

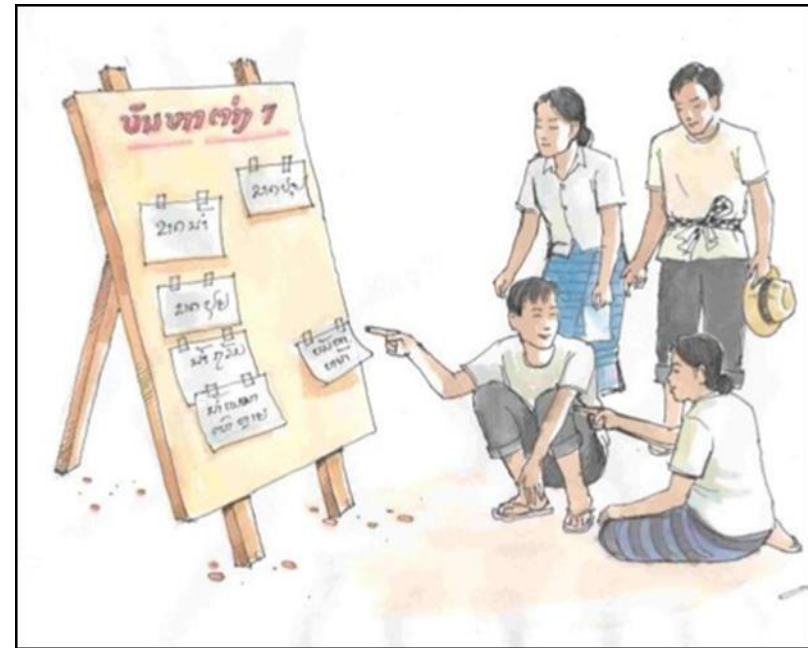
Integrating Climate Change
Mitigation and Adaptation into
Watershed Management

A Gendered Participatory Approach

A Gendered Participatory Approach to Promote Adoption of CC Adaptation and Mitigation Strategies

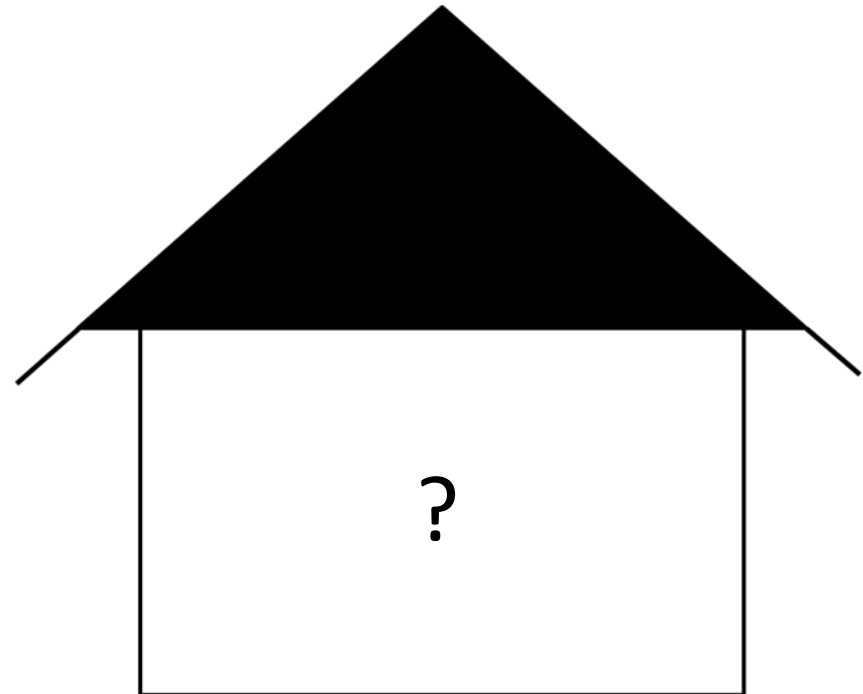
Project Rationale

- Understanding the broader framework within which vulnerability exists including available resources, and policy and institutional frameworks
 - Inter-disciplinary and holistic approach – **no silver bullet**
 - Building on on-going existing efforts (government initiatives, NGOs, CBOs, etc.)
- Understanding farmers' perception of the causes of and implications of climate variability in their every day life, as well as their proposed solutions to address it
 - *Mitigation and Adaptation* imply **change in behavior**
 - *Adaptive development* – an evolving process as opposed to a one-time intervention
- Understanding the knowledge gap will be essential to inform adaptation strategies and determine key issues that influence household responses to climate change



