. Therefore, new initiatives should also be concerned about the health, life and well-being not only of humans but also of the natural environment. .

Tool 4.3: CC-GSI Impact Analysis

CC-GSI impact analysis helps synthesize results of the CC-GSI and stakeholder analyses to develop a project. The findings from secondary data and participatory action research which includes results from primary data and multi-stakeholder dialogue with other government agencies, civil society organizations, local administrative bodies, and representatives of different affected population groups form a basis of a CC-GSI impact analysis.

A CC-GSI impact analysis is a climate change impact analysis that integrates a gender and social inclusion (GSI) perspective. In other words, it is a GSI-responsive climate change impact analysis that identifies:

- key climate risks and vulnerabilities in each sector or target area
- how different population groups are exposed to climate risks and affected by climate change impacts
- who are special vulnerable groups?
- what adaptation and mitigation gaps and needs exist among different population groups?
- what are the capacities and opportunities of the populations to respond to climate risks?
- what barriers hinder their capacities and potential contributions to climate action
- what are the community priorities as agreed by different stakeholders?
- how specific affected/vulnerable/underrepresented groups can be supported to be part of the decision-making process to arrive at inclusive, localized and focused solutions for adaptation and mitigation
- how differently affected population groups can share equitable benefits of climate investments.

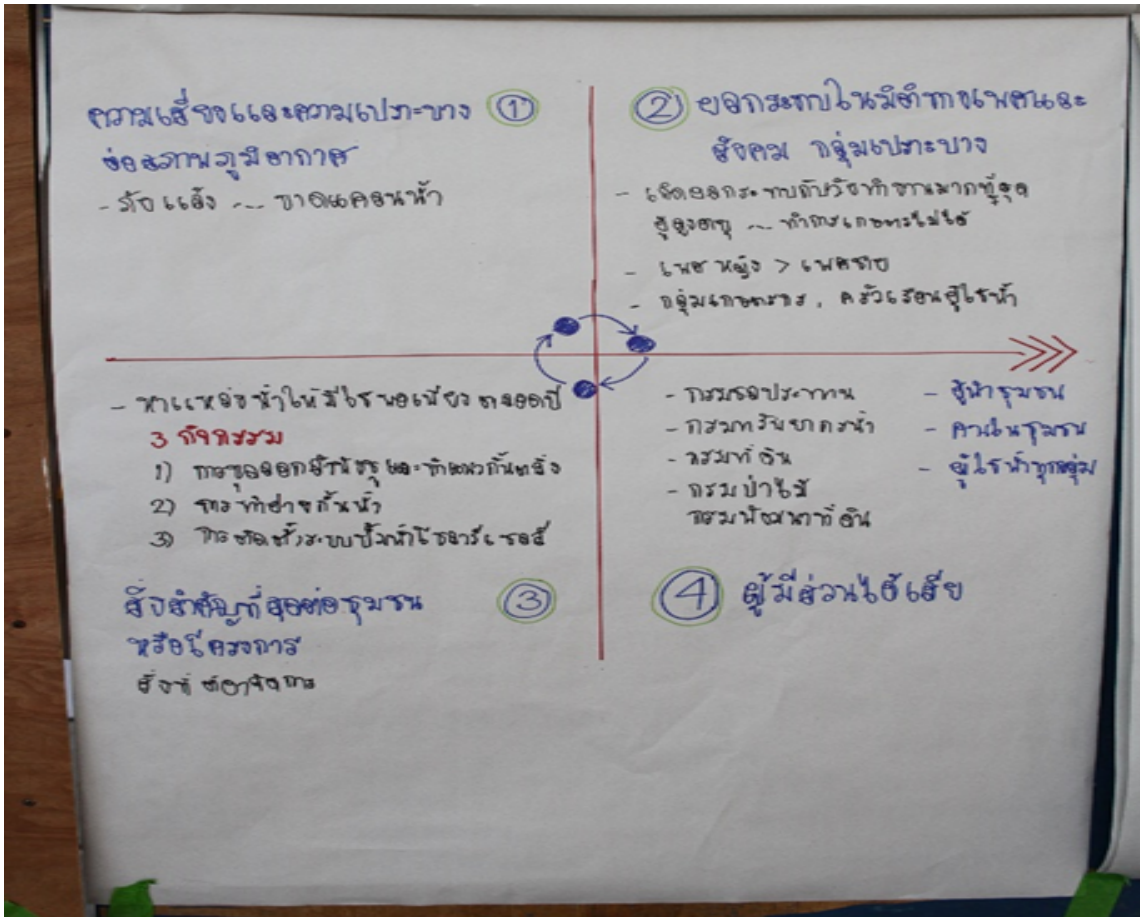
A CC-GSI impact analysis should be conducted at the end of a participatory action research process (see *Table 3.1: Typical stages of participatory action research (PAR)* in Step 3) when the PAR findings are shared with and validated by relevant stakeholders. With the validated findings, stakeholders can consult and agree on common goals based on the findings and together plan a climate action, that may be short term, medium term or long term. *Figure 15: CC-GSI Impact analysis matrix* illustrates a CC-GSI impact analysis process.

Figure 15: CC-GSI impact analysis matrix

Practically, in a meeting or workshop, the organizer or trainer can use this matrix as a tool to facilitate the discussion. For example, they can explain the four key components in the matrix and conduct activities (such as group work) to obtain a substantive conclusion for each box.

1) climate change risks and vulnerabilities (prioritize 1, 2, 3...)
2) GSI impacts and vulnerable groups (identify GSI gaps and needs, capacities and priorities, potential contributions in climate action, who are the most affected and most vulnerable)
3) community priorities (what issues/problems need to be addressed first, second...) as agreed by stakeholders
4) who are the key stakeholders (direct beneficiaries and key actors) for identified priorities for action (special attention to those directly affected)?

(See a real-life example of CC-GSI impact analysis matrix done with a local community in Maha Sarakham on the next page.)



(Summary of CC-GSI impact analysis conducted in a consultation workshop with Mekdam Community in Phayak Phoompisai District, Maha Sarakham Province, 20 June 2021)

It should be emphasized that it is important to make sure that directly affected groups and specific vulnerable and typically underrepresented groups are included in stakeholder consultations (e.g, poor women, youth, elderly women and men, people with disabilities, ethnic minorities), so that they are able to provide inputs and perspectives directly to planners. Specific measures may need to be applied if the vulnerable groups have historically been left out of the decision-making process. Make the conclusion for each topic clear and seek agreements from the stakeholders on these conclusions.

STEP 5: CC-GSI PROJECT FORMULATION

The conclusions from CC-GSI impact analysis from Step 3 provide inputs for a project formulation/integration. A typical government agency usually formulates a project in accordance with its functional role, routine data and situation analysis. This project formulation process can be followed as usual but with CC-GSI data and analytical results obtained from the CC-GSI analysis from the preceding steps. The primary objective of CC-GSI integration is the same, that is to operationalize the agency's functional role and responsibility and to strengthen its effectiveness and efficiency.

CC-GSI intervention measures

CC-GSI intervention measures typically fall into two board categories:

- Adaptation measures aim at strengthening the capacities of affected population groups to respond proactively and more effectively to climate change impacts.
- Mitigation measures aim at strengthening the capacities of affected population groups to participate in climate mitigation activities more meaningfully and thereby improving the mitigation process/outcome.

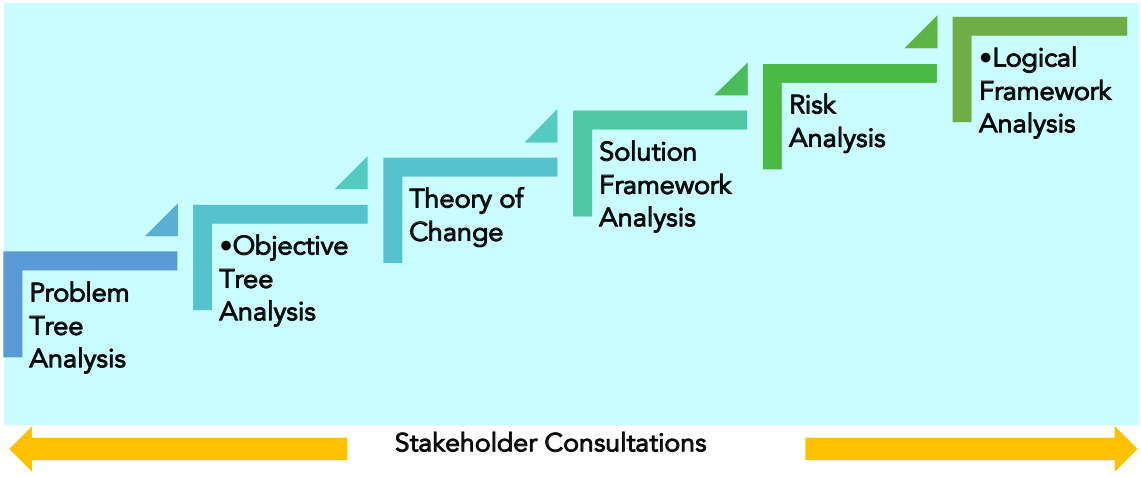
Since the problems and challenges associated with climate change impacts on the populations vary depending on sectoral, institutional, socio-economic and local contexts, it should be emphasized that any intervention measure must primarily serve the functional goal of each respective government agency with additional action taken to address climate change impacts on the populations.

Six essential tools can be used to formulate a CC-GSI relevant project:

1) Problem Tree Analysis
2) Objective Tree Analysis
3) Theory of Change
4) Solution Framework Analysis
5) Risk Analysis
6) Logical Framework Analysis.

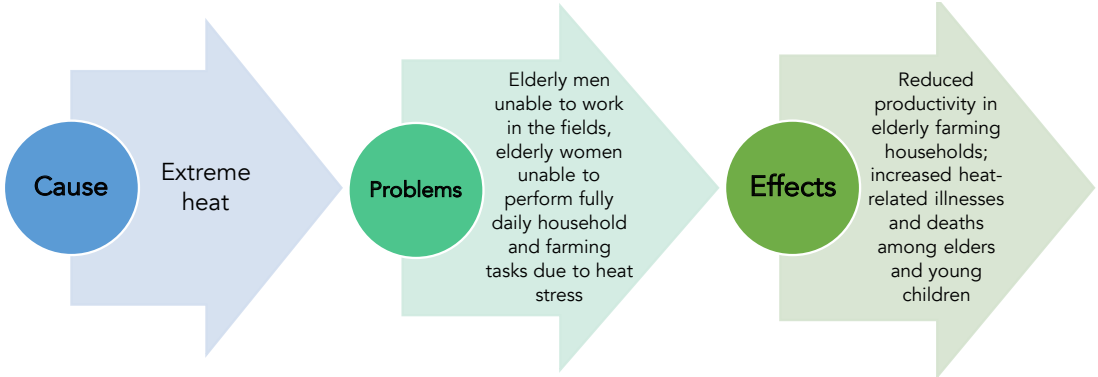
Figure 16: Tools for CC-GSI project formulation illustrates the analytical sequence of these six tools. Relevant stakeholders should be consulted throughout the project formulation process.

Figure 16: Tools for CC-GSI project formulation



- Firstly, any differential impacts of climate change on different population groups need to be visually mapped to define the causal chain (causes-problems-effects) so that the causes and effects around a problem, and the link among them, could be easily identified using the Problem Tree Analysis.

- Then, the problem identified can be transformed into a clear objective—What do we aim to address/achieve?—by following the Objective Tree Analysis. As illustrated in the example below, a climate change factor such as extreme heat could impact the elderly population in a farming community (e.g., heat stress, fatigue, heat stroke) resulting in reduced agricultural productivity and increased susceptibilities to heat-related illnesses and deaths.



- After transforming the problem into a specific objective, a government agency can now use the Theory of Change to analyze how the objective can be

achieved by intervention measures that lead to immediate, medium and long-term change. Essentially, the Theory of Change helps a government agency to interrogate the arrow of result chain, linking intervention measures/activities with immediate outputs, outcomes and impacts.

