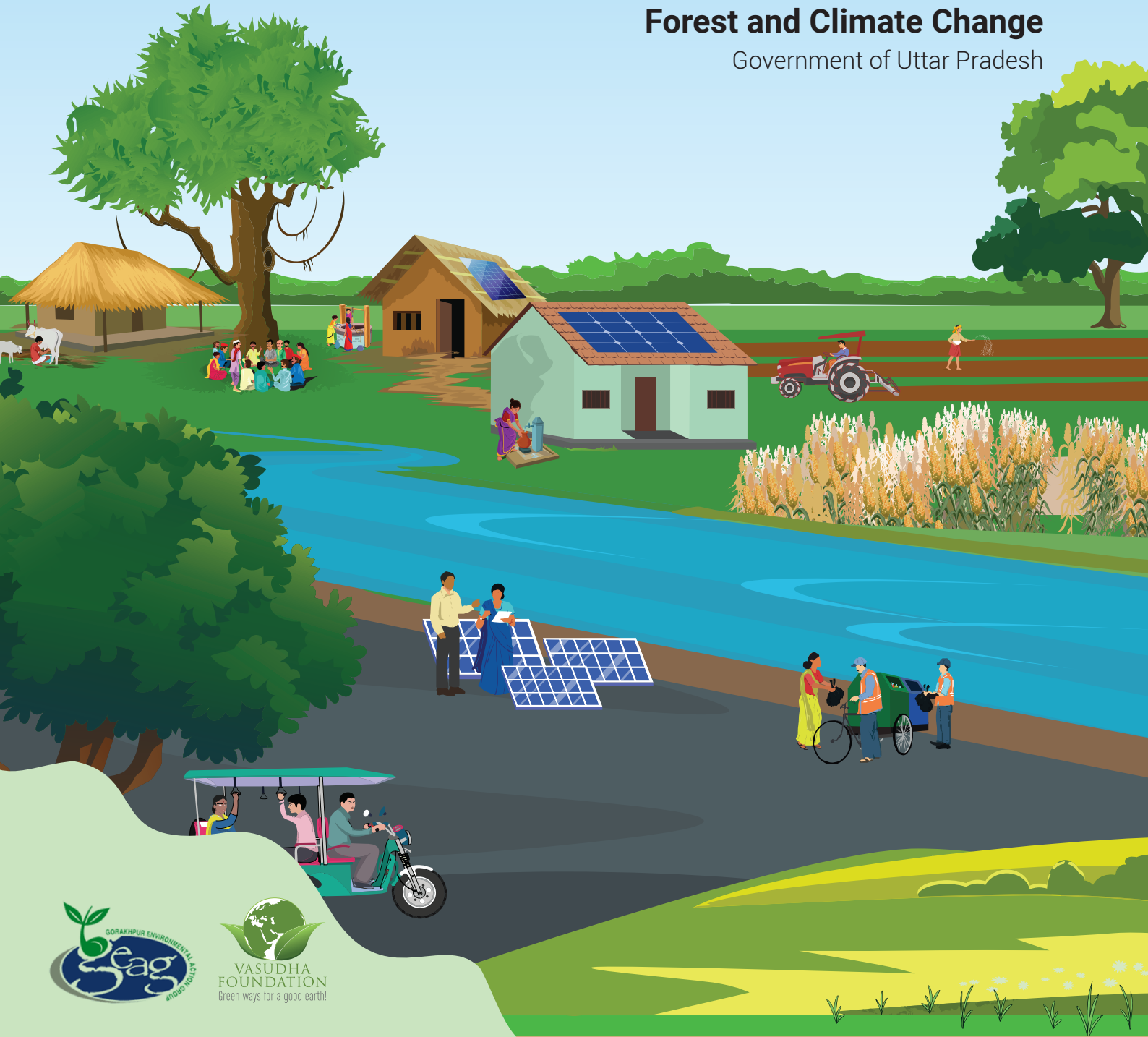
CLIMATE SMART GRAM PANCHAYAT ACTION PLAN

Benda Gram Panchayat

Department of Environment, Forest and Climate Change

Government of Uttar Pradesh



GORAKHPUR ENVIRONMENTAL ACTION GROUP

VASUDHA FOUNDATION
Green ways for a good earth!

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जिलाधिकारी, बॉदा
उत्तर प्रदेश

दिनांक :– 22/07/2024

–::संदेश::–

ग्राम पंचायतों को जलवायु सजग ग्राम पंचायत बनाने हेतु समर्पित क्लाइमेट स्मार्ट **ग्राम पंचायत– बेंदा, विकास खण्ड–तिन्दवारी, जनपद बांदा** की कार्ययोजना हेतु संदेश लिखते हुए मुझे बहुत प्रशन्नता का अनुभव हो रहा है, जैसा कि हम जलवायु के परिर्वतन से उत्पन्न चुनौतियों को देख रहे हैं, हमारे लिए जमीनी स्तर पर तत्काल और व्यापक कार्यवाही किये जाने की आवश्यकता है। हमारी ग्राम पंचायतें समुदाय के निकटतम शासन की एक आवश्यक इकाई होने के कारण जलवायु संबंधी चुनौतियों को कम करने और सतत् विकास को बढ़ावा देने में महत्वपूर्ण भूमिका निभा सकती है। हमारे समुदाय, हमारी परिस्थितिकी तंत्र और हमारी अर्थव्यवस्था आपस में जुड़े हैं और इसलिये हमारे लिए एक ऐसी रणनीतियों को अपनाना आवश्यक है जो जलवायु से जुड़े जोखिमों को कम करती हो।

ग्राम पंचायतो हेतु तैयार यह कार्ययोजना जलवायु पर कार्य करने के लिए प्रतिबद्ध है जो पंचायतों को क्लाइमेट स्मार्ट पंचायत बनाने के लिए एक मार्गदर्शक के रूप में कार्य करेगी।