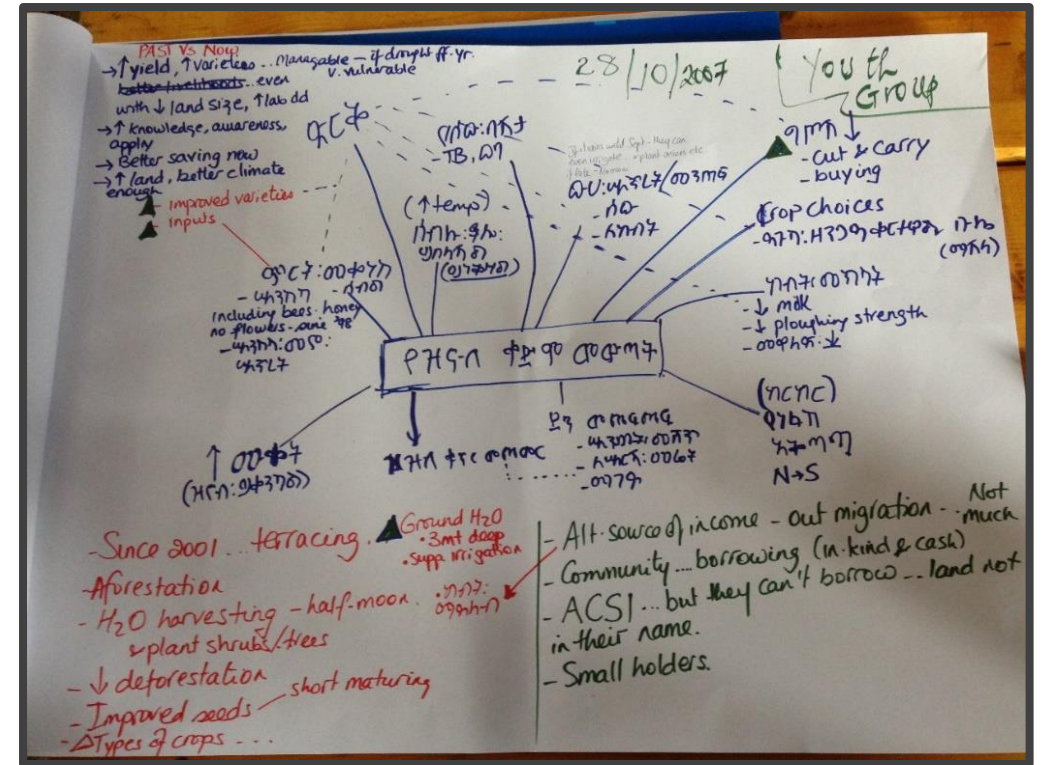
Engendering the approach

- A gendered perspective – recognizes the involvement of both men and women in agriculture, within the household, and in the community
 - Account for [differences in gender roles](#) within the society including productive and reproductive roles
 - [Effects](#) of Climate variability have [different implications](#) on different members of the society and hence present [different vulnerability contexts](#)



Farmers' Perception of Climate Variability and its Effect on Rural Livelihoods

- FGDs with different groups in recognition of **differences in access to** and **use of eco-system services** among these different groups
 - How is it understood? How is it recognized? Historical recount of manifestations? Identification of major events or turning points, shifts in perception over time? Etc.
- A “problem tree analysis” was used to gather required data



Some observations from the FGD

Main causes of CV: Deforestation (prioritized as first by all except the young men's group), expansion of agricultural land, population growth

Main manifestations: all agreed on erratic rainfall as the greatest effect, others included – high temp., changes in the direction and velocity of the winds (kerker), increased erosion and gully formation, drought, increased incidence of human and animal diseases (common as well as new ones), increased dust

Trend: all agreed on the intensity and frequency of these events



Some Observations (Contd.)