- Through an analysis related to the change pathway, a process to identify, prioritize and select intervention options that address the CC-GSI concerns can be conducted within the Solution Analysis Framework.

- Subsequently, the Risk Analysis helps identify potential risks and underlying barriers to the implementation of planned CC-GSI measures and explore possible mitigation instruments to address such risks and barriers.

- Finally, all the project design information—objectives, outcomes, outputs, inputs, activities, indicators, etc.—can be summarized into a single 'master framework' using the Logical Framework Analysis, which provides a concise and strategic summary of a project's goals, objective, activities, assumptions, indicators, and sources of verification to implement, monitor, measure, and report achievements and lessons learned.

Tool 5.1: Problem Tree Analysis

This tool is used to define the causal chain in which the central problem is embedded. It aims to provide a broad overview of the problem to be addressed, as well as to identify specific causes and effects of the identified problem based on the information obtained from the CC-GSI vulnerability and impact analysis conducted earlier. The central problem does not need to be CC-GSI focused, but the CC-GSI analysis will inevitably have led to the identification of gender-, demographic- or social-specific causes, effects and impacts.

As illustrated in the extreme heat problem above, its impacts include elderly women and men being unable to perform work and daily tasks due to heat stress. The effects are reduced productivity among elderly farming households and heat-related illnesses or even deaths among elders and young children. There are age, gender and occupational dimensions in this problem.

For example, elderly male farmers are unable to work outdoors, while elderly female farmers are unable to perform multiple household chores or walk long distance to take livestock to water sources or to collect water for household use. Skipped generation households where elderly farmers live with young grandchildren or single elder households would have vulnerability to poverty, food and water insecurity, and increased health risks.[25]

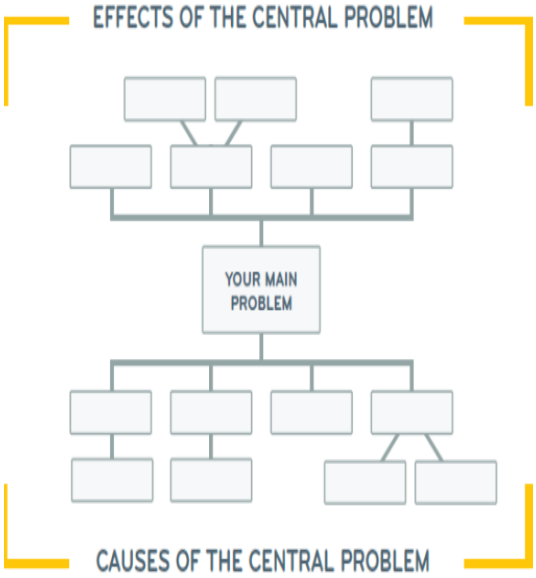
25 HelpAge International, Climate Change in an Ageing World, HelpAge Position Paper, 2015, https://reliefweb.int/sites/reliefweb.int/files/resources/COP21_HelpAge_PositionPaper_Final_0.pdf.

1) Identify the problem

Start with a blank Problem Tree (see graphic below), and add new branches, roots and layers to account for all the elements related to a specific problem.

The broad problem may have already been identified in the CC-GSI analysis conducted, but this activity will define the problem more specifically. There may be many associated problems or points for entry.

- In a brainstorm exercise, write down problems, identify how they interact, and decide upon the most important CC-GSI problem.
- The problem should present an existing negative state, not an absence of a solution. For example, "Elderly female farmers are especially affected by drought" is a problem, but "No water is available" is not.



2) Identify the causes

Determine the causes of the problem by asking "Why?", and "Why?", and "Why?" from one top layer (immediate or the most obvious) of the cause to the lower and lower (less evident but most important underlying or secondary causes) until it is not possible to go further (reaching the root causes, or the fundamental or structural causes of the main problem). For example, "Why does drought happen?" (an answer might be irregular rainfall). Then, "Why does it rain irregularly?" (an answer might be a change in weather pattern). Then, "Why?" and "Why?".

- Often many of the problems identified in step 1) are contributing causes to the main problem and can be added at the bottom of the tree.
- There are also often multiple layers to contributing causes. Try digging deeper. The more detail of the causes can be defined, the easier it will be to identify solutions.
- It is useful to use post-it notes so that each cause can be easily re-arranged/ moved around the bottom of the tree. This is particularly useful when grouping related causes all together.

3) Identify the effects

Identify the effects of the main problem by asking "What are the consequences?" until it is not possible to go further. The final elements of your problem tree

are the effects resulting from your central problem. For example, “What are the consequences of drought?” (an answer might be lack of water for farming and household consumption). “What are the consequences of the lack of water? (an answer might be crop failure, decreased agricultural production and loss of income, poor health or people and livestock). Then “What?” and “What?”.

- These effects are placed above the problem and form the ‘branches’ of the tree. Several layers of effects can be explored but they need to be specifically identified. (See a problem tree example in Figure 17.)
- Finally, define a problem statement and summarize causes and effects identified into the table below.

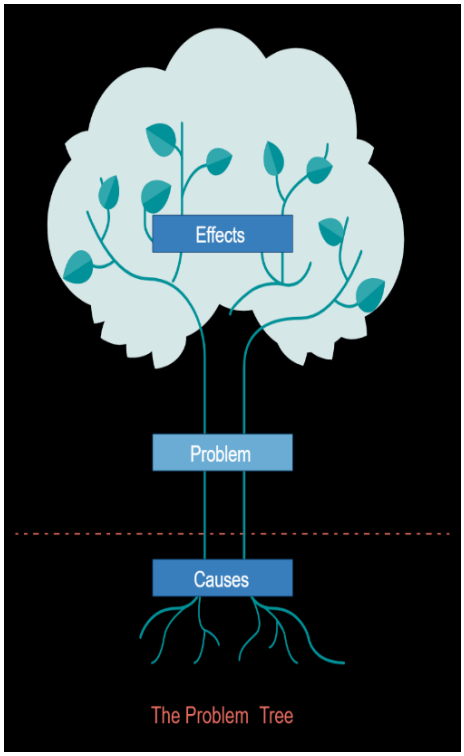
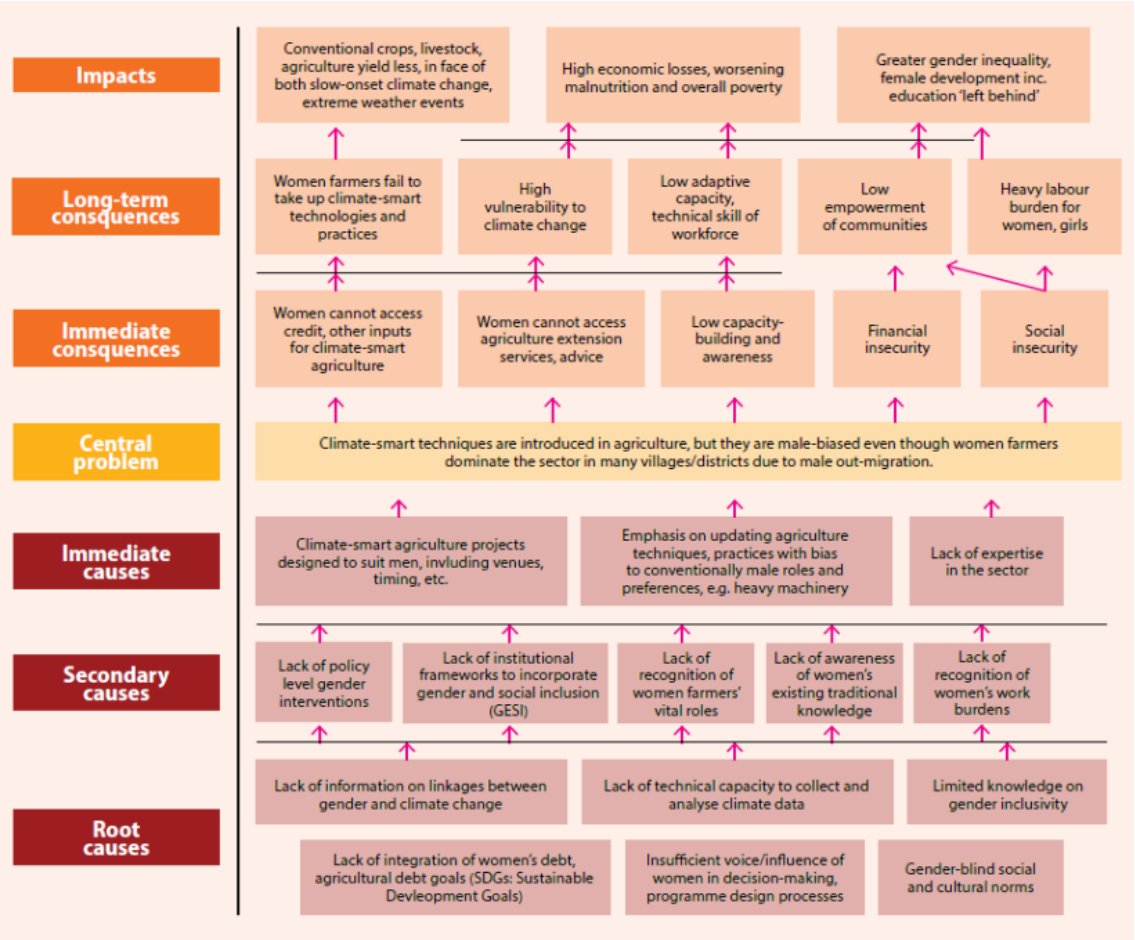


Table 5.1: Summary of causes, problem and effects

Effects			
Problem Statement			
Causes			

Figure 17: Example of problem tree analysis on climate smart agriculture



Source: M. Dupar and P. Velasco, *Advancing Gender Equality and Climate Action: A practical guide to setting targets and monitoring progress*, Cape Town: Climate and Development Knowledge Network, 2021.

The Problem Tree Analysis is the first step in a project formulation. This analysis gives a broad picture of a causal chain which serves as a basis for identifying solution pathways. The more specific the problem is stated, the clearer the objective can be defined, and the more practical intervention measures to address the objective can be.

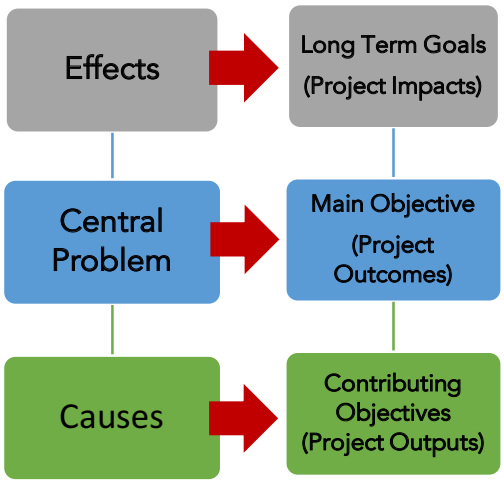
Tool 5.2: Objective Tree Analysis

This tool is used to define the main project objective, contributing objectives and goals based on the problem, causes and effects identified in the Problem Tree Analysis. Essentially, the more specific each objective is defined, the more practical and actionable intervention measures can be formulated.

1) Define the main project objective

To make an Objective Tree, simply rephrase each element (which are often a negative statement) on the problem tree into a positive solution statement. For example, due to extreme heat:

- "More elderly farmers suffer heat stroke and heat-related illnesses and deaths." -> "Fewer elderly farmers suffer heat stroke and heat-related illnesses and deaths."



The main project objective is transformed from the central problem and is alternatively called a project outcome.

2) Define contributing objectives

Rephrase the causes of the central problem into positive statements. These are generally ideas for smaller objectives that could help achieve the main objective. The contributing objectives which are transformed from the causes are called the project outputs. For example, one cause of heat-related health problems among elderly women:

- "Elderly women had to walk long distance to find water sources for their livestock." -> "Elderly women can access water sources for their livestock."

