Koraput Workshop Report on

PARTICIPATORY PLANNING TOOLS

HEIFER INTERNATIONAL

WASSAN

Technical Support by

Passing Gifts
The ripples of change

Koraput district, Odisha
December 11th to 14th, 2024

Contents

Context

Landscape-based planning in climate-resilient agriculture adopts a holistic approach, managing natural resources by integrating land, water, soil health, biodiversity, and production systems with community livelihoods. This method is crucial for building resilience against climate risks—such as droughts, floods, and soil degradation—while enhancing agricultural productivity and sustainability. Incorporating agroecological practices, watershed management, crop diversification, and climate-smart interventions, landscape-based planning ensures long-term ecological and economic benefits tailored to specific regional needs.

To implement this approach effectively, accurate and real-time data collection is essential. Traditional data sources from Gram Panchayats or BDO offices often rely on outdated records, making them less relevant for informed decision-making. In contrast, participatory tools like Electronic Participatory Rural Appraisal (E-PRA) combined with Fasal Chara are efficient methods that blend community knowledge with scientific technologies. These tools foster direct engagement with communities, allowing planners to understand local challenges and co-develop solutions.

E-PRA encourages planners to engage in field-level interactions, stepping beyond their comfort zones to observe firsthand and learn from local knowledge systems. This process not only identifies real and pressing issues but also facilitates the integration of indigenous practices into climate-resilient planning. By engaging with villagers, listening to their experiences, and promoting locally driven solutions, E-PRA ensures that interventions are community-led, relevant, and sustainable.

Landscape-based planning with participatory tools like E-PRA and Fasal Chara make agricultural development strategies more responsive to climate challenges, effectively bridging the gap between scientific knowledge and local wisdom to create resilient and sustainable farming systems.

Recently, a four-day workshop on **Participatory Planning Tools** was conducted in Koraput from **December 11th to 14th, 2024**, attended by **Heifer India teams from Bihar, Odisha, and Andhra Pradesh**. The workshop emphasized a landscape approach for climate-resilient agriculture, integrating multiple land uses, stakeholders,

and ecosystem functions within a geographical area to promote resilience, conservation, and productivity. The primary objective was to orient the Heifer India team on using participatory planning tools and demonstrate their application in Hatoguda and Gadhikhamara villages.

Workshop Outline

DAY ONE (January 11th)

Day one of the program began with an introduction of the participants, where each participant defined commonly used terms in climate-resilient agriculture. Words such as dry spells, soil moisture, land use, and critical irrigation were used to understand participants' understanding of the broader subject and how they related these terms to their experiences as program implementers. Context setting was done by examining the local climatic impact on natural resources and livelihoods, such as water, land commons, crops, livestock, poultry, etc.

This was followed by a detailed session on the Climatic Vulnerability Matrix, including Rainfall Data Analysis, with an example related to one of the climatic risks—Drought Risk Profiling—discussed in the context of rainfed cropping systems, irrigated cropping systems, and small ruminants. The session continued with an introduction to tools for planning in CRA, focusing on the ePRA exercise and the Fasal Chakra tool, explaining their purpose and application in the planning process. The day concluded with a summary discussion and reflections.

DAY TWO (January 12th)

Participants visited Hatoguda village in Koraput, where a demonstration was conducted on how to use ePRA and Fasal Chakra tools for the planning process. The orientation to these tools was conducted through a step-by-step demonstration of their use in planning.

DAY THREE (January 13th)

The planning session began with a field visit to Gadhikhamara village. The focus of this visit was to understand the livestock production system, starting with the purpose of rearing, followed by the Problem Ranking Exercise and the Disease Calendar to assess and identify the challenges faced by livestock in Gadhikhamara village. The day concluded with a summary of how ePRA, Fasal Chakra, and the prioritization matrix can contribute to developing a field plan for climate-resilient agriculture.

DAY FOUR (January 14th)

The workshop focused on presenting the Sovva case study, demonstrating how ePRA, the crop calendar, and livestock prioritization can be used to develop an action plan for climate-resilient agriculture (CRA).