Effects on Agriculture:

- increased use of fertilizers and pesticides resulting in high cost of production, moving away from organic farming
- change in crop choices (shift to early maturing crops, etc.), inability to plant on schedule and cropping patterns, difficult to plough the land (soil becomes too dry) and oxen get weak, lack of germination of seeds, loss of harvest,
- higher cost of animal upkeep shortage of fodder for animals, have to buy or cut and carry
 - “Animals are being fed like humans” – older man
- Reduction in crop, dairy, and honey production and hence decline in income



Some Observations (Contd.)

Effects on gender roles:

Women - challenge in finding firewood and manure, increased demand for weeding, increased work to take care of animals, asset depletion (this was more so for the women headed hhs), agric no longer promising so children encouraged to go to school less help in the house

Young men – urban migration in pursuit of other sources of income, declining interest in agriculture (too much effort required for very little return)

Middle aged and older men – agriculture becoming more intensive requiring more labor and investment; great concern over the future of agriculture in the area – even cattle fattening is becoming more tasking, concern with young men choosing urban life and the resulting social complications



Some Observations (Contd.)

Adaptation Strategies: include increased use of ag. inputs, re-ploughing and changing planting dates, cut and carry and or buying fodder, using improved varieties, water harvesting, increased reliance on groundwater, using bucket/manual irrigation to grow vegetables, terracing to reduce erosion, income diversification, asset depletion, traveling longer in search of firewood