मैं इस क्लाइमेट स्मार्ट कार्ययोजना निर्माण के लिए **पर्यावरण, वन एवं जलवायु परिवर्तन विभाग, उत्तर प्रदेश तकनीकी सहयोगी वसुधा फाउंडेशन नई दिल्ली, संस्था गोरखपुर एनवायरमेंट एक्शन ग्रुप (जी.ई.ए.जी.) गोरखपुर** एवं **स्थानीय सहयोगी ग्राम उन्मेष संस्थान बॉदा** को धन्यवाद करता हूँ और आशा करता हूँ कि निर्मित कार्ययोजना ग्राम पंचायत को क्लाइमेट स्मार्ट ग्राम पंचायत बनाने में सहयोगी होगी।

।। शुभकामनाओं सहित ।।

भवदीय

(नगेन्द्र प्रताप)

श्री वेद प्रकाश मौर्य
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मुख्य विकास अधिकारी
जनपद बांदा,
उत्तर प्रदेश
दिनांकः– 18/07/2024

:: संदेश ::

मै क्लाइमेट स्मार्ट **ग्राम पंचायत– बेंदा, विकास खण्ड–तिन्दवारी, जनपद बांदा** की कार्ययोजना विकसित करने में **पर्यावरण, वन एवं जलवायु परिवर्तन विभाग, उत्तर प्रदेश, तकनीकी सहयोगी वसुधा फाउंडेशन नई दिल्ली, गोरखपुर एनवायरमेंट एक्शन ग्रुप (जी.ई.ए.जी.) गोरखपुर तथा स्थानीय सहयोगी ग्राम उन्मेष संस्थान बॉदा** उत्तर प्रदेश के समर्पित प्रयासों के लिए आभार व्यक्त करता हूँ।

जिस प्रकार हम और हमारी ग्राम पंचायतें जलवायु परिवर्तन से उत्पन्न चुनौतियों का सामना कर रही है उसमें यह कार्ययोजना सहयोगी होगी। स्मार्ट और टिकाऊ प्रथाओं को बढ़ावा देकर हमारा लक्ष्य एक ऐसे मॉडल तैयार करना है जो न केवल हमारी पर्यावरण की रक्षा करे बल्कि समुदाय के समग्र कल्याण को भी बढ़ाये।

यह कार्ययोजना ग्राम पंचायतो में संवाद, सहयोग और क्रियान्वयन को प्रेरित करे। साथ मिलकर हम प्रभावी जलवायु नीतियों को लागू कर सकते हैं, स्थायी लक्ष्यों को अपना सकते हैं और एक ऐसे भविष्य का निर्माण कर सकते हैं जो न केवल पर्यावरणीय रूप से मजबूत हो बल्कि समाजिक रूप से भी न्याय संगत हो।

एक बार फिर क्लाइमेट कार्य योजना तैयार करने में अमूल्य योगदान के लिये आप सभी को धन्यवाद। मैं योजना के सफल कार्यान्वयन और समुदाय एवं पर्यावरण पर इसके सकारात्मक प्रभाव की आशा करता हूँ।

।। शुभकामनाओं सहित ।।

भवदीय

(वेद प्रकाश मौर्य)
मुख्य विकास अधिकारी
बांदा

ग्राम पंचायत बेंदा, विकास खण्ड - तिन्दवारी (बाँदा)

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पत्रांक : मेमो

दिनांक : 17.07.2024

ग्राम प्रधान,
ग्राम पंचायत बेंदा
वि0ख0 तिन्दवारी, जनपद बाँदा

आभार

सर्वप्रथम आप सभी को प्रधान ग्राम पंचायत बेंदा, वि0ख0 तिन्दवारी, जनपद बाँदा की ओर से सादर नमस्कार और अभिनन्दन मुझे आशा ही नहीं पूर्ण विश्वास है कि आप सभी स्वस्थ्य होगें। मैं अपनी ग्राम पंचायत को क्लाइमेट स्मार्ट बनाने की ओर बढ़ाये गये प्रथम कदम प्रयास को आपसे साझा करते हुए रोमांचित हूँ।

जलवायु परिवर्तन से उत्पन्न चुनौतियां हर दिन अधिक स्पष्ट होती जा रही है और हमारे समुदाय और भावी पीढ़ियों की भलाई के लिए उन पर कार्य करना हमारी सामूहिक जिम्मेदारी है इस विषय की गम्भीरता को समझते हुये सभी ग्राम वासियों की सर्व सहमति से हमने अपनी ग्राम पंचायत को क्लाइमेट स्मार्ट ग्राम पंचायत बनाने की प्रक्रिया को प्रारम्भ किया। सर्व प्रथम आवश्यक था ग्राम पंचायत में जलवायु परिवर्तन सम्बन्धी समस्याओं और मुद्दों की पहचान करना। जिसके लिए सामुदायिक सहभागिता के साथ–साथ सभा की बैठक एवं समूह केन्द्रित चर्चा के आयोजन के अतिरिक्त व्यक्तिगत चर्चा की गई और आंकड़ों को एकत्र किया गया। आंकड़े एकत्र करने की प्रक्रिया को पंचायत में क्रियान्वित करने के लिए मैं स्थानीय सहयोगी संस्था गोरखपुर एनवायरमेन्ट एक्शन ग्रुप (जी0ई0ए0जी0) गोरखपुर तथा ग्राम उन्मेष संस्थान बाँदा का तथा आंकड़े एकत्र करने में हमारे ग्राम वासियों के समर्थन और सक्रिय भागीदारी के लिए हृदय से धन्यवाद। हम सभी साथ मिलकर हमारी ग्राम पंचायत में एक पर्यावरण अनुकूल वातावरण बनायेगें। जो न केवल हमारे प्राकृतिक संसाधनों की रक्षा करेगा अपितु प्रत्येक ग्रामीण के जीवन की समस्त गुणवत्ता को भी बढ़ायेगा।