E-Participatory Rural Appraisal

What is E-PRA?

e-PRA (Electronic Participatory Rural Appraisal) is a participatory planning tool that facilitates spatial visualization. It helps in identifying challenges and solutions by analyzing interactions between natural resources and various production systems, blending indigenous knowledge with modern mapping techniques.

e-PRA enables quick and efficient data collection in rural and tribal villages. The process promotes community engagement, allowing planners to view the village from the perspective of its residents. This ensures that development planning is done in a

participatory manner using data provided by the villagers. As the map is created by the people for the people, it reflects a community-driven representation of the village.

e-PRA PLANNING PROCESS

- **Community Orientation:** The planning process begins with the community familiarizing themselves with the map and orienting it according to their understanding of directions (East-West-North-South).
- **Identifying Key Features:** The people then start identifying various features in the village, such as:
    - Streets and lanes of the village
    - Institutions like the Panchayat Office, School, Anganwadi, and Health Centre
    - Common infrastructure such as water tanks, hand pumps, and various habitations

  Once the map is ready (as shown in the above picture), it serves as a foundation for collecting various types of information, depending on the specific purpose of the e-PRA. For instance, if the objective is to develop a climate-resilient village to address the prominent challenges faced by the villagers, the map can be used to gather data on factors like crop patterns, land use, natural resources, and climate-related risks. This information is then analyzed to discuss, and design will villagers target interventions that improve resilience and sustainability in the village.

INDICATIVE LEAD QUESTIONS FOR E-PRA FOR CLIMATE-RESILIENT VILLAGE PLANNING:

■ **Crops and Land Types:**

- Which crops are cultivated on these different land types, and how are they distributed across the village?
- What are the different land types of its specific characteristics?

■ **Climatic Risks:**

- What are the primary climatic risks affecting the village (e.g., droughts, floods, erratic rainfall, temperature variations, dry spells)?
- How do these climatic risks vary across different seasons or years?

■ **Impact of Climatic Risks on Natural Resources:**

- How do climatic risks affect water availability in the village (e.g., impact on water sources like ponds, rivers, or wells)?
- What effects do climatic risks have on the different land type, forest areas, and common lands in the village?

■ **Impact of Climatic Risks on Production Systems:**

- How do climatic risks influence agricultural production systems, including the cultivation of different crops on different land type?
- What are the impacts of climate risks on livestock production, including small ruminants and large ruminants?

- Are there any noticeable trends in livestock health or productivity due to climate variability?

Note that there will be lot of follow up questions for the above indicative questions

e-PRA EXERCISE IN HATUGUDA VILLAGE

The exercise began with the community getting acquainted with the Google Earth map, identifying key features such as roads, streams, settlements, forest areas, and neighbouring villages. In Hatuguda village, 92 households were mapped, while another habitation, Doraguda, had 62 households.

Various water sources, including farm ponds and wells, were identified on the map. Discussions focused on the seasonality of water availability and the current usage of existing water sources.

Two rivers, Kolab and Tema, were mapped. Water is available in the Tema River throughout the year, except in June, when its flow decreases. A total of six water lift points were identified on Tema River, of which only four are currently operational. Similarly, eight lift points were identified on the Kolab River, out of which only four are currently operational.

Note: During the field exercise, the locations of lift irrigation points and other water sources were identified on the map. A key discussion emerged around the non-functional LI units despite the presence of a perennial river source. Additionally, while discussing climatic risks, the impact of dry spells on crops grown in Padda land was highlighted.

Some indicative questions for further exploration include:

- What are the current irrigation practices being followed (e.g., flood irrigation, micro-irrigation), and what are the key challenges related to water availability, seasonality, and electricity supply?
- Are there any established social norms or community agreements regarding the installation and use of water lifting units from the river?
- Considering the sustainable use of water sources and challenges like dry spells, what is the potential area that can be covered under critical lifesaving irrigation using existing sources?