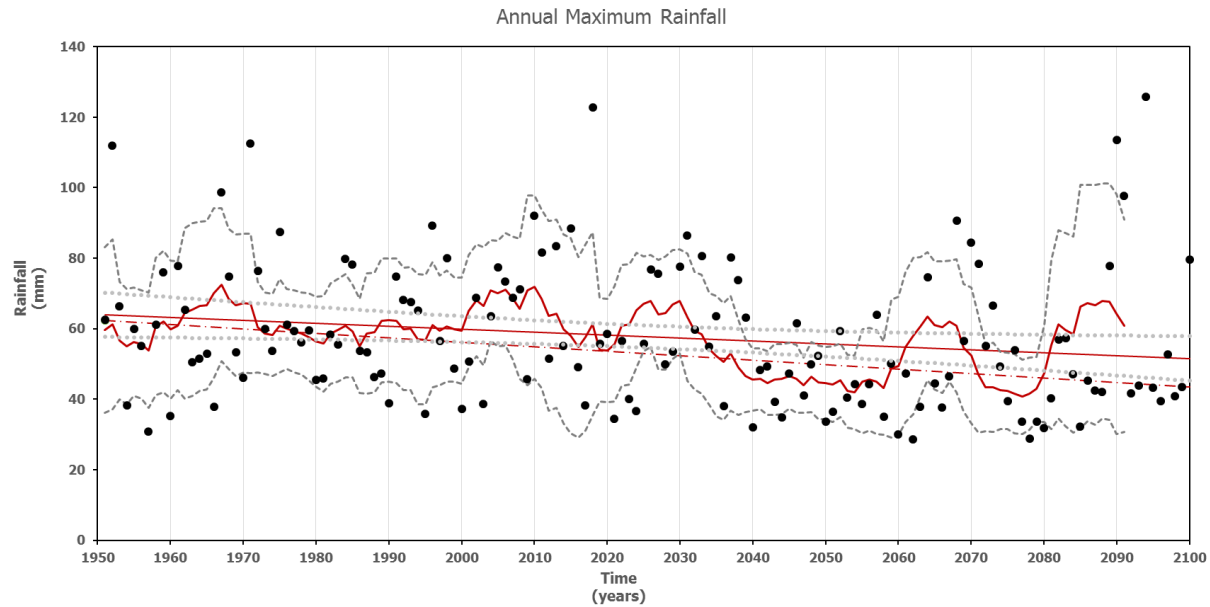
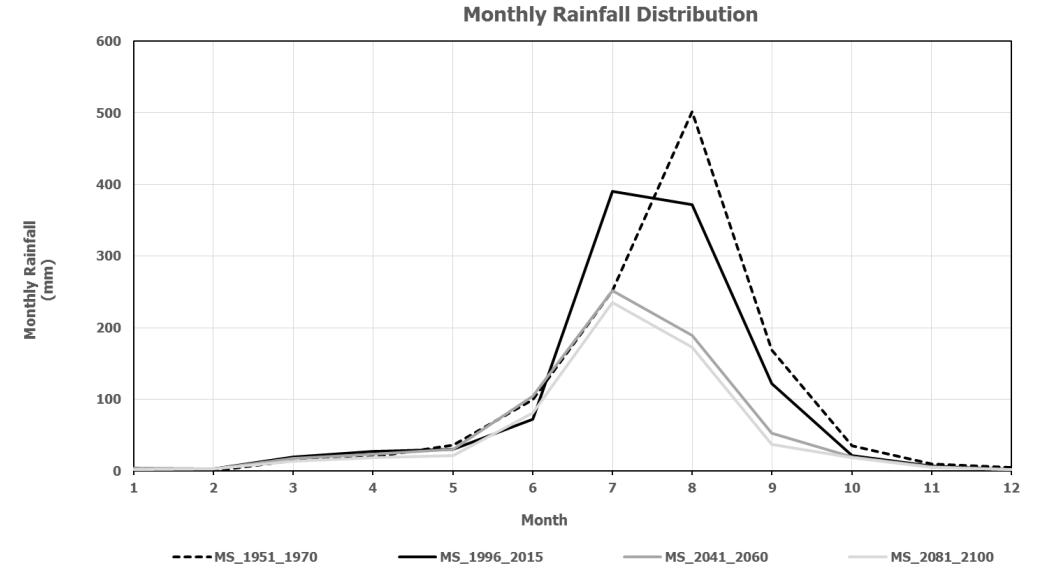
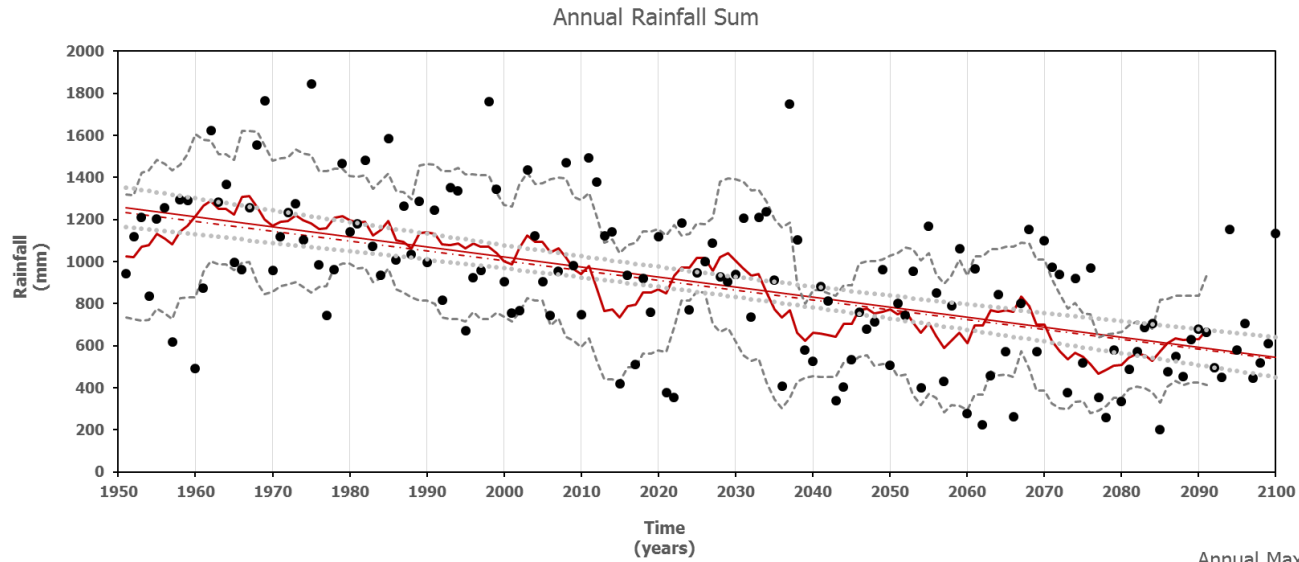
Other proposed solutions: increased access to credit, afforestation, increased use of groundwater and irrigation, income diversification (reduce reliance on ag.) for daily sustenance