इसके साथ ही पर्यावरण वन एवं जलवायु परिवर्तन विभाग उ0प्र0 और तकनीकी सहयोगी पार्टनर बसुधा फाउन्डेशन नई दिल्ली का भी आभारी हूँ। जिन्होंने एकत्र किये गये आंकड़ों को कार्ययोजना का स्वरूप दिया तथा मार्गदर्शन एवं तकनीकी सहयोग प्रदान किया।

मैं सभी ग्राम वासियों से अपनी ग्राम पंचायत को क्लाइमेट स्मार्ट ग्राम पंचायत बनाने के लिए हाथ मिलाकर आगे बढ़ने का आग्रह करता हूं आइये हम सभी एक सकारात्मक बदलाव की ओर आगे बढ़े और दूसरों के लिए उदाहरण स्थापित करें।

धन्यवाद।

प्रधान
ग्राम पंचायत-बेंदा
वि०ख०-तिन्दवारी (बाँदा)

CONTENTS

List of Figures

1 Executive Summary

The Benda Gram Panchayat in the District of Banda lies in Bundelkhand agro-climatic zone of Uttar Pradesh. The Climate Smart Gram Panchayat Action Plan of Benda has been prepared with an aim to strengthen climate action at the Gram Panchayat (GP) level and make it climate smart/resilient by 2035. The action plan provides a GP-specific roadmap to aid in building resilience, enhancing adaptive capacity, reducing vulnerabilities, and associated risks as well as mitigating greenhouse gas emissions, while reaping other co-benefits like additional revenue generation, overall socio-economic development, improved health, and natural resources management.

The action plan has been prepared by adopting the draft Standard Operating Procedure (SOP) for development of Climate Smart Gram Panchayat Action Plans prepared by the Department of Environment, Forests and Climate Change, Government of Uttar Pradesh. The Climate Smart Gram Panchayat Action Plan (CSGPAP) for Benda is formulated in a manner that it can be easily and effectively integrated with the existing Gram Panchayat Development Plan (GPDP) of Benda GP.

The action plan[1] captures the key demographic and socio-economic aspects, key issues pertaining to the Bundelkhand agro-climatic zone, climate variability, carbon footprint analysis of the GP, and current status of natural resources. The action plan also includes inputs from the community members of Benda GP gathered through field surveys, focus group discussions and relevant government departments and agencies. This helped in building a baseline and identifying the key issues of Benda.

The GP has one revenue village and 39 hamlets and 1,610 households with a total population[2] of 8,280 as reported during field surveys. The main economic activities include agriculture. A baseline assessment shows that Benda GP has a carbon footprint of ~2,834 tCO_2e[3].

Approach

Development of primary survey tool

Survey & primary data collection: Survey was carried out with support from Gram Pradhan and community members. Participatory Rural Appraisal (PRA) activities included Focus Group Discussions (FGDs) with residents and community members, transect walks, development of social resource map, etc.

Data analysis & plan development

- *Development of GP profile*: A detailed GP profile was developed based on the responses received on the Survey Questionnaire. This profile includes demographics, climate variability, key economic activities, natural resources, and amenities of Benda.
- *Identification of key issues*: An exhaustive list of key climatic, developmental & environmental issues was identified through responses received in Survey Questionnaire & HRVCA.
- *Carbon footprint estimation*: Carbon footprint was estimated for key activities* in Benda.
- *Proposed recommendations*: Recommendations were developed for Benda based on the environmental and climatic issues identified. These recommendations also take into account the prevailing agro-climatic characteristics of Bundelkhand. Additionally, sector-wise adaptation needs & mitigation potential of Benda have been determined.

A participatory approach was followed throughout the development of the action plan. This will result in enhancing the capacity of the community for climate leadership while fostering a sense of ownership and accountability at the local level.

* Activities include- Electricity consumption, residential cooking, emissions arising from diesel pump usage, transport, crop residue burning, livestock emissions, fertiliser emissions, rice cultivation & domestic wastewater.

1 The Gram Panchayat Action Plan includes aspects of climate change adaptation, mitigation and Hazard Risk Vulnerability and Capacity Assessment (HRVCA)

2 Census 2011 data notes: Total Population- 7,085

3 Includes scope 2 emissions due to electricity consumption within the GP (data obtained from UPPCL and grid emission factor from CEA)

A few priority areas for immediate action identified in Benda GP are:

- Promoting sustainable agricultural practices to improve crop productivity, soil fertility, and enhancing farmers' incomes through adoption of climate resilient crops, organic fertilisers, and agroforestry practices.
- Implementing measures such as improving green cover, revitalising current water sources and enhancing groundwater levels through Nature-based solutions and participatory resource management.
- Enhancing sustainable management of solid waste through participatory practices such as composting pits, and improved at-source waste segregation.
- Harnessing Renewable Energy (RE) and energy efficient solutions such as solar-powered pumps, energy efficient pumps, and solar rooftop installation.

Taking into account the vulnerable sectors, issues emerging from focus group discussions and field surveys, and ongoing activities in the GP, the recommendations have been proposed. The recommendations cover thematic areas of water, agriculture, clean energy, enhancing green spaces, sustainable waste management, sustainable mobility, and enhanced livelihoods and green entrepreneurship.

The activities under these recommendations have been divided into 3 phases- Phase I (2024-27), Phase II (2027-30) & Phase III (2030-35). The phase-wise targets can be further distributed into annual targets as per the discretion of the Gram Panchayats. Moreover, the financing avenues for the suggested activities have been indicated along with phase-wise targets, potential costs, supporting Central and State schemes.