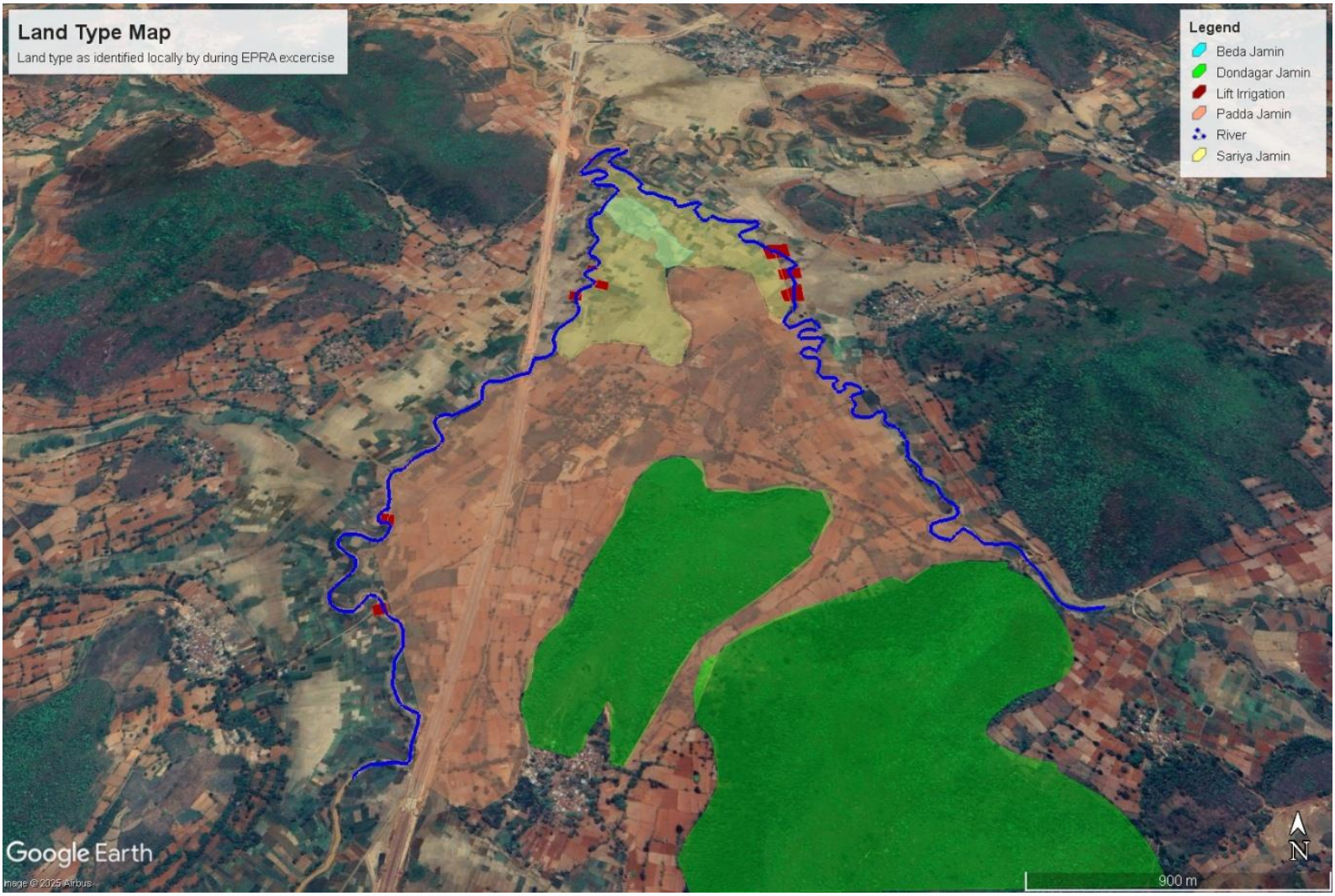
The planning can be focused on how critical lifesaving irrigation could be planned using existing water resources to sustain Pedda crops.

The scope for fisheries can be explored by assessing water availability and the community's fish consumption patterns. Additionally, discussions on different food groups consumed and their nutritional aspects can help in planning diversified food systems for improved nutrition security. (Assuming the people consume fish and majorly depend on local market)

Some indicative questions for further exploration include:

- What is the current fish consumption pattern in the village? Is there any seasonal variation in availability and consumption?