Information on weather/climate predictions: None. Heavy reliance on traditional predictions based on wind directions, etc.

Perception of their ability to cope with CV: not too confident, believe that they lack required finance and knowledge

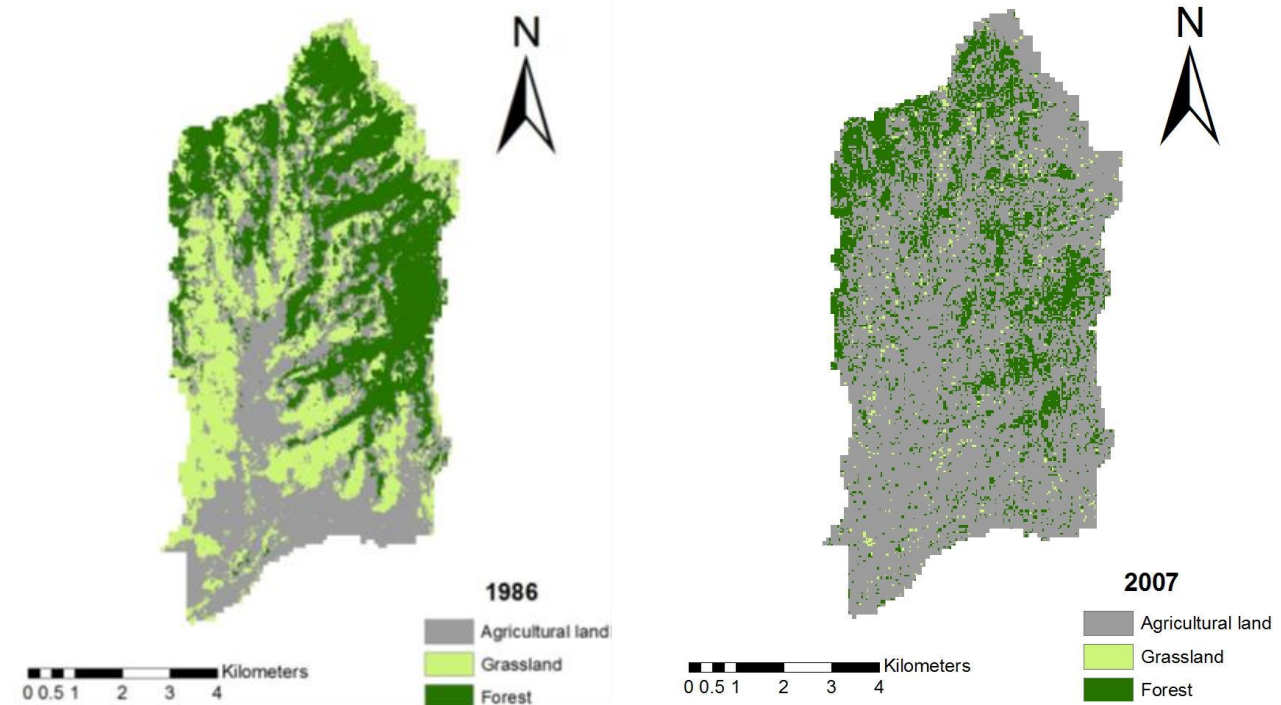


Comparing Perception with DCM Data Analysis



Deforestation in the Gumeru Maksegnit Watershed

- In addition to variability in rainfall, temperature, diseases, etc. deforestation was identified as one of the major man-made contributors to degradation of NRs
- In addition to the erosion and other bio-physical consequences – great implications on women’s drudgery