The Climate Smart Gram Panchayat Action Plan (CSGPAP) for Benda is formulated in a manner that it can be easily and effectively integrated with the existing Gram Panchayat Development Plan (GPDP) of Benda GP.

CSGPAP will supplement and complement the Benda GPDP by:

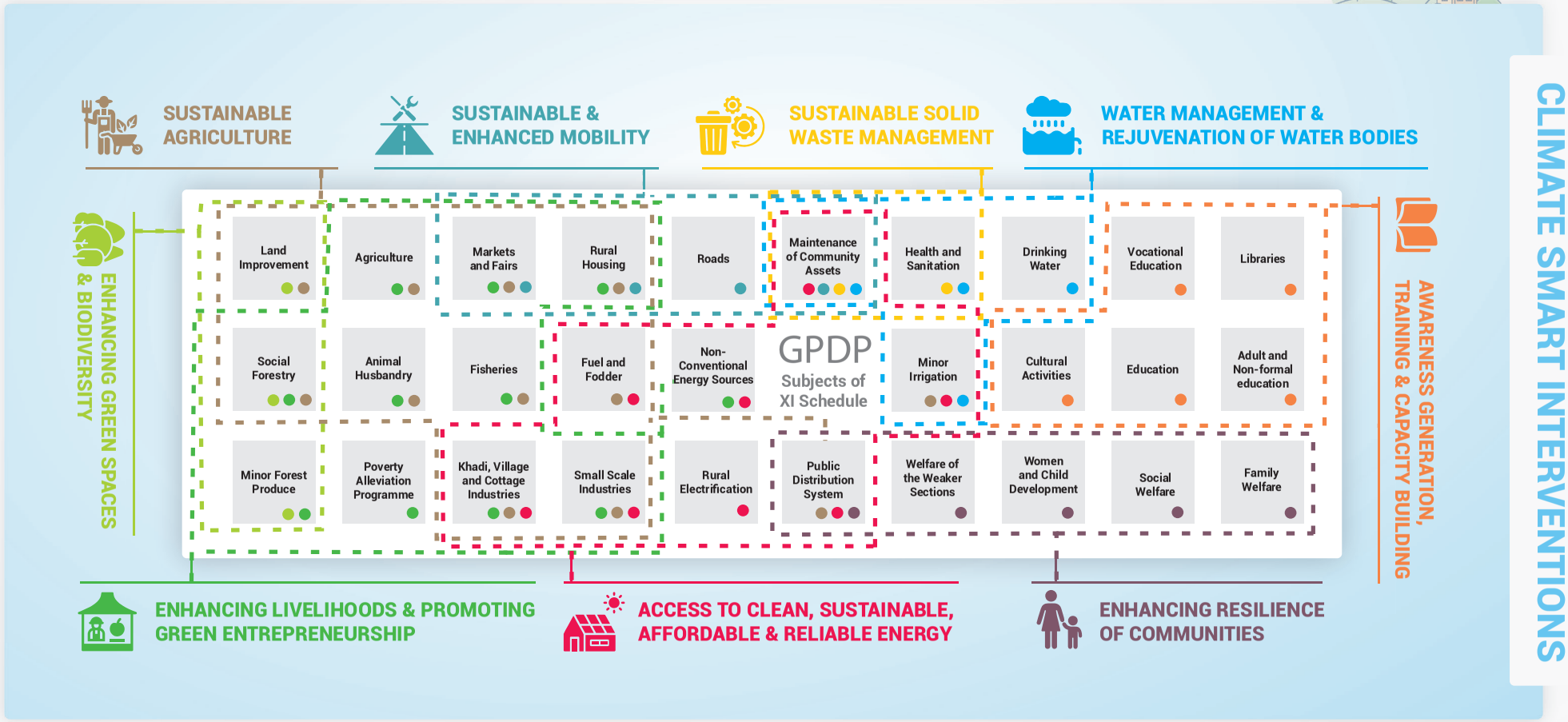
- Broad-basing existing development initiatives and activities with a climate perspective.
- Dovetailing ongoing National and State Programmes on climate change with the proposed development activities in the GPDP.

The interventions and annual targets under this action plan can be implemented in convergence with the planned activities of the Benda GPDP. The existing budgetary allocations earmarked for certain programs under the GPDP can be used for climate adaptation and mitigation activities proposed in this plan. For example, water body rejuvenation carried out through schemes like Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) will have climate change adaptation benefits as well. Similarly, funds earmarked under the 'non-conventional energy' subject of the Eleventh Schedule (basis of GPDP) can be utilised to scale up renewable energy deployment.

The total emissions avoided/mitigated through implementation of this plan is estimated to be ~3,828 tonnes carbon dioxide equivalent (tCO_2e) per annum and sequestration potential goes up to 10,68,000 tCO_2 over the next 20-25 years. The total cost estimated for the implementation of this plan across the three phases is approximately 64.62 crores (for 11 years), comprising community investment, public finance, private finance and potential CSR funding. From this, 30-35 percent (approximately 22 crores) of the required funding can be availed from Central and State Schemes/Missions/Programmes, while the remaining cost can be secured from CSR and private funds. The Government of Uttar Pradesh has adopted an innovative approach of 'Panchayat-Private-Partnerships' to potentially engage CSR and mobilise private finance.