- What are the existing water bodies that could support fisheries, and what are the potential challenges in utilizing them?
- Are there any traditional practices or local preferences related to fish farming?
- What are the different food groups commonly consumed, and are there any nutritional gaps in the diet?



[Digitize Map of E-PRA exercise conducted in Hatuguda Village]

DIFFERENT LAND TYPES AND ITS CHARACTERESTICS:

Land Type	Area (ha)	Caracterestics	Major Crops
Beda Jamin	8.00	Low land, pounded with water (~10 inch) during rainy season, Soil stays moist for longer duration	Paddy
Sariyal Jamin	66.60	Area near riverbed, generally moist	Ginger, Paddy, vegetables
Pedda Jamin	244.00	Mid-Upland, fringe area just below the hills	Finger Millet, Red Gram, Little Millet, Foxtail Millet, Paddy
Dondagar Jamin	193.7	Hill, forest, upland	Mangoes, Jack fruit, Pongame

Source: ePRA exercise, 12th Dec 2024

Fasal Chakra

What is Fasal Chakra?

Fasal Chakra, meaning "Crop Cycles," is a participatory method designed to explore the interconnectedness of crop systems with land, soil, and climate dynamics. By integrating community knowledge, it helps in understanding crop patterns, vulnerabilities, and trends at the landscape level.

Steps in the Fasal Chakra Planning Process

1. **Developing Concentric Circles**: Concentric circles are divided into months
2. **Capturing Rainfall Patterns**: The innermost circle records the local understanding of rainfall distribution throughout the year (no rainfall, low, medium and high rainfall).
3. **Land Types:** Each successive circle represents a different land type as identified by the community.
4. **Cropping systems** for each land type are marked, and details such as sowing and harvest times are recorded during the Fasal Chakra exercise.
5. **Marking Climate Risks:** Major climatic risks are identified and mapped across different months in the outer circle. By visualizing these risks on the Fasal Chakra, the community can assess vulnerabilities in different land types

and develop strategies for climate-resilient farming practices.

6. **Understanding Crop Rotations and Fallow Land:** Periods when the soil remains uncovered are identified, allowing discussions on fallow land utilization.
7. **Analysing Interactions:** Community discussions provide insights into the relationships between crop systems, land types, soil characteristics, climate uncertainties, and associated risks.

Outcomes of the Fasal Chakra Exercise

- **Crop Calendar Development**: The exercise results in a detailed calendar, illustrating the cropping patterns across different land types throughout the year.
- **Fallow Land Utilization**: Once crop patterns and land use are identified, discussions can be initiated on fallow lands for productive use.
- **Climate Risk Management**: Understanding seasonal climatic risks and their impact on agriculture helps in developing strategies for resilience.
- **Fodder and Livestock Considerations**: Insights gained from the exercise can also aid in planning fodder availability and improving livestock management practices.
- **Crop Diversification:** Understanding past cropping patterns and developing strategies for crop diversification to ensure nutrition security at the household level.

Fasal Chakra exercise in Hatuguda Village

In Hatuguda village, three distinct land types—Beda, Sariyal, and Pedda—were identified. To represent this, four concentric circles were drawn, with the innermost circle capturing farmers' perception of rainfall patterns throughout the year. The three outer circles represented the identified land types, depicting the crops grown, their sequence, and associated farming practices.

Land Type		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Beda Jamin (Low Land)	Paddy												
Sariya Jamin (Mid land)	Paddy												
	Sweet Potato												
	Vegetables (limited area in rainfed & where irrigation is available)												
Padda Jamin (Mid Upland)	Millets												
	Paddy (short Duration)												

Source: Fasal Chakra Exercise

During the field exercise, the following climatic risks were identified:

- **Delay in onset of monsoon (July–August):** The monsoon generally begins on June 15th. However, a delayed onset results in postponed paddy transplantation in Beda and Sariyal land.
- **Dry spell (Sept–Oct):** Prolonged dry periods during this time affect crops in Sariyal land, leading to crop loss.