3) Define possible project impacts

Transform the negative effects of the central problem into positive long-term goals, also called project impacts that may occur if the main objective (project outcome) is achieved. For example, among the effects of drought are crop failures, lower crop yields, lack of clean drinking water in poor rural communities,

and food insecurity among the poorest farming households. These can be transformed to:

- Sustainable agricultural production with drought-resilient crops
- Sustainable clean drinking water supply in poor rural communities
- Food security for the poorest farming households.

Table 5.2 can be used to define the three levels of objective statements.

Table 5.2: Project objective statements

Main problem statement	Main project objective (outcomes)
Causes	**Contributing objectives (outputs)**
•	1)
•	2)
•	3)
•	4)
•	5)
Effects	**Long-term goals (impacts)**
•	1)
•	2)
•	3)

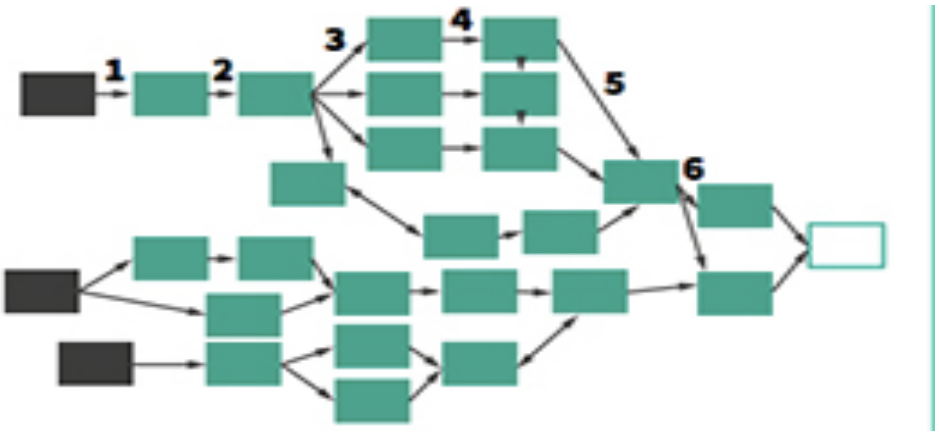
The Objective Tree Analysis is the second step in a project formulation. This analysis helps to define contributing objectives (outputs) which need to be fulfilled to achieve the main objective of the project. The more specific the main objective and contributing objectives (outcome and outputs) are defined, the more practical CC-GSI intervention measures (activities) can be formulated.

Tool 5.3: Theory of Change

After the problem statement and causes have been transformed into the main objective and contributing objectives, the Theory of Change will help analyze how the main project objective or project outcome can be achieved through a series of outputs (derived from contributing objectives), which will subsequently lead to development of intervention measures with specific project activities.

The theory of change is a set of beliefs about how change happens. It examines the underlying assumptions about how change really happens in a given context. Practically, the theory of change serves as a common thread that aligns project activities, objectives and goals. As illustrated in Figure 18, action 1 will lead to 2, and 2 will lead to 3, 4, 5 and so on.

Figure 18: Change pathways to outputs, outcomes and impacts

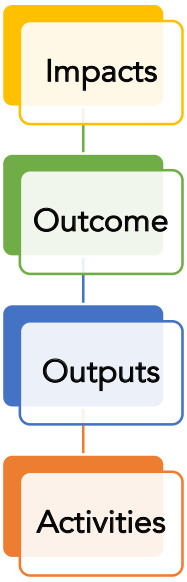


Discussing the theory of change and the underlying assumptions can help strengthen the project logic and identify gaps and unmet needs. It will also enable the project planners to develop change pathways that interrogate the arrows of the result chain, linking intervention measures/activities with project outputs, outcome and impacts. The project planners would then have a systematic and logical mapping of the impact pathway, visualizing the long-term change and how this change can be reached through a series of clearly defined and practically achievable steps.

1) Develop a logical and chronological change pathway

With the CC-GSI impacts, outcomes and outputs identified under the objective tree analysis, a change pathway can now be developed, which is a series of changes expected from project outputs to outcome impacts.

For example, take a project that has identified water scarcity for consumption, agriculture and livestock during the dry season as the central problem which has



disproportionately affected the poor and elderly population. A project output would be an availability of water all year round, and an expected outcome would be poor female elders and elderly farmers having access to water for household and livestock consumption and agricultural activities all year round.

Finally, an impact would be an accumulative and long-term result of the project outputs and outcome, an increase in agricultural production, sustainable household income, and good health of people and livestock in the community, including in poor elderly farming households and single-mother households.

To test whether a change pathway is logical and chronological, ask questions such as "How will the impact occur?", "What needs to happen now and later?", "Who/What are the main drivers of change?", "Does the impact correspond to the long-term goals of the project?".

.

2) Formulate intervention measures or activities to achieve specific outputs

Intervention measures to be formulated will comprise specific, practical and manageable project activities that integrate CC-GSI dimensions as earlier identified. A well-defined series of activities that correspond to identified problems, gaps and needs, will translate to outputs that lead to the fulfilment of the project outcome.

As the project outcome should correspond with the stated main objective, and the outputs to contributing objectives, the intervention measures with specific project activities should directly contribute to expected outputs. Tool 5.4: Solution Analysis Framework will facilitate how to formulate intervention measures with detailed project activities.

The Theory of Change helps project planners create a systematic and logical mapping of a change pathway that can illustrate to the top management how the intervention measures proposed will lead to a long-term change or impact(s) as envisaged.

It is important to conduct the theory of change before defining specific intervention measures to visualize how each specific project activity will contribute to an immediate change (project outputs) that lead to a project outcome with a long-term impact.

3) Ensure effectiveness of intervention measures

Once project activities are formulated within the solution analysis framework, brainstorm for initial ideas on ways to know if the desired change has occurred? This process will produce project indicators to assess the effectiveness of the intervention measures being formulated. Note down ideas for indicators and rough targets. (No need to be exact at this stage, as indicators will be developed in Step 5.5.)

Tool 5.4: Solution Analysis Framework

This tool helps identify, prioritize and select the best CC-GSI intervention options that would effectively address CC-GSI concerns, using the Solution Analysis Framework. The process involves five stages: (1) brainstorm possible solutions, (2) eliminate unrealistic and unsustainable solutions, (3) examine intervention options, (4) set selection criteria, and (5) rate and select intervention measures that best fit the organizational/project context.

1) Brainstorm possible solutions

Based on the project outputs (corresponding to causes), brainstorm ideas for CC-GSI intervention measures. List as many intervention options as possible without thinking too much. Ask why did such and such cause emerge?

- For example, “Why can’t an existing canal store water in the dry season?” (perhaps it is too shallow). “Why is the canal too shallow?” (perhaps there is a lot of sediment). “Why is there a lot of sediment?” Keep asking the why question for each cause until possibly arriving at a root cause that needs to be addressed through an intervention.

In choosing intervention measures, take into consideration the five following factors:

- Project objectives: The project objectives should serve not only the project goal but also the functional role and responsibility of the organization. Identify solutions that serve both the organizational objective and the CC-GSI concerns identified.
- Beneficiaries: Vulnerable groups often need support to participate in the consultation and project activities. Identify stakeholders with a capacity to support the primary beneficiaries, especially marginalized vulnerable groups such as elders, young children, poor women in traditional ethnic minority communities, people who are very poor with low literacy, people with health conditions, people with disabilities, etc. Consider whether intervention measures being proposed would meet the needs and priorities of the beneficiaries identified.

- Skills: Consider how available skills in the project team or organization may be of a particular benefit. Explore solutions that maximize available skill sets. However, it is possible that effective intervention measures may require new skills, which could mean existing team members learning such new skills, hiring a new staff or consultants with needed skills, or partnering with other organizations with such skills.
- Past performance: Explore experience of the team or organization on previous work projects. Reflect on what worked and what did not. Draw relevant lessons learned from past performance.
- Partner organizations: Explore what solutions other organizations with CC or GSI expertise use to address similar problems. Research or consult with them on the results of such solutions, and what lessons could be drawn from their experience to inform intervention measures being developed, especially regarding tactics, approach and feasibility. For many projects and initiatives, it is beneficial to seek partner organizations, whose roles, involvement or support may be of particular importance to the success of the intervention measures or of the project.

2) Eliminate unrealistic and unsustainable solutions

Cut down the long list of ideas for possible solutions to a short list of viable solutions. At the end of this elimination process, there should be about 3-5 viable solutions left for each contributing objective or project output.

- First, eliminate unrealistic, impractical or inappropriate solutions. For example, relocating a village to a water reservoir would be an unrealistic and impractical solution to address a water shortage problem.
- Then, eliminate unsustainable solutions. Some solutions may seem like a good idea but are not viable or sustainable because they require too much funding or long-term reliance on specialized skills or expertise not available locally or after the project is completed, for example, a highly computerized water pump system in a community where there are no local technicians to maintain the system in the long term.
- Eliminate solutions that may be too risky given the existing social or political context. For example, due to a water shortage problem during dry season, the project team proposes to pump up water from the nearby reservoir located in a community forest being managed by another local community.

3) Examine intervention options

The remaining solutions from the previous steps are now intervention options that need to be thoroughly examined: to what extent will they meet the specified project objectives?

- Gather as much information as possible on each option to understand how it will address its given objective.
- Test if each intervention option will be truly practical, viable and sustainable by asking questions along these lines:

    - "How well does the intervention solve [a specified problem]?"
    - "Are there people with needed knowledge and skills to undertake this intervention? Who will be involved? What would they be doing? Will they remain after the end of the project?"
    - "Will the intervention need additional funding down the line?"
    - "How will the intervention be sustained after the end of the project or the end of funding?"

- Examine to what extent the options will address specific practical and strategic needs of affected populations and strategic priorities identified in the target area or sector or may possibly result in adverse effects.

    - "Does the intervention fulfil practical needs of the affected groups identified, i.e., their basic needs for survival such as food, water, housing, income, health care?"
    - "Does the intervention address strategic needs of the affected groups identified, i.e., needed support to special vulnerable groups to participate in the project activities and the decision-making process?"
    - "Will the intervention reduce inequality between men and women and among different affected groups in terms of access to resources and services, income, jobs and decision-making power?"
    - "What might be possible adverse effects of the intervention? How could these adverse effected be prevented or mitigated?"
    - "Will the intervention provide equitable benefits to all affected groups?"
    - "How will the intervention advance strategic priorities of the target area/ sector?"
    - "To what extent will the implementing agency and partners be sensitive to the climate change issue(s) being addressed and the need for gender and social inclusion?"

4) Set selection criteria

Next, criteria need to be set to assess intervention options earlier examined. The following are possible criteria for CC-GSI interventions. Different agencies may set their own criteria that may include some or all these criteria or use different ones as relevant.

- Relevance: How well does each intervention option meet a specific project objective?

- (To what extent does each intervention address a specific problem and relate to the local/sectoral, organizational and national goals and priorities?).

- Feasibility: How realistic and practical is the intervention option?

  - Feasibility can include several facets, for example, costs (Can we afford it?), skills (Do we have the skills?), time (Is it feasible within the time-frame?), experience (Have we done something similar before?), obstacles (What could interfere with success of the intervention, and can the obstacles be overcome?).

- Sustainability: How long will the positive effects of the invention option last once the project team is gone?

  - For long-term sustainability, it is necessary to assess whether there will be sufficient ongoing capacity to continue the project and to provide benefits to the beneficiaries.

- Impact: How well will the intervention option contribute to the overall project objective and higher development objectives?

  - (What measurable benefits is the intervention expected to provide the intended beneficiaries and the organization? How well does it address the needs and priorities of the affected population groups? What will the impact or effect of the intervention be in proportion to the overall situation of the target group and to the organization?)

- Participation: How well will the intervention option enable relevant actors and stakeholders to be involved in the project activities?

  - (Does the intervention include needed measures to empower affected groups that are vulnerable, disadvantaged or marginalized to participate and contribute to the project?)