Climate Smart and Sustainable Gram Panchayats by 2035

Mainstreaming Climate Action with Development



2 Gram Panchayat Profile

Benda

Benda Gram Panchayat at a Glance*

Location
Tindwari Block, Banda District

Total Area[4] 2,450 ha[5]

Composition
1 revenue village, 39 hamlets

Total Population[6] 8,280

No. of Males 4,310

No. of Females 3,970

Total Households[7] 1,610

Panchayat Infrastructure
23 (Panchayat Bhawan, 8 Primary Schools, 4 Junior High School, Health Sub Centre, 7 Anganwadi Centre, 1 Resource Recovery Center, 1 Community Toilet)

Primary Economic Activity
Agriculture

Water Resources
1 River(Yamuna River), 9 ponds, 85 wells

Land-Use[8]

Agriculture land: ~1,900 ha
Common land: 154 ha
Agroforestry: 1 ha
Forest: ~58 ha,
Ponds: 8 ha
Remaining land: ~329 ha

Agro-climatic Zone[9]

Bundelkhand
Climatic conditions: Semi-arid with low rainfall and high temperature
Soil type: Rakar, Parwa, Kabar and Mar
Maximum Temperature- 47.8 °C
Minimum Temperature- 3 °C
Annual Rainfall- 867 mm

Composite Vulnerability[10] **of the District**
Moderate

Sectoral Vulnerability of District

- Agriculture Vulnerability: Very High
- Forest Vulnerability: Very High
- Disaster Management Vulnerability: High
- Energy Vulnerability: High
- Rural Development Vulnerability: Moderate
- Health Vulnerability: Moderate

* Data from field survey conducted for preparation of the plan (February, 2023)
4 Total area as per BHUVAN data is ~2,229 ha
5 As per information shared by Gram Pradhan
6 Census 2011 data notes: Total Population- 7,085; Male- 3,871; Female- 3,214
7 708 pucca houses and 902 (mud, thatched, tin) kaccha houses
8 A part of the agriculture land (~700 ha) was reported to be uncultivable
9 Agriculture Department, Uttar Pradesh
10 Uttar Pradesh SAPCC 2.0

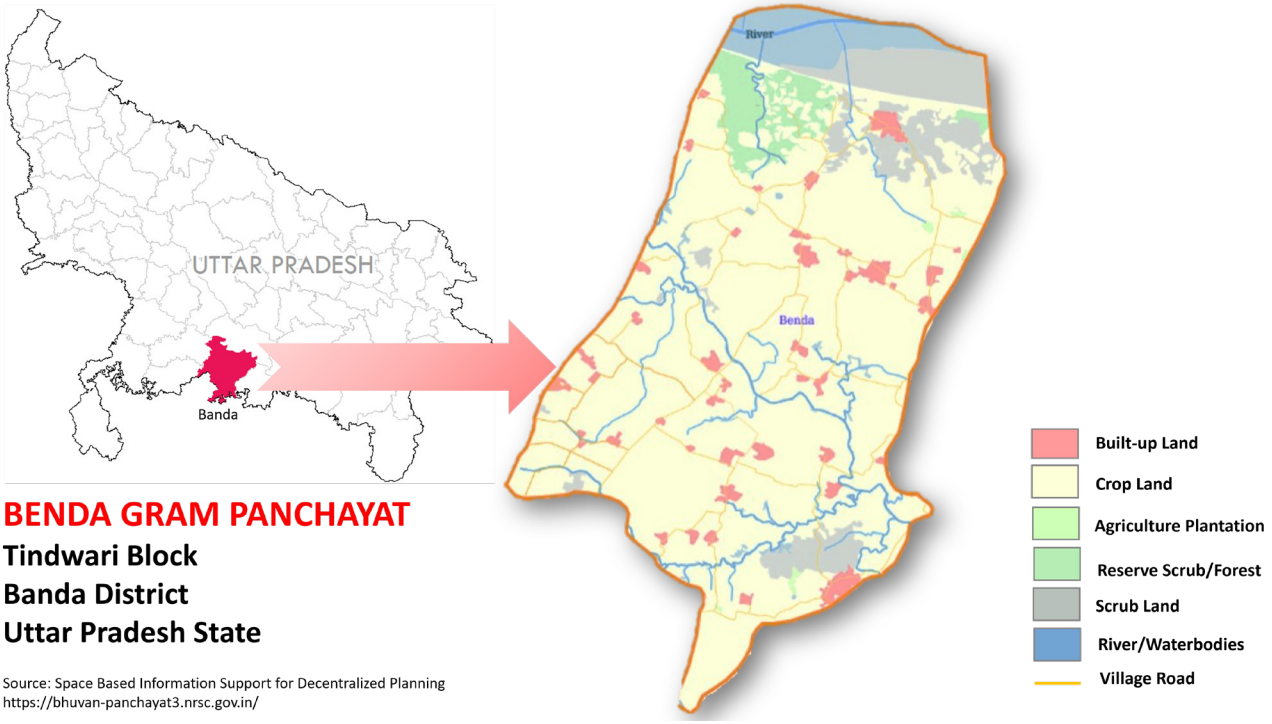


Figure 1: Land-use map of Benda Gram Panchayat, Banda District

Climate Variability Profile

The climate variability data (temperature and rainfall) received from the India Meteorological Department (IMD)[11] indicates that there has been no significant change in average maximum temperature in the region (Banda district) between 1990 and 2019, whereas the annual average minimum temperature in 2019 increased by 1.7°C over 1990 levels[12] (see Figure 2). During the same timeframe, annual rainfall[13] shows a declining trend (see Figure 3). However, the IMD data does not capture granular temperature variability at the Panchayat level and further, there are days for which data was not available.