- **Heavy rainfall during the harvesting period (Nov–Dec)**: Excessive rainfall causes harvested crops, kept in heaps on farms, are washed away.
    - During discussions with farmers, a few mentioned a traditional variety of paddy with a crop duration of 6–7 months. This variety has shown resilience to heavy rainfall and delayed monsoon conditions in Bedda Jamin.
    - Since a perennial river borders the village, there is potential to explore 1–2 critical irrigation cycles during dry spells. (Refer **ePRA map**)

Some indicative questions for further exploration include:

- How can cropping systems be diversified to address challenges arising from climate risks?
- The brown colour indicates seasonal fallow. Considering rainfall patterns and other water resources, how can a plan be developed to regenerate these fallow lands?
- Livestock: availability of the fodder is an issue from March onwards. Critical fodder shortage is during monsoon season (June – September) when the land is covered with crops.
    - How can fodder availability for livestock be improved, especially from March onwards?
    - What strategies can be implemented to address critical fodder shortages during the monsoon months (June–September) when the land is covered with crops?
- How can multi-cropping systems be designed to ensure nutritional security, fodder security, soil health improvement, and income stability for farmers?

Participatory Exercises for Livestock Strategic Action Plan

Purpose of Rearing (Rearers perspective ranking)

Farmers may have their own purposes and priorities when selecting livestock to rear, which can be consolidated through a common consensus. The exercise started by listing the types of animals present in the village and asking farmers about the reasons for rearing them. The purpose of each livestock was categorized into a separate column. Women participating in the discussion were invited to place a stone/bindi against the purpose that aligns with their reason for rearing livestock, followed by the next person, and so on. Once all responses were recorded, the chart was be

analysed, summarized, and presented to the community.

The table highlights the multifunctional role of livestock in rural livelihoods, demonstrating their significance in agriculture, economy, and culture. Cows, bullocks, and male buffaloes are primarily reared for ploughing, underscoring their importance in traditional farming. Dung from various livestock—cows, bullocks, sheep, goats, and buffaloes—serves as a vital resource for manure production, reinforcing sustainable agricultural practices. Interestingly, milk production is not a top priority for villagers, indicating a stronger reliance on livestock for labor and soil fertility rather than dairy purposes.

Sheep, goats, and poultry contribute to household food security, but poultry holds the highest priority for consumption, whereas sheep and goats are primarily reared for income generation rather than direct household consumption. Additionally, livestock plays a deep cultural role, with all animals being worshipped and integrated into traditional practices. Poultry birds are also used for gaming, reflecting their socio-cultural significance beyond food and income.

A notable trend is the decline in buffalo ownership, which has reduced to 50% compared to 20 years ago, possibly due to shifting agricultural practices, economic constraints, or challenges in managing large ruminants. Overall, the table underscores the strategic choices made by the community in livestock rearing, balancing agricultural needs, income diversification, and cultural traditions.

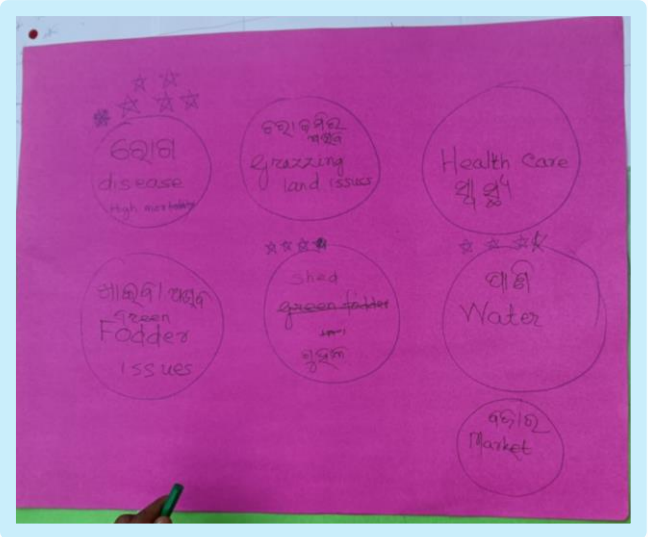
Outcome from this exercise

The exercise helps to understand how different livestock types contribute to farming, income generation, nutrition, and cultural practices in the village.