Promotion of Fuel-Saving Stove

- Project designed and implemented in close consultation and collaboration with national systems (GARC; District offices of Agriculture, Water and Energy, and micro-enterprises; etc.) and NGOs operating in the area
- Introduced as a strategy to improve rural livelihoods by:
 - Reducing women's drudgery
 - Reducing deforestation (reduced demand for firewood),
 - Improving soil fertility (increased application of manure to the soil),
 - Reducing health risks for women and children (reduced exposure to smoke and open flames),
 - Creating income generating opportunities for young landless women – who produce and sell the stove,
 - Actively engage the community in NRM activities through stove-for-work programs – build on existing and on-going mitigation efforts
 - Boost the local economy by using locally available inputs to produce the stoves



Ex-ante Impact Assessment: Sustainable Livelihoods Approach

Livelihood Capitals	Expected outcomes	Objectively Verifiable indicators
Human Capital	<ul style="list-style-type: none"> Improvement in the health of women and children Increased skill for women in making fuel saving stoves Reduced drudgery for women Empowerment of women in assuming community mobilization roles and decision making 	<ul style="list-style-type: none"> Reduced exposure to smoke Number of stove producers trained Number of hours spent for fuel wood collection Number of hours saved for other activities Number of initiatives taken by producers as promoters of the technology
Natural Capital	<ul style="list-style-type: none"> Reduced deforestation Rehabilitation of soil and water conservation structures in the watershed Improved soil fertility through application of manure which would otherwise have been used as fuel 	<ul style="list-style-type: none"> Reduction in use of firewood at the hh level Number and type of soil and water conservation structures maintained/constructed, total area and/or total length in Km covered Number of households with increased application of manure to their land Quantity of manure applied
Financial Capital	<ul style="list-style-type: none"> Increased income for young and landless women who produce the stoves Boost to local markets that sell the raw materials required for making the stoves (externality) 	<ul style="list-style-type: none"> Increase in net income Total cost of inputs (cost/stove * total # of stoves produced) Opportunity cost
Social Capital	<ul style="list-style-type: none"> Increased community participation and mobilization 	<ul style="list-style-type: none"> Number of members of the community who participated in community services
Physical Capital	<ul style="list-style-type: none"> Fuel saving stove 	<ul style="list-style-type: none"> Number of fuel stoves distributed in the watershed Only for the producers of the stoves – what physical capital (fixed assets) accumulated

Progress to date

- 10 women trained as producers and officially registered as a Cooperative
- Overall awareness creation in the watershed on deforestation, the *Mirt* stove, and soil fertility
- 800 stoves produced and distributed
- > 40,000 trees planted in areas identified by the Bureau of Agriculture's and its Forestry Department
- Over 5,000 hours committed in community service to maintain/construct water and soil conservation structures
- Women groups now officially absorbed by the small enterprise cooperatives at Maksegnit
 - women given access to market their products
 - Two alternate business options identified – animal fattening and traditional food processing and marketing
 - Training has been organized on the new business options

Gender Mainstreaming Workshops

- Making the case for gender mainstreaming in Agricultural Research –
 - Answering the why, and how questions
- Theoretical and practical – hands on (field work) – Three day workshop/training
 - 58 Researchers (12 F and 46 M)
 - Four different institutions (GARC, ARARI, EIAR, and IWMI)
 - highlighted by WLE for International Women's Day
<https://www.youtube.com/watch?v=HvTF1N4pYak>



Thank You