5) Rate and select intervention measures

Apply the chosen criteria to rate and select the best possible intervention options that best fit the organizational/project context through the following steps (see Table 5.3):

a) Put the problem statement and possible solutions (intervention options) in the first two columns of the table.
b) Put the chosen criteria in the columns under criteria.
c) Give each possible solution a score of 1-10 based upon how well it meets

each criterion (from lowest to highest, 1 = criterion poorly met/negative, 10 = criterion fully met/positive).

d) Add up the criteria scores for each solution in the 'total' column. Use the scores as a guide to help you to prioritize and choose the most appropriate solution(s). The solution with the highest total score should produce the most positive outcome.

Table 5.3: Rating intervention options

		Criteria					
Problem:	**Solutions:**	Relevance	Feasibility	Sustainability	Impact	Participation	**Total**
	1)						
	2)						
	3)						

The Solution Analysis Framework helps identify, prioritize and select CC-GSI intervention measures to form project activities to achieve specific outputs that will contribute to the project outcome and impact. It is essential that a process to choose intervention activities is participatory and inclusive to ensure selection of effective solutions and equitable outcome.

Tool 5.5: Risk Analysis

This Risk Analysis complements the Solution Framework Analysis by helping identify potential or underlying risks associated with the implementation of the chosen intervention measures. The aim of a risk analysis is to identify a range of potential or underlying risks and to explore possible measures that can mitigate associated risks.

1) Identify potential or underlying risks

- List any potential or underlying political, social, economic, cultural, institutional and other risks associated with implementing selected CC-GSI measures. Use guiding questions such as:

  - o "What could prevent the project from happening?"
  - o "What could interfere with or stop/delay the project?"
  - o "What could disrupt the inputs/outputs/outcomes of the project?"

- Consider both internal risks (within the organization) as well as external risks (outside the organization).
- Rank each risk in terms of low, medium or high probability, and list any reasons for such ranking.

2) Consider measures to mitigate risks

- Think of measures that could help mitigate the identified risks. Mitigation measures could be in various forms, e.g., engaging stakeholders and using evidence-based data as a means of persuasion with them, enhancing CC-GSI analytical skills, strengthening participation of affected groups, improving regulations or institutional governance, financial incentives.
- Map identified risks and associated mitigation measures in a systemic and transparent manner (see Table 5.4).

Table 5.4: Summary of risks and mitigation measures

Potential Risks	Mitigation Measures
e.g., Local administration offices may not support the project.	e.g., Closely communicate with them and involve them in the consultation process.

It is important to identify potential risks and underlying barriers associated with selected CC-GSI intervention measures to find possible ways to promptly mitigate those risks. The more the risks are known and swiftly addressed, the more effective the intervention measures will be.

Tool 5.6: The Logical Framework

The Logical Framework is used to bring together all project design information from all previous tools into a single master framework. The logical framework matrix ("logframe" for short) is typically a 4x4 matrix consisting of four columns and four rows containing a summary of the key elements of a project plan: rows of project goal (main objective or impact), purpose (expected outcome), outputs, and activities; and corresponding objectively verifiable indicators, sources and means of verification, risks and assumptions. Table 5.5 gives a definition for each block of information. Typically, the project logframe is used to guide the project implementation as well as monitoring and evaluation.

Table 5.5: Logical framework matrix (logframe)

Project description:		Objectively Verifiable Indicators	Sources and Means of Verification	Risks and Assumptions
Goal	What is the overall broader, long-term impact to which the project will contribute?	What are the broad quantitative measures or qualitative judgements that will be used to assess whether the long-term goal has been achieved?	What sources of information will be used and how they could be evaluated to measure the project success?	What are the external factors necessary to sustain the long-term goal of the project?
Purpose	What is the specific outcome at the end of the project and how will it contribute to the long-term goal?	What are the quantitative measures or qualitative judgements that will be used to assess whether the project outcome has been achieved?	What are the sources of information that exist or can be collected to measure the project outcome? What are the methods to get this information?	What external factors and conditions are necessary to achieve the project outcome?
Outputs	What are the immediate deliverable results to achieve the specific objectives and project outcome?	What are the measurable targets that will be used to assess whether and to what extent the immediate outputs of a project have been achieved?	What sources of information will be used to monitor and evaluate the achievement of the project outputs?	What external factors and conditions must be met to obtain the expected outputs on schedule?
Activities	What are the key activities to be carried out in what sequence to produce the expected outputs?	What are the inputs required to implement these activities, e.g., personnel, technology, equipment, skills? What targets are set for achieving the activities?	What are the costs of the activities? What sources of information will be used to measure the progress of the activities?	What external factors and conditions could affect the activities to produce the desired outputs? What pre-conditions are required before the project starts?

Source: Adapted from the Barreto-dillon 2010 Logical Framework.

1) Formulate the logframe

Fill in the information, starting with the horizontal rows, one by one:

- Project description (Give a brief description.)
- Goal (State the impact identified with Tool 5.3: Theory of Change.)
- Purpose (List the expected outcome or outcomes identified with the Theory of Change, e.g., Who will benefit from the project? What CC-GSI improvements or changes will the project bring about?)
- Outputs (List the outputs identified with Tool 5.4: Solution Analysis Framework.)
- Activities (List the intervention measures/activities identified with Tool 5.4: Solution Analysis Framework.)

Fill in the vertical columns according to the descriptions given:

- Objectively verifiable indicators (Fill in after having developed indicators with Step 6: CC-GSI Tracking and Monitoring.)
- Sources and means of verification (Think of ways to measure the indicators and assess the project performance. Also consult Step 6: CC-GSI Tracking and Monitoring.)
- Risks and assumptions (Fill in with information from Tool 5.5: Risk Analysis.)

2) Check the logical flow

Use an "If, Then" statement to check the logic flow across the logframe from the bottom up. For example, "If this activity occurs (tracked by a corresponding indicator) and related assumptions hold true, then this output should be achieved." This can be done at every level, linking up to the next level to highlight the reasoning of a project's planning.

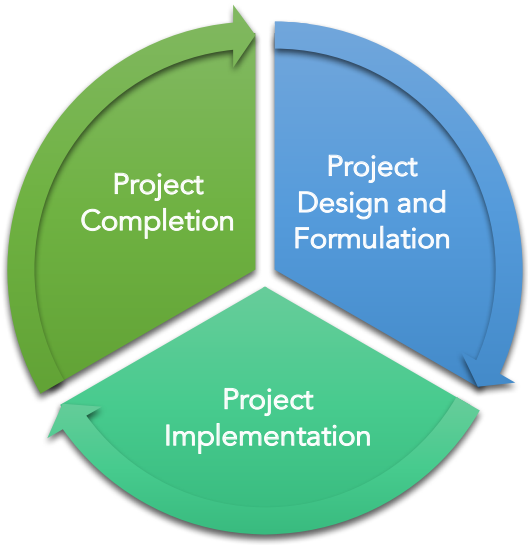
The Logical Framework Analysis is useful for project management, from the design and implementation to monitoring and evaluation. It guides a government agency to check progress and achievements and systematically report to their top management and the Bureau of Budget with clear sources of information. The logframe can be applied to CC-GSI projects and other functional routine projects.

STEP 6:
CC-GSI TRACKING AND MONITORING

This step provides technical tools to track CC-GSI intervention progress and success. Tracking is a dynamic process. It focuses on what is happening and encourages continual adjustment of the intervention as problems arise.

Tracking helps improve performance and achieve results at the activity, output and outcome levels. This is done through systematically collecting information on all aspects and stages throughout the project cycle, from the design and formulation stage throughout the implementation until its completion (see Figure 19).

Figure 19: Project cycle



- At the start of a project formulation, tracking supports the project team in formulating parameters to assess CC-GSI achievements against the project goal and objectives at various intervals.
- During the implementation, tracking will enable the project team to investigate factors that hinder or enhance activities, identify areas for improvement and make necessary changes, and finally keep track of progress and information required to measure achievement of each output.

- Finally, at the project completion, it guides the project team on how to evaluate the overall success of the project and how to draw lessons learned for future project design and formulation.

It is important that the project management and key stakeholders be kept up to date with accurate and evidence-based reporting on the project progress, achievements and challenges throughout the project cycle. There are four steps of tracking CC-GSI achievements (see Figure 20):

1) Review CC-GSI outcome, outputs and activities if they are clearly defined. (Normally these are set in Step 5: CC-GSI Project Formulation).
2) Develop CC-GSI indicators for measuring and assessing the project progress and success.
3) Choose CC-GSI data sources, timeline and responsibilities to measure the set indicators.
4) Make a monitoring and evaluation plan based on the chosen indicators, identified data sources, data collection methodologies and tracking plan.

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Figure 20: CC-GSI tracking steps

Tool 6.1: Review CC-GSI Outcome, Outputs and Activities

Before formulating CC-GSI indicators, it is necessary to recheck the project outcome, outputs and activities as to whether they are clearly defined, relevant and realistic, and address both the climate change and gender and social inclusion dimensions in the project goal and objectives. By doing so, the project team ensures that the project is set up with a logical framework and a systematic process to monitor and evaluate what the project aims to achieve.

1) Review the project outcome and outputs

- Refer to the project outcome (the main project objective or the project goal) and outputs (contributing objectives) as defined with the Object Tree Analysis and the Theory of Change under Step 5: CC-GSI Project Formulation.
- If the outcome and outputs are found to be inconsistent or weakly linked, revisit the Problem Tree Analysis and the detailed process of formulating the outcome and outputs under the Objective Tree Analysis and the Theory of Change.

2) Review the project activities

Refer to the intervention measures that were prioritized and selected with the Solution Analysis Framework. Put them to a SMART test:

- Specific: The intervention should be clear, focused, concise and well-defined. The more specific the intervention is, the greater the effectiveness in addressing the objective.
- Measurable: The intervention should clearly define parameters such as a timeline for activities, costs, target beneficiaries and expected outputs that are measurable. Clearly defined parameters are helpful for tracking progress and keeping the project team on track and motivated.
- Achievable: The project team needs to know what they are working with and what they can achieve. Although it is possible to stretch the team's abilities and the project resources as far as possible, the team also needs to be realistic and have achievable objectives.
- Relevant: Activities in the intervention should match the stated objective and result in an expected impact.
- Timely: The intervention should happen within the set time-frame. In other words, will it happen within the optimal time to ensure relevance and benefits to the beneficiaries?

3) Review CC-GSI dimensions of the project activities

Project activities should be informed by the results of a CC-GSI analysis conducted with stakeholder consultation (see Step 3: CC-GSI Data Collection and Analysis and Step 4: Stakeholder Consultation and CC-GSI Impact Analysis).

- Are the project activities the most appropriate and effective objectives for achieving the stated project objectives and the larger goal of promoting climate resilience and sustainable development?
- Do the activities support efforts to transform unequal gender and social relations in the chosen climate action in the target sector or area?
- Will the activities result in a reduction in the equality gap between women and men and among different population groups in the sector or target area in terms of employment, income, safety and security, access to services and resources, decision making power, and adaptation or mitigation capacity?

- Do the activities include empowerment measures needed to support and encourage participation of vulnerable and disadvantaged groups in the sector or target area, in particular poor women, poor households, the elderly, people with disabilities and marginalized minorities?
- Who will be the implementing agency and partners for these activities?
- Do the implementing agency and/or implementing partners have sufficient understanding about CC-GSI integration?

If the project activities are found to be not SMART or inadequately addressing GSI dimensions above, revisit the Solution Analysis Framework and walk through the process again. Refine and adjust the activities as needed to ensure that they are well defined and correspond to the stated problem and project objectives.

Clearly defined project outcome, outputs and intervention measures that address both the CC and GSI dimensions enable the development of effective indicators to measure achievements and success.

Tool 6.2: Develop CC-GSI Indicators

An indicator can be described as a reference point to assess change over time. Although an indicator does not explain how or why a change occurs, it is used to measure change in a situation or condition, or to confirm progress towards achievement of a specific result.