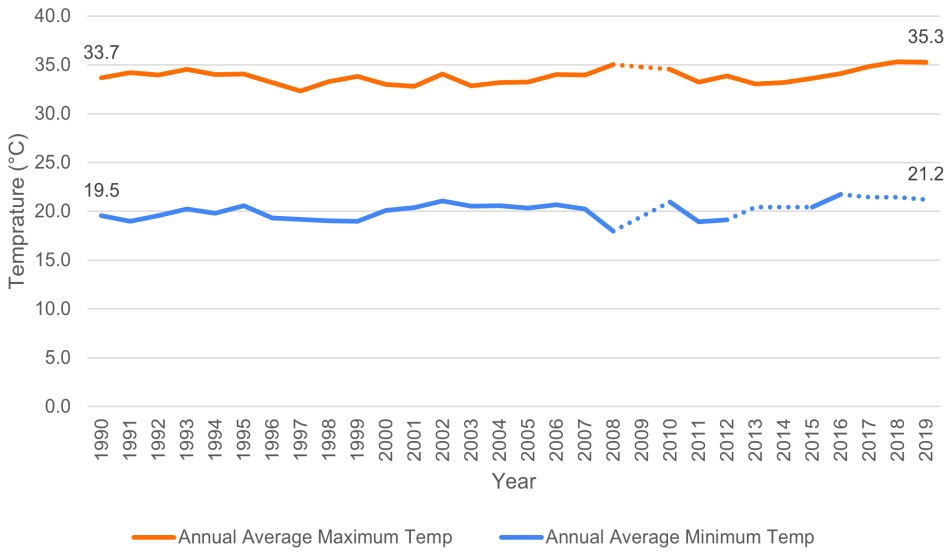


Figure 2: Annual average maximum and minimum temperatures, Benda GP, 1990-2019

11 Daily temperature (maximum and minimum) data and daily rainfall data taken for Benda GP from Banda station

12 Temperature data for 2009, 2013, 2014, 2015, and 2017 not available

13 Daily rainfall data for 1998 and 2009 not available

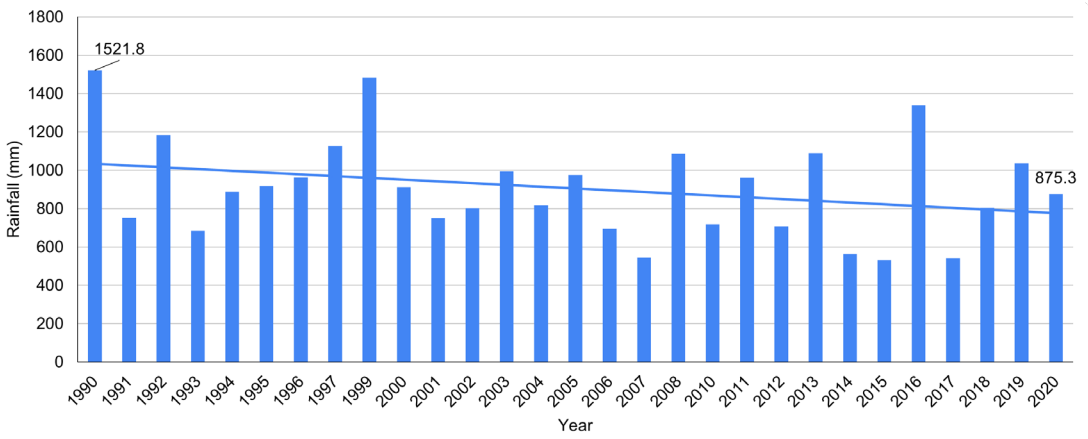


Figure 3: Annual rainfall (mm) in Benda, 1990-2020

A recent report by World Meteorological Organisation, indicates that Asia as a whole has warmed faster than the global land and ocean average between 1991 to 2023 and there has been an evident surge in warm days across large parts of South Asia in the decade of 2010-2020.[14] Similar findings are also confirmed by IPCC[15] and MoES, Government of India.[16]

Further, the perception of communities on weather changes informed from the field survey and focus group discussion indicates that across the decade of 2010-2020, the GP has witnessed an increase in the number of summer days by an average of 20 days and decrease in the number of winter days by approximately 30 days. They also indicated that the number of rainy days has also decreased by roughly 20-25 days.[17]

The climate variability analysis undertaken for the GP accounted for both IMD data as well as community perception to bring out a balanced view of the prevailing climate variability in the GP.

Key Economic Activities

In Benda, ~53 percent of households are engaged in agriculture, followed by animal husbandry, and non-farm wage labour (see Figure 4). Household-level income estimates obtained from the focus-group discussions reveal that a majority of the households earn less than ₹50,000 (~46 percent) per annum, while only ~3 percent of the total households earn above ₹5 lakhs (see Figure 5). At the time of the survey, there were 280 Below Poverty Line households (BPL), i.e. ~17 percent of the total households in the GP. As per ration card (see Figure 6), nearly 91 percent of the households benefit from the public distribution schemes and hold ration cards, of these 11 percent households (177 households) hold an *Antyodaya* card[18].

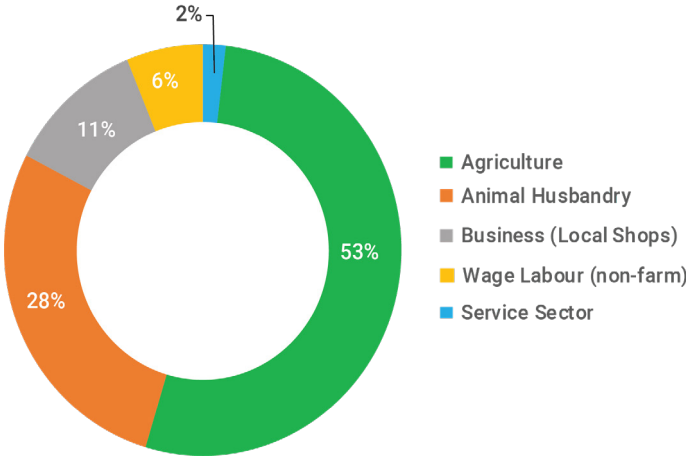


Figure 4: Household level primary sources of income in Benda

14 State of the Climate in Asia in 2023 https://library.wmo.int/records/item/68890-state-of-the-climate-in-asia-2023

15 AR6 Synthesis Report: Climate Change 2023(ipcc.ch) https://www.ipcc.ch/report/ar6/syr/

16 Assessment of Climate Change over the Indian Region: A Report of the Ministry of Earth Sciences (MoES). https://link.springer.com/book/10.1007/978-981-15-4327-2, Source: Ministry of Earth Sciences