Livestock type	Ploughing	Dung	Milk	Consumption	Income	Worship	Game	HH Owning	20 yrs ago
Cow	4 ★	5 ★						30-40	100%
Bullock	5 ★	4 ★						80-90	100%
Sheep		4			5 ★			25-30	90%
Goat		4 ★			5			30-40	90%
Poultry				4 ★	5 ★★			100-110	90%
Buffaloes	4 ★	5 ★						2	50%
Male Buffaloes	5 ★	4 ★						3	50%
Duck								1	

Source: Purpose of rearing exercise from Gadhikamra, 12th Dec 2024

Problem Ranking Exercise



1. A facilitator can ask farmers about the challenges and issues they face in livestock rearing.
2. The facilitator can create circles for each problem and visualize them using relevant materials. For example, if farmers mention a fodder problem, they can place some grass in a circle; for water issues, they can place a mug of water, etc.
3. The problems are then ranked based on their severity, identifying the most critical issues first, followed by the second and third most pressing concerns.

During the problem ranking exercise, several challenges in livestock rearing were discussed. The key issues identified included high mortality due to disease, shortage of grazing land, lack of healthcare facilities, fodder shortages, poor condition of sheds, drinking water scarcity for livestock, and lack of market access.

When the community ranked these issues, the highest priority was given to mortality due to disease, followed by drinking water scarcity for livestock in second place and poor condition of sheds in third.

Based on this ranking, the critical problem of mortality due to disease was discussed further in detail in a disease calendar.

Cattle Disease Calendar:

Facilitators can assist farmers in identifying common livestock diseases by compiling a comprehensive list and mapping their seasonal patterns. This exercise should cover all livestock species, allowing farmers to monitor the timing and frequency of disease occurrences. Once identified, diseases can be ranked based on criteria such as frequency, mortality rates, and their overall impact on livestock health and productivity.

Disease	Rainy	Winter	Summer	Frequency of disease	High Mortality
Diarrhoea				4 ★	4 ★
Foot-and-mouth disease FMD				5 ★	
Fever					
Hemorrhagic Septicemia (HS) and Blackquarter (BQ)					5 ★
Skin Disease					
Worm					
Ticks				3 ★	

The table provides insights into the seasonality, frequency, and severity of livestock diseases in Gadhikamra village. The data highlights that Fever, Worms, and Ticks occur consistently across all three seasons, while Diarrhoea is primarily seen in the rainy season. Foot-and-Mouth Disease (FMD) and Skin Diseases are more prevalent in winter, whereas Hemorrhagic Septicemia (HS) and Blackquarter (BQ) occur mainly in the rainy and winter seasons.

Among the reported diseases, FMD, Diarrhoea, and Ticks were the most frequently occurring. However, in terms of high mortality, HS-BQ and Diarrhoea were ranked as the most critical diseases affecting livestock. This ranking exercise provides a clear understanding of disease patterns, their frequency, and their impact on livestock health.

Based on these findings, the focus of interventions should be on strengthening healthcare facilities, ensuring timely vaccinations, and improving disease management strategies for high-mortality diseases like HS-BQ and Diarrhoea. Additionally, preventive measures and awareness programs for frequently occurring diseases can help in reducing their impact on livestock productivity and farmer livelihoods.