Indicators are a useful tracking and monitoring tool used throughout the project cycle. At the start of a project, indicators define how the project will be measured and how its effectiveness will be evaluated with what parameters. Indicators enable the project team to perceive and measure a desired change (results or achievements) in a particular context. Indicators allow tracking of activities over the course of the project to monitor progress and identify areas for possible adjustment and improvement. Effective indicators also inform what kind of data to collect for measurement.

1) What are CC-GSI indicators?

CC-GSI indicators are indicators that integrate climate change (CC) gender and social inclusion (GSI) dimensions. CC-GSI indicators reflect understanding about climate change challenges as well as gender roles and social inequalities. They enable efforts to reduce gender and social gaps, and measure achievements of a climate action to ensure equal and fair distribution of benefits.

GSI-responsive indicators encourage equal participation by men and women from various affected population groups and help to avoid adverse effects of the intervention that may worsen existing inequalities.

Considerations for developing indicators typically include:

- What type of desired change is to be measured?
- What is a unit/parameter of measurement to describe such a change?
- What is the size/number/proportion of the desired change (quantitative indicators)?
- What is the quality/standard of the desired change (qualitative indicators)?
- Who are the people the desired change is expected to affect?
- What is the target and the time-frame for the desired change?
- How will the indicators be verified or proven?
- What is a pre-status (baseline) prior to the intervention?
- Are the indicators SMART and GSI-responsive?

Making climate action indicators GSI-responsive means using the indicators to measure not only the climate aspect of the intervention but also to address the gender and social gaps and priorities identified in the analysis. Ask the following questions:

- What situation analysis and gender analysis data are available that could inform the intervention?
- Are there any specific vulnerable groups that need particular attention in the analysis and, if so, what are their practical and strategic needs and priorities?
- Are baseline data available?
- Are the available baseline data disaggregated by sex and other key variables, such as age, household type, occupation and income?

2) Quantitative and qualitative indicators

Indicators can be quantitative or qualitative.

- Quantitative indicators measure performances or achievements that are quantifiable and hence are based on statistical data, facts and figures. GSI-responsive data should be disaggregated by sex, age, household type and other relevant variables such as income, education, employment status and occupation.
- Qualitative indicators measure people's judgement, feelings and perceptions and are based on descriptive information.

Both types of indicators have their values and usefulness. Neither is not necessarily "better" than the other. Each has a suitability for different purposes. Good interventions often use both types of indicators (see examples in Box 15).

Box 15: Examples of quantitative and qualitative CC-GSI indicators

Quantitative indicators	Qualitative indicators
• Change in the proportion of adult population owning an asset (housing, vehicle, technology, etc.) by sex or by occupation • New jobs or increase in a sector by sex or by age, compared to an earlier period • Average number of hours spent on paid and unpaid work in the sector combined (total work burden) by sex • Change in average number of hours spent on unpaid household and care work vs. income-generating work following a natural disaster by sex • Numbers of men and women who participated in a particular initiative related to climate action in a sector • Numbers and percentages of personnel in government departments or units receiving training on CC-GSI integration • Percentage increase in credit available for women to purchase technology or develop a climate-related business in the sector compared to men, compared to 5 years before	• Opinions of children and adults on the impacts of extreme heat on their daily activities by sex and age, or by sex and occupation • Perceptions of women and men on the impacts of having forests under community-based protection • Attitudes and behaviors in household waste management by sex and age • Growth in knowledge and skills on climate change in the sector or target area by sex • Confidence of community members on the community's long-term capacity to manage the community water storage facilities • Self-reliance and confidence to continue the initiative in the sector by sex and age • Satisfaction in the participation or involvement in a given project in the sector or target area by sex, by age or by occupation • An increase in contacts and networks among climate actors and stakeholders in the sector compared to previous assessments

Source: Adapted from Una Murray, *Gender Responsive Indicators: Gender and NDC Planning for Implementation,* UNDP, 2019.

3) Transforming qualitative indicators into quantitative scales

Quantitative and qualitative can complement and cross-validate one another. Qualitative indicators tend to measure long-term changes and are more detailed. Responses to qualitative indicators are descriptive and not standardized, but qualitative data can provide rich in-depth information. The downside is the data are more labor intensive to collect and analyze.

One way to make qualitative data more measurable and comparable is to transform qualitative indicators into quantitative with descriptive scales. Examples are given in Box 16.

Box 16: Qualitative indicators transformed into quantitative scales

Quantitative indicators	Qualitative indicators
• Transport: The perceptions of both women and men (or children vs. adults) on the use of public transport in municipalities could be ranked on a scale of 1-5. • Energy: Increase in awareness of energy efficient stoves among (different types of) rural households in x district xx region on a scale of 1-5.	• Forestry: The proportion of women and men who perceive that the issuing of certificates to allow reforestation in designated sites is effective could increase from 30% to 50% over xxx period of time. • Water: The extent to which senior officials take responsibility for monitoring equitable access to water (among people of different gender and age groups) in drought prone areas could be ranked, e.g., regularly, sometimes or never.

Source: Adapted from Una Murray, *Gender Responsive Indicators: Gender and NDC Planning for Implementation*, UNDP, 2019.

4) Levels of indicators

Indicators are used at different levels in a project. There are indicators that measure the project impact, outcome, outputs and inputs (activities). Different levels of indicators measure different levels of achievements (see Box 17).

Box 17: Different levels of indicators and what they measure

Level	Relating to:	Measure:
Impact Indicators	Overall, long-term project goal	• After the project has been completed • Success (e.g., positive improvement on the lives of the beneficiaries) • Sustainability (e.g., will the project continue after a time period, do women and men from different population groups have incentives to continue the initiative?) • Changes in attitudes, confidence, sense of empowerment • Contribution to the larger development goals
Outcome Indicators	Project purpose (main project objective)	• At the end of the project cycle • Success (e.g., desired change occurred, new skills developed, benefits distributed, specific improvement demonstrated) • Whether and to what extent the purpose or main objective of the project has been achieved • Whether and how well the project outputs were achieved within the set time-frame (tracking achievements over time) • Performance (timeliness, cost-effectiveness, quantity and quality of the overall project delivery)

Output Indicators	Project contributing objectives	• During implementation • Quantity, quality and timeliness in the achievements of immediate deliverable results of project activities • Whether, to what extent and how well each specific output was achieved, and each set target reached
Input Indicators	Project activities or services	• At the start and during implementation • What resources (e.g., financial, personnel, skills, technology, collaboration) were invested in a given intervention or activity? • Targets of achievements

5) Categorizing indicators

Formulate indicators according to the level of objectives as described in Box 17. Make sure that the indicators measure achievements that correspond to the stated objectives.

Table 6.1: Categorizing impact, outcome and output indicators

Indicators	Quantitative	Qualitative
Impact		
-		
Outcome		
-		
-		
Output		
-		
-		
-		
-		

Once the indicators have been formulated, categorize by level (impact, outcome, output) and by type (quantitative or quantitative), as shown in Table 6.1.

6) Output vs. outcome indicators

It should be stressed that there should be a clear distinction between output indicators and outcome indicators.

- Output indicators measure the immediate results of activities, each of which corresponds to a contributing objective of the project. The project activities

are often designed to reach specific target group(s) in specific target area(s). Outputs of project activities will cumulatively contribute to the project outcome. Output indicators need to be tracked to ensure that the activities reach the intended targets and are completed within the set time-frame.

- Outcome indicators measure the cumulative results of the entire project, whether the project achieved the main objective or the purpose of the project. They measure the effectiveness in terms of costs, time, quantity and quality of the delivery. For example, to what extent combined results from all completed project activities affect a desired change, add to the larger impact and advance the larger, strategic, long-term goal of a specific organization or sector.

Box 18 provides examples of indicators at the outcome level and output level.

Box 18: Examples of output indicators vs. outcome indicators

Output indicators	Outcome indicators
• Climate smart agriculture programme implemented in target area with participation of male and female farmers applying low-carbon and climate-resilient solutions and technologies	• Increased climate resilience among male and female farmers in a target area (e.g., through use of climate-resilient crops and farming techniques, improved land management, clean technologies)
• Existence of practically applied tools and techniques to incorporate women's role in relevant sector planning and consultations	• Increased participation and engagement with networks of women's groups in climate change action in the sector/issue of focus
• Share of poor rural households adopting low-carbon and climate-resilient solutions in household consumption of water and energy	• Time saved in collecting water and fuel due to adoption of low-carbon and climate-resilient solutions • Reduced rates of respiratory illnesses among women and children in communities formerly using polluting cooking fuels
• Evidence of financial incentives for women and youth entrepreneurs to enter low-carbon/climate-resilient market of products and services (e.g., financing packages, tax benefits and rebates, subsidies, pilot schemes, partnership with financial institutions, special support for women's and youth associations) • Share of women and youth entrepreneurs with access to financial mechanisms (equity investment, affordable loans, etc.) for low-carbon/ climate-resilient products and services	• Improved access to financing in green economy among women and youth entrepreneurs • Increased share of SMEs in green economy sector • New job creation through SMEs in green economy • Increased income among women and youth engaged in green businesses, applying climate change adaptation or mitigation facilities and services

• Number and percentage of women involved in the design, distribution, management and utilization of low-carbon and climate-resilient solutions	• Reduction in household energy expenditure for poor households • Low-carbon and climate resilient household energy products that are compatible with needs and pattern of usage (mostly by women)

7) Choosing SMART indicators

As with the project activities, put the indicators to a SMART test.

- Specific: Indicators measure only a change (at the output, outcome or impact level) that they are intended to measure. An indicator must target key elements associated with a desired change, i.e., what changes, where and when does the change occur, with whom?
- Measurable: Indicators must clearly provide clear instructions to measure the results (e.g., definitions of units of measurement), so that different people would measure them in the same way. Results that are quantifiable such as numbers or percentages are easy to measure with quantitative indicators. Qualitative indicators are less precise but can also be measured. An easy way to do so is to transform qualitative indicators into quantitative measures with scales (see item 3) above). There are different data collection methods appropriate for quantitative and qualitative indicators.
- Achievable: Methods of obtaining data to measure and verify indicators should be practical and realistic. There may be budgetary, staff or time constraints and sometimes a compromise may need be made to choose achievable methods of verification.
- Relevant: Indicators must correspond to the outputs or outcomes they need to measure.
- Timely: Indicators must be timely in several aspects, e.g., time spent for data collection done within the project time-frame, factoring in the time-lag between output delivery and the expected outcome at the end of the project.

8) Making indicators GSI-responsive

In additional to being SMART, indicators should be GSI-responsive as discussed earlier (see item 1) above). There are challenges in developing GSI-responsive indicators (see Box 19). However, with a good understanding of CC-GSI dimensions (refer to Step 1: CC-GSI Basics), developing CC-GSI indicators can be done logically and systematically, if the problem is diagnosed and CC-GSI dimensions are clearly identified in the analysis. If the planning agency lacks gender expertise, outside expertise may be necessary to help conduct a CC-GSI analysis.

Box 19: Challenges with developing GSI-responsive indicators

Output indicators	Outcome indicators
• Specified indicators do not fully capture the impact of GSI-responsive climate action. • Feeling that gender equality and social issues are not relevant to climate change, and that there is an urgency to tackle climate change technically first.	• Baseline data are inadequate and not disaggregated. • Disaggregated data may be collected by not analyzed due to lack of budget, capacity or expertise. • Limited capacity or budget to collect disaggregated data by sex and other key demographic variables.

Source: Adapted from Una Murray, *Gender Responsive Indicators: Gender and NDC Planning for Implementation,* UNDP, 2019.

To overcome these challenges to develop effective indicators that capture the impact of GSI-responsive climate action, consider the following:

- Include indicators that address GSI gaps and inequalities identified in the CC-GSI analysis.
- Where available, use baseline data disaggregated by sex, age, household type and other key variables.
- Where possible, collect primary data that are disaggregated by sex, age, household type and other key variables, such as occupation, income, disability, to measure achievements that target specific population groups. Primary baseline data collection may be desirable or necessary for projects that last more than a few years.
- Create an institutional routine in data collection, data analysis and reporting to always disaggregate data by sex, age and specified key variables.
- Include data sharing as part of inter-agency collaboration.
- Integrate CC-GSI knowledge and skills as part of project staff training from project design and implementation to monitoring and evaluation.