17 Data from the field survey conducted for preparation of the plan

18 National Food Security Portal https://nfsa.up.gov.in/Food/citizen/ReportNikayWise.aspx?val=NCMxNDkjUiMwMDE5OTIjMDU5NTYx

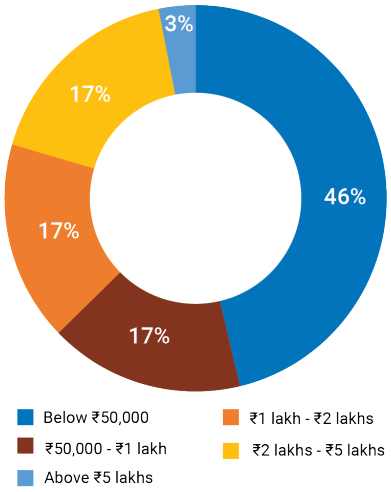


Figure 5: Household level income estimates in Benda

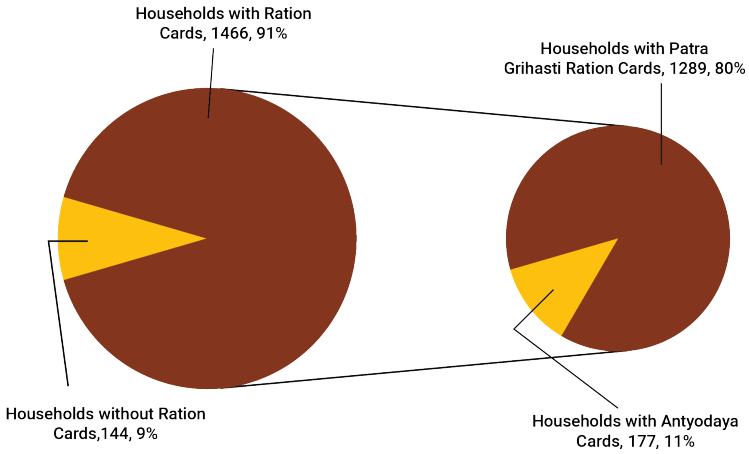


Figure 6: Households with ration cards in Benda

Women's Employment

There are 80 women-headed households in the GP[19], and around 240 women are involved in economic activities. Majority of women are primarily engaged as labourers in non-farm related activities, followed by women engaged with SHG-led economic activities (including running local shops, management of community toilets, vehicle rentals, etc.). As per the field survey, there are 19 Self-Help Groups (SHGs). The primary activities that SHGs undertake in Benda GP include tailoring, goat rearing and running local shops.

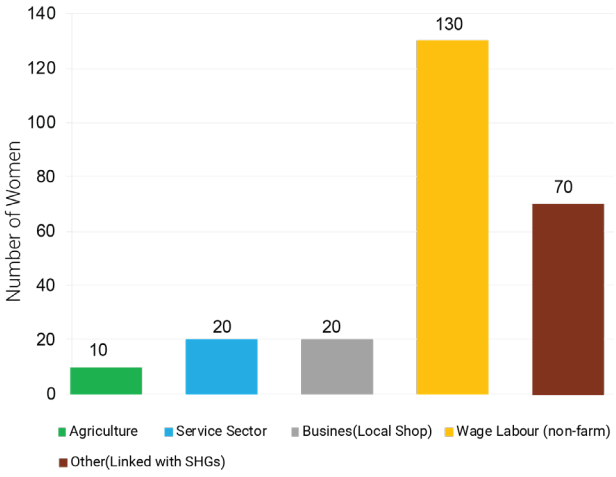


Figure 7: Number of women engaged in various economic activities in Benda

Agriculture

Nearly 53 percent of households in Benda depend on agriculture for income (see Figure 4), and are engaged under different arrangements (including farming on their own land, as wage labourers, or as tenants), as shown in Figure 8. The net sown area in Benda is approximately 1,200 ha[20] while the gross cropped area is ~1,210 ha. Most farmers in Benda follow a single cropping season. The major *kharif* crop is *jowar* (~1,729 quintal/year), green chickpea (~2,470 quintal/year), and lentils (~1,829 quintal/year) The major *rabi* crops grown in the GP are wheat (~31,140 quintal/year), mustard (~865 quintal/year), and pea (~2,970 quintal/year). Other major crops include rice and *bajra*. Crop-wise area is given in Figure 9. Groundwater (pumped through tube wells) is the main source of irrigation. There are 185 diesel pumps in the GP. Around 28 percent

19 Women-headed households are those households where women are sole/primary earners.

20 As per inputs received during consultations with stakeholders in the GP, the total reported agricultural area in Benda was 1,957 ha. However, only ~65% of this area was reported to be suitable for cropping.