Indicative questions for further exploration

Understanding the Consequences of Climate Change in the Village

- **Fodder and Water Shortage:**
  - Is the shortage caused by frequent droughts or dry spells?
  - How often has this occurred in the last five years?
- **Seasonal Disease Changes:**
  - Have there been shifts in the timing of disease outbreaks due to climate change?
  - Have any new diseases emerged in the last five years? If so, what are their links to climate change?
- **Economic Impact on Livestock:**
  - Have severe droughts or disease outbreaks led to distress sales of animals?
- **Grazing Pattern Changes:**
  - Has the timing of taking animals out for grazing changed due to rising temperatures?
- **Impact on Livestock Productivity:**
  - Has there been a decline in egg production in poultry or milk yield in dairy animals due to high temperatures?
  - Is there an increase in poultry mortality during summer due to heat stress?
- **Shifts in Livestock Farming:**
  - Have livestock species in the village changed due to climate variations?
- **Fodder Quality and Land Degradation:**
  - Has the quality and nutritional value of fodder declined in common grazing lands due to land degradation?

Conclusion

The four-day workshop in Koraput provided knowledge and practical skills to utilize participatory planning tools like e-PRA and Fasal Chakra for climate-resilient agriculture. The workshops highlighted several critical areas for intervention in the two villages, including: maximizing the potential of lift irrigation for critical life-saving irrigation during dry spells; addressing the current fodder deficit and planning for a fodder-surplus villages; establishing a sustainable institutional mechanism for regular livestock healthcare services to combat prevalent diseases; and promoting crop diversification for enhanced resilience and nutritional security.

Moving forward, these identified areas will serve as the foundation for developing detailed, community-driven action plans that address the specific climate vulnerabilities and development needs of Hatuguda and Gadhikhamara, ultimately contributing to more resilient and sustainable farming systems.■

Annexure – 1: Sovva Gram Panchayat Experience Sharing

The Sovva GP experience sharing primarily focuses on how the ePRA (Enhanced Participatory Rural Appraisal) and crop calendar exercises can be effectively linked to develop a comprehensive field action plan. By integrating these tools, communities can better understand seasonal cropping patterns, resource availability, and challenges, enabling more informed decision-making for sustainable agricultural interventions. This approach helps in aligning local knowledge with scientific planning, ensuring that field-level actions are relevant, practical, and responsive to the specific needs of farmers in the region. The detail presentation is shared in the folder

CROP CALENDAR: CURRENT STATUS

Land Type	Climatic Variability		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Remark
Zolli (stream land converted agri.)	Crop Damage due to Rainfall (Cyclone) during Harvest of Paddy	Paddy													Monocrop - Rice - 5 month crop
Sariyal (low land)	Continuous heavy rainfall lasting 4–10 days causes root rot in ginger, leading to significant crop damage.	Ginger													1st Major crop (Monocrop)- areal extent from ePRA
	Crop Damage due to Rainfall (Cyclone) during Harvest of Paddy	Paddy													2nd Major crop (Monocrop)- areal extent from ePRA

Land Type	Climatic Variability		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Remark
		Vegetables													
Mattu (Mid-Upland)		Millets													Low Podcutivity (4 qt/acre)
		Niger													
		Vegetables													
		Sweet Potatoes													
Poddu (Upland)		Broom Grass													Bunds have Orchard Crops like (Mango, Sapota, Coffee, paper)
		Rajma													
		Millets													
		Red Gram													

CROP CALENDAR WITH LOCAL SOLUTIONS

Land Type	Climatic Variability		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Zolli (stream land converted to agri.)	Crop Damage due to Rainfall (Cyclone) during Harvest of Paddy	Paddy (Errasannalu and Tatem Dhanyam)													Long Duration indigenous variety (Waterlogging tolerant) revived (13 different indigenous variety are found in the area)
Sariyal (low land)	Continuous heavy rainfall lasting 4–10 days causes root rot in ginger, leading to significant crop damage.	Ginger (poly cropping)													**Agronomic Practice:** Raised Bed (2ft - width, 1ft- height along with water drainage, planting material treated with Beej Amrut to prevent root born diseases) **Poly Cropping:** Maize, red gram cowpeas, beans
		Paddy													
		Vegetables													
Mattu (Mid-Upland)		Millets													1ton/acre - gulli ragi (Millet Intensification)
		Niger													
		Vegetables													
		Sweet Potatoes													
Poddu (Upland)		Broom Grass													
		Rajma													
		Millets													
		Red Gram													

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