9) Examples of CC-GSI indicators by sector

Box 20 gives some examples of CC-GSI indicators by sector.

Box 20: Examples of CC-GSI indicators by sector

Energy	Transport
• Share of low-income households without electricity access by household type (e.g., male-headed, female-head, elderly, skipped-generation; urban vs. rural) • Share of households using polluting cooking fuel by income and sex of household head • Number of efficient stoves used (rather than distributed) by sex and household type • The proportion of financial incentives and grants provided for energy efficiency and renewable energy, including credit services, that are accessible to both women and men	• Usage of public transport in the target area by sex, age, income • Cost of public transport as a percentage of average income for women and men, or comparing between different localities • Numbers of casualties (death, injuries) from transport accidents by sex, age and type of vehicles, road or road conditions • Share of women and men in the low-emission transport labor market and type of occupation
Forestry	**Agriculture**
• Share of women and vulnerable groups (rural/indigenous poor) among forest and land users • Number of certificates issued to allow land utilization in designated sites by sex or type of household • Perceptions of the impact of forests protection law by sex • Number of women and indigenous people in leadership and decision-making roles or positions in the community where forests are under community-based protection	• Rates of participation of men and women per district engaging in Climate Smart Agriculture (CSA) over time and rates of dis-adaptation • Percentage change in crop yield per rai and year as a result of CSA by type of household and sex of head of household • Proportion of women in CSA training provided • Perceptions of men and women of the effectiveness of CSA and the benefits that would accrue from its adoption
Water	**Weather/Disaster Early Warning System**
• Number of households inside vs. outside irrigation areas, disaggregated by income and household type • Number of households with access to tap water, disaggregated by income, household type and sex of head of household. • Number of individuals participating in functional water associations as a result of the project, disaggregated by sex • Changes in the labor burden of women and men as a result of project activities (e.g., number of persons reporting a reduction in the time spent for collecting water in hours per day)	• Number of early warning systems in place in a target area or sector • Numbers of children and adults with regular access to weather forecast and climate information services in a disaster-prone area by sex, age and household type • Percentage of male and female farmers who receive and use the information from the early warning system • Perception of the information received from the system by sex and age rated on a scale of 1-5 • Ratio of female and male designated communicators across disaster-prone districts

Health	Waste Management
• Number of cases of respiratory diseases by geographical area, sex and age • Changes in number of cases of climate-related new diseases by sex and age over a time period • Number of children and adults with increased exposure to climate-induced contaminated water or food by sex and age • Share of vulnerable groups (e.g., pregnant women and nursing mothers, children under five, children aged 5-15, elders 60+, rural/indigenous/ethnic minority/migrant poor, people with poor health conditions or disabilities, unemployed) without access to health care services	• Share of households with access to garbage collection services by household type • Attitudes and behaviors in household waste management by sex and age • Share of vulnerable population groups with access to sanitation (e.g., elders, urban poor, migrant poor, people with disabilities) • Share of women receiving training in waste-generated income opportunities (e.g., waste to energy technologies) • Number/share of women and youth entrepreneurs gaining access to financial mechanisms/incentives for transforming waste to cash

Source: Adapted from Una Murray, Gender Responsive Indicators: Gender and NDC Planning for Implementation, UNDP, 2019.

Well-designed indicators will strengthen the tracking and monitoring process, assess progress and evaluate changes in a clear and effective way. A few indicators that meet the SMART and GSI-responsive criteria are preferred to several indicators that are difficult to be measured due to data inadequacy or impractical methodology.

Tool 6.3: Select CC-GSI Data Sources, Timeline and Responsibilities

Effective indicators are a useful tool for decision making, at the project level as well as at the organizational level. Data used for indicators need to be correct, reliable and verifiable. How to verify data required to be measured by the indicators is an important question. There are various methods to collect different types of verification data.

1) Typical verification data sources for indicators

Verification data can do both secondary and primary data, typically including:

- Census data
- Labor force survey data
- Household survey data
- Government administrative records at ministerial, departmental, provincial, district and local levels
- Data from the project:
  - Measurement of outputs by sex, age, occupation, population group
  - Financial records in project implementation (e.g., list of recipients, beneficiaries)
  - Attendance lists in project activities
  - Evaluation forms
  - Surveys
  - Focus groups
  - Interviews.

2) Choosing data sources and methods of data collection

Based on the set of CC-GSI indicators developed that have been put to a SMART test earlier, brainstorm possible types and sources of data to be measured by the indicators. Types and sources of data are generally dictated by the information required by the indicators. Data should be credible and available.

Explore different data collection methods that are cost effective and time efficient. Verification data can be data produced by the project during the implementation of activities such as financial records and attendance lists and evaluation feedback from project participants. Such data are collected as part of the project tracking and monitoring. Verification data can also be obtained by specific monitoring and evaluation (M&E) activities, in which verification data may be collected through direct observation, interviews, focus groups, surveys or a combination. Different methods have their own strengths and weaknesses and

are appropriate for different types of data (see Table 3.3: Primary data collection methods). Where baseline data are concerned, the verification method should be the same for the baseline data and evaluation data.

Agree on the types and sources of verification data and ensure that the data collection methods are clear, reliable and credible.

3) Set the baseline, targets and timeline for measurement

Now it's time to establish the baseline, targets and timeline for indicators.

- The baseline provides a starting point from which a comparison can be made, i.e., a point or conditions against which the progress or success of an intervention will be measured.

    - Some interventions may take a long time to result in success, in which case a baseline can serve as a starting point to measure incremental progress. The timing for measuring against the baseline will be different depending on the type and scale of each intervention.
    - Baseline data are collected before or at the start of an intervention. Baseline data can come from existing secondary data such as research data, official statistics, evaluation data from similar projects or from primary data collection.
    - It is practical to choose a baseline period that is not disrupted by any major or unusual circumstance that may distort the data out of the ordinary. The process of conducting a baseline itself also provides a testing ground for choosing indicators, e.g., whether each indicator reflects an accurate signal of change, and whether it can be measured and used in M&E analysis.

- Targets are set to measure a change (often improvement against the baseline) because of an intervention. In the case of intervention without a baseline, a target can also be set to measure success.

    - To set targets, identify what change is required by the end of the project. Change should be significant enough and realistically achievable with the project resources. For example, the target of "100% of female-headed households with increased income from low carbon technology" is likely not realistically achievable vs. "at least 50% of female-headed households with increased income opportunities from low carbon technology" is more realistic. Targets for each indicator can be adjusted based on experience gained and changing situational context during project implementation.

- Data verification needs a clear timeline to collect required sets of data to measure achievements throughout the project implementation until its completion. At the end of the project, verification data need to be collected for project evaluation.

- During tracking and monitoring, the target and timeline of some indicators may be adjusted for better results according to changed circumstances affecting particular activities and outputs.

4) Summarize indicators with baseline, targets and data sources

Make a summary of output, outcome and impact indicators with corresponding baseline, targets and verification data sources. Use Table 6.2 as a guide.

Table 6.2: Summary of indicators with baseline, targets and data sources

Indicators	Baseline	Targets	Data Sources
Impact			
-			
Outcome			
-			
-			
Output			
-			
-			
-			
-			

5) Tracking plan for indicators

Develop a tracking plan based on the chosen indicators, verification data sources and methods, and time-frame for data collection.

- Assign specific responsibilities for data collection and analysis to specific members of the project team. When assigning responsibilities, make sure that it is as specific as possible, e.g., what data to collect, when and how to collect them, how to enter data in what system and which format, how to analyze and report findings. It is useful to have standard data collection and reporting formats.
- Clear definitions should be given for specific criteria for the indicators to avoid confusion and errors. Data can be cross-checked by more than one person. Errors in data collection or data entry, if found, must be reported, verified and quickly corrected. Unexpected consequences must be acted upon immediately.
- Put down names, dates, times and places where data collection and analysis will take place.
- Put all this information into a clear tracking plan. This should be done for each specific indicator separately (see Table 6.3).

Table 6.3: Tracking plan for each indicator

Indicator tracking	Description
1. Specific indicator	
2. For output/outcome	
3. Unit(s) of measurement	
4. Data verification source(s)	
5. Data collection method(s)	
6. Baseline	
7. Target	
8. Frequency of data collection	
9. Person/team responsible for data collection	
10. Person/team responsible for data analysis	

A baseline and targets help to capture progress and success of an intervention. Choosing an appropriate means of verification is an essential part of using effective indicators. Correct, reliable and credible verification methods ensure that the tracking performance is effective and trustworthy.

Effective tracking requires a clear plan for systematic data collection with appropriate frequencies, at the start, and in intervals throughout the project implementation until the project completion. Systematic measuring of indicators enables project management to adjust activities for better results.

Tool 6.4: Monitor and Evaluate CC-GSI Achievements

With the list of all CC-GSI indicators for the project, data verification sources and collection methods, it is now time to make a monitoring and evaluation (M&E) plan for the project to track CC-GSI progress and achievements.

1) Monitoring vs. evaluation

Monitoring is an ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives. Monitoring often addresses these questions:

- Are we doing what we said we would do?
- Are our assumptions about the context still valid?
- Are our interventions still strategic?
- Are there new opportunities?
- Are there other activities that previously were not viable that might work now?
- What other approaches should we consider?
- If everything else has changed, why continue to do the same things we have always done?

Monitoring differs from evaluation in that it starts earlier and continues more frequently than evaluation. The decisions that monitoring informs are practical and detailed, and often meet an immediate pressing need or answer questions that may arise during implementation.

Evaluation is more a multi-part event than a continuous process. For example, evaluation can be undertaken in the middle, at the completion, or after the completion of a project. Evaluation often focuses on the bigger picture or on answering a more complex question such as why something happened, with an aim to strengthen future programming and deepen understanding of why things work or do not work. Key aspects of evaluation are:

- Relevance: Are the project's activities addressing the main objective and goal?
- Effectiveness: Does the project achieve the set objectives?
- Efficiency: How well are resources being used?
- Impact: What difference does the intervention make?
- Sustainability: Will the benefits last?

2) Develop a monitoring and evaluation (M&E) plan

An M&E plan is developed to ensure that intended results are achieved as planned. It provides the information needed to assess and guide the project strategy, to ensure effective and smooth operation, to meet internal and external reporting requirements, and to inform future programming.

A good M&E plan generates new knowledge from the project implementation, provides opportunities for stakeholder feedback and ensures accountability. It also ensures stakeholder willingness to learn from experience and to adapt to changing needs and priorities, thus resulting in efficient use of resources. Generally, an M&E plan comprises project outputs, outcomes, impacts and their corresponding indicators together with unit of measurements, baseline and targets, and data sources and verification methods. It also defines responsibilities and frequency for progress tracking through data collection and analysis, writing and disseminating the reports. Table 6.4 provides an example of an M&E plan.

3) Monitor progress and challenges of a CC-GSI project

Based on the set of CC-GSI indicators, identified data sources, selected data collection methods and tracking plan, the project team can start collecting and analyzing data/information (secondary and/or primary data) at different intervals of the project cycle, for example, before the project begins, every six months during project implementation, and after the project completion.

During the data/information collection, key questions to be raised among the project team to ensure that the implementation process is going in the right direction are:

- Are the finance, personnel and materials available on time and in the correct quantities and quality?
- Are the activities being implemented on schedule and within budget?
- Are the activities leading to expected outputs?
- How do beneficiaries feel about the work?
- Are the outputs leading to achievement of the outcomes?
- What is causing a delay or unexpected results?
- Is there anything happening that should lead the team to modify the operation and plan?

After the data analysis, all findings should be reported and discussed among the project team and related stakeholders for key lessons learned and a way forward to improve performance/activities to achieve the project results.

Table 6.4: Monitoring & evaluation (M&E) plan

Project	Indicators	Definition (of measurement)	Baseline	Targets	Data sources & methods	Tracking frequency	Responsible persons	Data analysis & reporting
Impacts								
Outcomes								
Outputs								

4) Allocate responsibilities for data collection, entry and analysis, and reporting

The above tasks may be done by a few or many different people depending on the complexity, or the data/information involved. For complex information, the responsibilities may be distributed among the project staff or across organizational units. For highly specialized technical information, outside experts may be needed for data analysis. Generally, the project staff implement project activities and keep track of the results, and the project manager oversees overall implementation, keeps the project on track and is responsible for the effective and timely delivery and outcome of the project. Depending on the complexity and size of the project, systematic data management may be necessary to ensure effective tracking. Table 6.5 gives an example of data management that can be applied at the activity/output level and project level.

Table 6.5: Data management

Output Indicator: **Data source:**				
Data activity	**Description**	**Responsible persons/ Skills needed**	**Resources needed**	**Timeline**
Data collection				
Data entry				
Data analysis				
Reporting				
Distribution				

5) Conduct a CC-GSI project evaluation

Plan time, resources and personnel for the project evaluation which is normally undertaken at the middle and the end of the project (midterm and final evaluations). Some organizations may use external consultants to perform the evaluation while others may rest on their internal staff/experts. For the former, an extra budget needs to be planned for.

Before conducting an evaluation, the project team must contact key informants, beneficiary groups and related stakeholders for data collection, e.g., planning interviews and/or focus groups, questionnaire/survey. It is a good practice to

engage stakeholders and obtain their feedback as much as possible to gain their insights on the project operation.

The evaluation should be based on the following key criteria:

- Relevance: Whether the objectives of the project are consistent with the target group's priorities and national policies (Questions asked to stakeholders, e.g., "Were the operation objectives consistent with beneficiaries' needs?").
- Effectiveness: Whether the project has achieved its stated objectives and goal from the entire project implementation (Questions asked to stakeholders, e.g., "Did the outputs lead to the intended outcomes?" "Were the operation's objectives achieved?").
- Efficiency: Whether the project had sufficiently utilized resources to achieve the project objectives and goal (Questions asked to stakeholders, e.g., "Were outputs delivered economically?" "Were activities implemented on schedule and within budget?" "Were stocks of items available on time and in the correct quantities and quality?").
- Sustainability: Whether the project or programme can be sustainable after the project completion (Questions asked to stakeholders, e.g., "Are the benefits likely to be maintained for an extended period after assistance ends?").
- Impact: Whether there is any positive change arising from the project including change in behaviors, practices, living conditions and/or policies (Questions asked to stakeholders, e.g., "What changes did the project bring about?" "Were there any unplanned or unintended changes?").

Begin collecting data and information based on questions related to the five criteria indicated above, and subsequently draft a report based on the collected data and analysis concerning the project achievements against expected outputs, outcomes and impacts. The report should also provide recommendations for the next implementation phase.

6) Write a good progress report

A good progress report has the following characteristics:

- Relevant and useful: Serves a specific purpose/use. Avoid excessive and unnecessary reporting.
- Timely: Is timely for its intended use. Information is of little value if it is too late or infrequent for its intended purpose.
- Complete: Provides enough information for its intended use and content that responds to any specific reporting requirements.
- Reliable: Provides an accurate representation of the facts.
- Simple and user-friendly: Is appropriate for its intended audience. The language and reporting format used should be clear, concise and easy to understand.

- Consistent: Adopts units and formats that allow comparison over time, enabling progress to be tracked against indicators, targets and other agreed-upon milestones.
- Cost-effective: Warrants the time and resources devoted to it, balanced against its relevance and use.

7) Use data and information from tracking and M&E reports

Information from M&E reports is meant to be used. Project management makes consideration and take appropriate actions from report recommendations for development of the next phase of the project or future programming. Data and information collected from the tracking and M&E process can be utilized for further reflection, generalization and lessons learned (e.g., What worked? What did not? What should be changed?) with an aim to improve achievements, refine the existing project and/or formulate a new project. For example, data and information collected through a survey related to perceptions of male and female farmers on adopting SMART agricultural techniques can be used for refining the project training activities or for designing a new project that takes into greater consideration implications of gender roles and farmers' capacity and readiness in adopting new technology and agricultural techniques. Key questions for further reflection, generalization and lessons learned by the project team are:

- Did our theory(ies) of change work? Why or why not?
- Would a different theory of change have catalyzed a greater transformation?
- Was the contextual analysis accurate?
- Did our strategy link to the analysis in the best way?
- What happened because of these activities?
- What did not happen—that we expected to happen—as a result of these activities?
- Was the process we used within each activity the right one?
- How can we improve our techniques (e.g., training techniques) for future programming or project formulation?
- What do the evaluation recommendations mean for the project and the organization?
- What are the key learning points from this for the future?

A well-planned and well-executed monitoring and evaluation supports project implementation with accurate, evidence-based information and enhances performance. Tracking and monitoring focuses on what is happening, while evaluation assesses whether the project is achieving or has achieved its intended objectives and provides recommendations and lessons learned. Sufficient resources should be allocated for M&E.

STEP 7: **CC-GSI INTEGRATED BUDGET REQUEST PREPARATION**

Results from activities in Steps 1-6 provide information to draft a project document. The information can now be pulled for integration into a budget request preparation. As mentioned earlier, the Budget Bureau (BB) has Budget Request Guidelines that require government agencies to comprehensively include key elements of a project. The BB has its own criteria to assess budget allocation priorities.

Key elements of budget request	BB criteria for budget allocation priorities
✓ Project Background ✓ Needs/Justification ✓ Stakeholders ✓ Project Result Framework ✓ Budget Sources ✓ Readiness ✓ Problems/Barriers/Limitations ✓ Solutions to Address Problems	✓ Compliance with national law and/or international commitment ✓ Ongoing with strong policy commitment ✓ Urgent, serving government priorities, and/or under one of the integrated budget plans ✓ Address a protracted problem with potentially serious impact ✓ Cover a large group of beneficiaries ✓ Ready for implementation and would create future budget burden if not immediately undertaken

This step will go into detail about how analytical results from previous steps can be used to strengthen the CC-GSI dimensions in budgeting at the project level. Guidance will be provided for each stage of the budget request preparation based on the format set by the Budget Formulation Guidelines of the Budget Bureau to ensure that the budget request is CC-GSI responsive. Box 21 gives an example of a typical budget request submitted to the BB.

Box 21: Budget request example, Ministry of Public Health

Project	Strengthening the efficiency in water management system within local communities for household consumption under the integrated water resource management plan (B.E. 2565).
Objective	To strengthen water management for household consumption in accordance with the quality standard by ensuring water quality to be safe and clean without contamination and water access for people in local communities.

Outcome	400 villages have a water system certified with water quality standard (3C - CLEAN CLEAR CHLORINE).
Outputs	1) The village water system (ประปาหมู่บ้าน) is raised to the quality standard in 400 locations (แห่ง). 2) Village water quality is inspected and given a passing grade according to drinkable standard criteria set by Department of Health in at least 10 provinces with 1,000 samples in local sub-district organizations. 3) 400 villages can perform simple water quality testing. 4) At least one Local Administration Organizations in each province at high risk of water contamination exposure is actively engaged in water quality management to reduce contamination risks.
Activities	1) Strengthen the network of water quality management for household consumption. 2) Enhance local knowledge in water quality management. 3) Undertake the water quality standard certification to raise the standard of village water quality management system.
Area of implementation	76 provinces
Budget (B.E. 2565)	4,028,200 baht

The process of CC-GSI integration aims to help government officials to provide a strong justification and explanation to top management and the Budget Bureau on the significance of CC-GSI integration in budgeting.

1) Project background

Background information for each project includes objective, sectoral focus, operation, experience and expertise, project type, duration and location.

a) Objective – The BB Budget Formulation Guidelines require each proposed project to state its objective. This should be each agency's own functional development objective. For example, the main objective of the water project under the Ministry of Public Health would still concern water quality relating to health. However, the project could also have a complementary objective to enhance performance by taking into consideration climate risks that could increase water contamination in flood- and/or drought-prone areas.

As always, government agencies should make use of findings from the CC-GSI analysis to integrate the CC-GSI dimension in drafting the project proposal and defining the project objective (see Steps 2-6), and in the budget request. The project objective should address any gender and social equality gaps and priorities identified in the CC-GSI analysis. Project planners should

explore both climate change and gender and social inclusion dimensions of the sector/issue of focus (see Step 1: CC-GSI Basics). Some practical tools are available to help identify CC-GSI gaps (consult Table 2.2: Broad context worksheet and Table 3.2: Guiding questions for CC-GSI data collection and analysis).

To use the Ministry of Public Health budget request example above, if CC-GSI analysis results identified that poor, vulnerable, female-headed and elder-headed households in the flood-prone, drought-prone and coastal communities are at a particularly high risk of having no access to safe and clean drinkable water, the project objective could be reworded as follows:

> "To strengthen water management for household consumption in accordance with the national safety and quality standard and ensure access to safe and clean drinking water for *all households* in local communities, *including poor, vulnerable, female-headed and elder-headed households at risk of lack of access to safe and clean drinking water.*"

b) **Sectoral focus** – The project should state clearly what sectoral focus the project would address (e.g., economic development, energy, low-emission transport, tourism, public health, water management, fishery), which is expected to be consistent with each agency's functional role and responsibility.

Given that climate change is a cross-cutting issue and its impacts concern multiple sectors, not just environment, the potential climate impacts and future climate risks on a particular sector should be well articulated. For example, the impacts of drought, flood, water pollution and salination of water can affect the level of water contamination and water supply, safety and quality in flood-prone, drought-prone and coastal communities and have implications for future water security. Lack of access to adequate and safe and clean water has health implications for those affected. Young children and elderly in poor households in communities with prolonged drought areas are the most vulnerable.

c) **Operation** – A proposed project may be a new initiative or a continuation of an ongoing operation of an agency. In both cases, CC-GSI integration can be argued to potentially enhance the efficiency of the agency's function and provide added value with more targeted benefits for specific groups of beneficiaries with achievements and progress that can be measured by clearly defined specific indicators.

To use the same example of the water project under the Ministry of Public Health, the duration of project is 10 years (B.E. 2561-2570). If the project takes into consideration the CC-GSI dimension and addresses existing gender

and social inequalities that may be worsened by climate change impacts, the effectiveness of this ongoing project can be enhanced with more comprehensive localized solutions that address the differential impacts on different population groups unequally impacted by water contamination and water scarcity.

d) Experience and expertise – The project background should describe prior experience involved and expertise needed to undertake the proposed project. Lessons learned from prior experience on the same or similar project(s) should be discussed. CC-GSI integration may require additional expertise (external or in house) and capacity training for project implementation such as in participatory action research design, CC-GSI data collection and analysis, and engaging stakeholders and partners with climate change and/or gender and social inclusion expertise. Tool 2.1: Checklist – Institutional Capacity to Integrate CC-GSI can be used to assess capacity of each respective agency to integrate CC-GSI and identify capacity gaps and priorities for CC-GSI integration.

   Technical agencies may consider engaging institutional partners and experts with a gender and social perspective, whereas 'social' agencies may also benefit from additional climate change expertise and possibly also a sharper gender and social inclusion perspective. Where possible, all government agencies should consider strengthening the capacity of their personnel on both climate change and gender and social inclusion aspects for long-term productivity and sustainability.

e) Project type – Is the project a development project and functional operation? Typically, a government project should have a development objective to enhance the functional operation of each respective agency. With CC-GSI dimension integrated, a project type is likely to be a CC-GSI-responsive development project in its respective sector, in that it includes CC-GSI elements in its functional activities. For example, the Ministry of Public Health's water project may include adaptation and mitigation measures to ensure adequate, safe and clean water supply for flood-prone, drought-prone and coastal communities facing potential water shortages and water quality issues, and specific measures for particular categories of vulnerable households that may be unable to buy commercial drinking water.

f) Duration – The duration of each project depends on its nature, scope and objective and is normally set by each agency. A project can be developed under the agency's short/medium/long-term programme. Some projects will need to consider the variation of climate conditions more than others. It's undeniable that the climate is changing but change may not occur at the same pace and its impacts will not be felt equally in all sectors. Analysts and planners should keep up to date with climate change as well as changes in the gender and social situation in the country.

g) Location – The project location can be nationwide or area specific at the region, province, district, sub-district or community level. Climate change predictions are generally based on sophisticated computable modelling. Currently available climate prediction spatial scale is at 20x20 kilometers resolution.

2) Needs/justification

Problems, Urgency – The BB Budget Formulation Guidelines require each proposed project to state its origin (e.g., what government policy, priorities and law are the project formulated to serve?). They must justify what problems/concerns and associated causes each project proposes to address, and if there is any urgency, i.e., what are likely consequences if no action is undertaken?

In addition to the usual situation analysis, findings from CC-GSI analysis conducted under Step 3: CC-GSI Data Collection and Analysis and Step 4: Stakeholder Consultation and CC-GSI Impact Analysis will provide crucial input for a project justification. Some projects may require only a minor adjustment in the situation analysis to get additional disaggregated CC-GSI data from available secondary sources, but other projects may require primary CC-GSI data collection and analysis which will add to the project activities and budget requirement (consult Tool 3.2: How to Collect Primary CC-GSI Data through Participatory Action Research (PAR) and Table 3.1: Typical stages of participatory action research (PAR)). Project planners should always consider climate risks and impacts as a factor in their risk analysis and explore if such risks and impacts will increase exponentially if left unaddressed.

For example, the origin of the Ministry of Public Health's water project is to ensure that all local communities have access to water that meets the national quality standard for household consumption. With CC-GSI integration, the project rationale may be described as follows: to ensure access to water that meets the national quality standard for household consumption in all local communities, those in flood-prone, drought-prone and coastal areas. There may be urgency to address the problem in particular geographical areas with intensified climate change impacts, and for categories of vulnerable households.

3) Project stakeholders

Who will benefit from the project is a central question. Stakeholders include beneficiaries (target group), those who may be affected positively or negatively by the project, and those who stand to gain or lose from it. Stakeholders may be classified as internal or external to the organization, or by their role or degree of influence on the success of the project.

The BB Budget Formulation Guidelines require each project to identify its target group or stakeholders who will be primary beneficiaries, as well as

those who might be positively or negatively impacted by the project. Tool 4.1: Stakeholder Mapping and Tool 4.2: Stakeholder Analysis under Step 4: Stakeholder Consultation and CC-GSI Impact Analysis help to identify and analyze stakeholders. Stakeholder engagement should be a key feature in CC-GSI integrated projects and activities.

For example, the Ministry of Public Health's water project may identify the following stakeholders:

- Primary beneficiaries
  - all households in 400 villages (village water system certified with national quality standard)
  - all vulnerable households (poor female-headed and elder-headed households have access to safe, clean and adequate drinking water)
  - Local Administration Organizations (at least one in each of 76 target provinces at high risk of water contamination exposure actively engaged in water quality management).
- Stakeholders – Local Administration Organizations, schools, Provincial Water Works Authority.

4) Project result framework

Each project needs to have a clearly stated goal, objectives, outputs, outcomes and impacts, as well as a plan for progress tracking. Each government agency normally links its routine work to relevant definitions, plans and policies at the ministerial and departmental levels. Indicators are also formulated accordingly to target achievements.

To make the objectives, outputs, outcomes and indicators of the project more CC-GSI responsive, government agencies may need to finetune these by adding the CC-GSI dimension (see Step 5: CC-GSI Project Formulation and Step 6: CC-GSI Tracking and Monitoring). As described in Steps 5-6, CC-GSI integration is done within the result-based or solutions-based framework with a sharper diagnostic lens on existing gender and social gaps and solutions with specific measures that may be needed to address climate change and gender and social inclusion in the project activities and integrate CC-GSI dimension in the outputs and outcomes.

Tool 5.6: The Logical Framework provides a conceptual framework and definitive tool to formulate the project objective, outputs and outcomes. Attention should be given to specific vulnerable groups that may require special support to participate in the project and to obtain benefits delivered by the project. Results from CC-GSI analysis and CC-GSI integration in the project formulation should be included in the narrative of the proposed project goal, objectives, outputs, outcomes and impacts. Added value from specific measures to reduce gender and social inequalities should be highlighted where applicable.

5) Budget sources

The BB Budget Formulation Guidelines require each budget request to state the source of the budget the proposing agency intends to secure. Typically, government budget is the main source of financing for public investment. However, for various projects related to climate change and GSI integration, it is possible that extra-budgetary sources can be secured from international donors strongly advocating these issues. Depending on each individual project, funding sources may come from government budget or external funding, or both.

6) Project readiness

a) Target area – The BB Budget Formulation Guidelines usually request a description of project readiness: identified target area(s) of operation (e.g., region, province, district, sub-district, village), whether a feasibility study has been conducted, or whether the views and perceptions of local residents have been surveyed.

   CC-GSI integrated projects with a systematic CC-GSI analysis are likely to have a clear identification of the target area and population, with specific climate change as well as gender and social contexts. For example, for the Ministry of Public Health's water project, the climate projection data across 76 provinces must have been gathered from existing climate projection modelling. Among these 76 provinces, there will be specific geographical areas facing intensified climate risks and potential water security. Hence, the target area should be identified more clearly, such as areas exposed to repeated flooding, prolonged drought, or water salination or contamination due to whatever causes identified in the vulnerability or situation analysis. Population groups that are particularly vulnerable should also have been identified, e.g., populations that face water shortages in the dry season, those living in locality of repeated flooding or coastal areas, and types of households that are too poor to buy drinking water.

b) Project team, operational management and equipment – Depending on the nature, sector and scale of each project, requirements for these will vary. For CC-GSI integration the project team may require additional training in CC-GSI integrated project implementation and tracking. CC-GSI expertise may be outsourced where needed especially during the initial phase of project planning and implementation. However, where possible it is advisable to build CC-GSI integration capacity within the organization for effective operation management and sustainability.

c) Risks – Risks associated with a cycle of project management such as social and political risks, economic and financial risks, and legal risks should be stated (see Tool 5.5 Risk Analysis). Where climate change risks are concerned, climate prediction is often based on computer modelling which involves a

certain level of uncertainty (predicted climate events may or may not occur as predicted). This uncertainty can pose a challenge to planning and trust by senior management, budget decision makers or donors with limited understanding of climate change. Where applicable, a clear statement of risks and assumptions based on the best available information should be made.

d) Monitoring and evaluation (M&E) – Each proposed project should include a M&E plan, a pre-project or post-project evaluation, process evaluation, impact evaluation, etc. Normally, each government agency sets its evaluation procedure for its functional development project with clear indicators and M&E process. For CC-GSI integrated M&E, consult Step 6: CC-GSI Tracking and Monitoring, in particular Tool 6.4: Monitor and Evaluate CC-GSI Achievements. For the Ministry of Public Health's water project, one of the M&E activities should be a follow up on accessibility and usage of improved quality water supply by all groups of people in the communities, particularly the vulnerable groups and vulnerable households.

7) Problems/limitations/barriers

A project may encounter problems or be constrained by limitations and barriers in its planning, implementation and delivery stages. These, if foreseen, should also be stated. For CC-GSI integrated projects, a common limitation is lack of disaggregated data (by sex, age and other key variables). Limited knowledge about climate change is also a common problem, as well as lack of understanding about gender and social inclusion or even attitudinal barriers against addressing gender and social inequalities as these are seen as not pressing or not directly related to functional roles and responsibilities.

Another challenge with addressing climate change and GSI is short-run vs. long-run perspective. It is difficult to measure success on both climate and GSI achievements from short-term action. CC-GSI success is likely to require medium- to long-term action and commitment.

8) Solutions to the problems

Each budget request needs to articulate how identified problems, limitations and barriers can be overcome. For example, lack of disaggregated CC-GSI data can be addressed by collecting and analyzing them either from secondary sources and/or primary data. Lack of knowledge and understanding about climate change and/or gender and social inclusion can be addressed by evidence-based information sharing and training.

With respect to the importance of CC-GSI integration, if climate change and gender and social inequalities are perpetually not addressed, the costs of inaction accumulate and become structural and protracted, undermining long-

term national achievements and sustainable development goals. Each project proposal and budget request should articulate at the outset on whether the project is a short-term action or part of a long-term goal. Here statement of potential impact can articulate how the project will contribute to the broader, long-term national goal or specific commitment.

Recommendations for Institutional CC-GSI Integration

4.1. Institutional coordination mechanism

1) Coordination on CC-GSI integration and using the handbook

- To effectively integrate CC-GSI into budgets, government officials who formulate budgeting, senior policymakers who review and approve budgeting, budget officials and parliamentarians who make decisions on budget allocation will benefit from strengthening their knowledge and understanding about CC-GSI linkages. They also need to become familiarized with the technical CC-GSI integration tools in this handbook.
- CC-GSI focal points can be appointed to facilitate and coordinate the utilization of this handbook in related government agencies.

2) Coordination on CC-GSI data creation

- For effective programming and budgeting in all government sectors, there is a strong need to create sharable and actionable data on climate change risks, vulnerabilities and impacts in all relevant sectors at the national and subnational levels.
- Data and information on differential climate impacts on different population groups should be systematically disaggregated by sex, age, geographical area, type of household and other relevant variables.
- For the data to be actionable, common standards and definitions should be established to facilitate data sharing, management and usage across different government agencies.
- Each government agency will be producers and sharers of CC-GSI data.

3) Coordination on establishing a CC-GSI information system

- Data creation and information sharing is an integral part of CC-GSI integration. It is advisable that a data and information system be established to collect, maintain and share CC-GSI data. The system should be credible, reliable, accessible and up to date.
- If created and managed with high and sharable standards, the CC-GSI information system will be immensely useful. It will potentially be a source of actionable data for research, programming and budget preparation for government agencies, and will facilitate integrated budgeting.

4) Coordination on budgeting

- While each government agency formulates its own budgeting according to its functional roles and responsibilities, a coordination system to share

information about budgeting with CC-GSI integration among government agencies would be useful for collective learning and streamlining of CC-GSI budgets.

4.2. Capacity building for technical knowledge and expertise

1) CC-GSI awareness raising

- Develop a programme to promote basic knowledge about climate change (CC) and gender and social inclusion (GSI) for staff of related government and non-government agencies at all levels. Raise the level of understanding about CC-GSI linkages, especially among policymakers, programme analysts, budget officials and parliamentarians.

2) CC-GSI integration training for staff

- Government agencies using this handbook for budget request formulation should provide CC-GSI training to programme analysts, planners, M&E officers and budget specialists. These officials should be supported by a capacity-building programme aimed at enhancing competencies in CC-GSI analysis, CC-GSI integrated project design and formulation, M&E, and budgeting. Integrating CC-GSI dimensions into existing functional programmes/projects will in turn enhance their performance and their ability to demonstrate CC-GSI added value and co-benefits in their work to decisionmakers.

3) CC-GSI tracking and M&E capacity building

- Specific training for CC-GSI tracking and M&E should be provided to relevant staff. Knowledge and understanding about the time scale of climate change and its impacts and analytical skills in assessing climate impacts with gender and social dimensions need to be strengthened, in policy and budget related agencies.
- To design and execute an effective M&E process, a good understanding of CC-GSI contexts needs to be developed with respect to climate-related time frame, adaptation and mitigation measures, and measuring CC-GSI outcomes that are likely to be achieved over a longer term than regular programmes and projects.

- The uncertainty associated with the nature of climate change and the variability of climate events, especially at the local level, can influence monitoring results and the ways in which they are evaluated. A continuously changing climate means that traditional approaches to measuring change, such as comparing monitoring results to static baseline conditions, may not be possible, and a moving baseline must be considered.

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