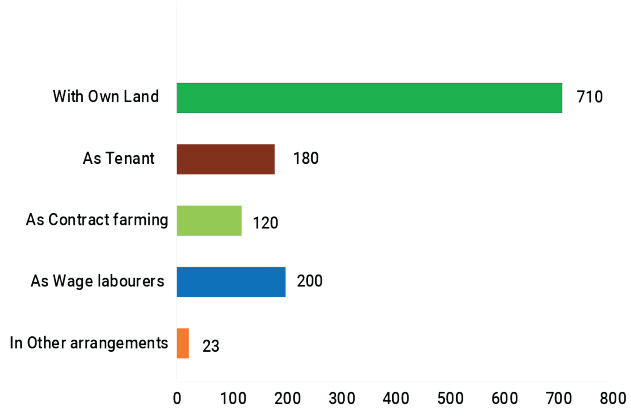


Figure 8: Agriculture-only dependent households in Benda

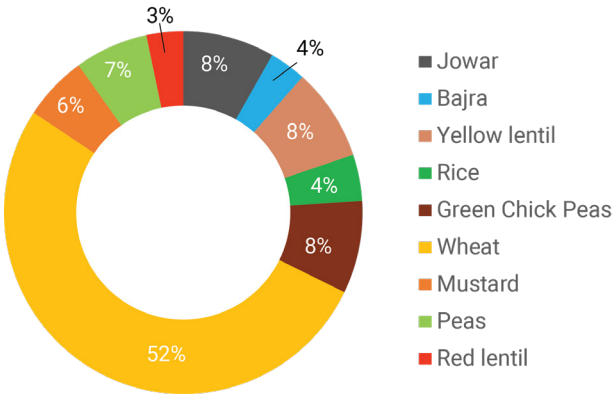


Figure 9: Crop-wise distribution of gross cropped area in Benda

of the population is engaged in animal husbandry. At the time of the survey, the total livestock population was ~2,200 (400 cows, 800 buffaloes, 1,000 goats, 200 pigs). The total poultry population was ~4,000.

Natural Resources

Benda GP is situated near the banks of river Yamuna, which flows to the north of the GP. As per information gathered from the field survey, Benda has 9 ponds and 85 wells. One of the ponds was being developed as an *Amrit Sarovar*. ~58 ha of the land in the GP is forest land. Plantation activities in the GP were carried out in the year 2021-22 and currently cover ~1 ha of land. The plantations have been implemented through the National Agro-forestry Mission (NAM), Community Watershed Programme, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), and as part of social forestry activities. *Teak, sheesham, kadam, peepal*, banyan, etc. trees are mostly grown in these plantations, with an average survival rate of 75 percent[21]. It was reported during the field survey that sand mining activities in the Yamuna are carried out within the GP.

21 As per inputs received from field survey

Amenities in Benda

Electricity & LPG

- Electricity access: ~92% households
- LPG coverage: ~73% households

Water

- Main source of water for household use and GP level supply – groundwater
- ~44% households have piped water supply[22]

Waste

- Open Defecation Free (ODF) status achieved
- Household toilet coverage: ~78%

Mobility and Market Access[23]

- Banda-Tanda National Highway (NH-232) -1 km
- 2 Ration Shops - 1 km
- Post Office - 0.5 km
- Agricultural Market - 1 km
- Bank - 1 km

Education

- 8 Government Primary Schools
- 4 Junior High Schools

Health

- 1 Health Sub Centre
- 7 Anganwadi Centres

22 Jal Jeevan Mission Dashboard indicates 100% coverage of piped water supply in GP https://ejalshakti.gov.in/jjm/citizen_corner/villageinformation.aspx . As per inputs received from the Gram Pradhan, expansion of piped water coverage is underway in Benda GP.

23 As indicated in the field survey

3 Carbon Footprint

While the carbon footprint (in other words, Greenhouse Gas (GHG) emissions) from rural areas is not significant, this exercise has been carried out to develop a complete baseline of the gram panchayat. It may be noted that the objective of this plan is not to develop a carbon-neutral GP, but a Climate Smart GP. However, the recommendations will have emission reduction benefits which perhaps will help make the GP carbon neutral or even carbon negative. Keeping this in view, this exercise therefore does not include GHG projections.

Further, the carbon footprint also aids in providing recommendations to ensure sustainable development that aligns with the principles of the LiFE Mission. Overall, in 2022, Benda GP emitted ~2,834 tonnes of carbon dioxide equivalent (tCO_2e) from a wide range of activities (see Figure 10).

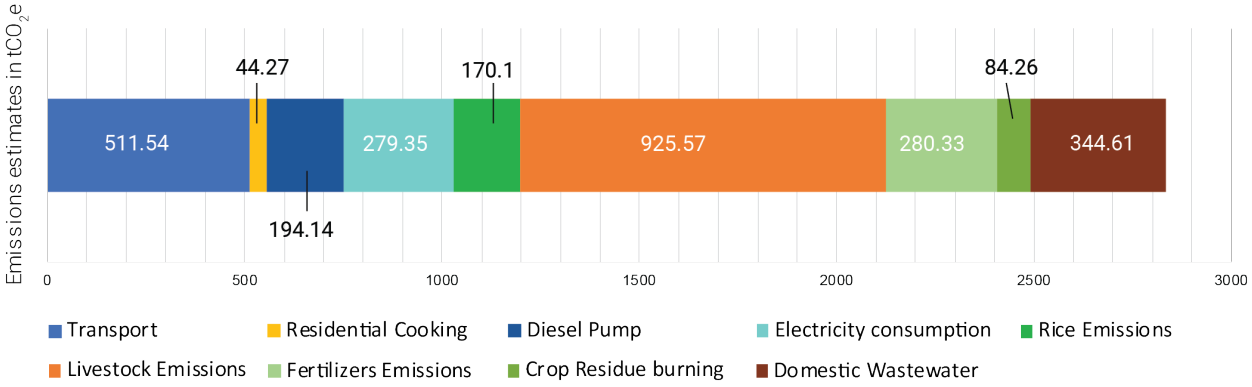


Figure 10: Carbon footprint of various activities in Benda in 2022

Activities in energy, agriculture, and waste sectors contributed to the carbon footprint of Benda. Energy sector emissions are due to electricity consumption[24], combustion of fuelwood and LPG for cooking, use of diesel pumps for irrigation, use of generators for power backup, and use of fossil fuels in various means of transport. Agriculture sector emissions include those due to the application of fertilizer on agricultural fields, livestock and manure management, crop residue burning. Emissions due to domestic wastewater are included in the waste sector.

Emissions from the agriculture sector accounted for ~52 percent of the total emissions. Within this sector, emissions from livestock (~925.57 tCO_2e), fertilizers emissions (~280.33 tCO_2e) and crop residue burning (~84.26 tCO_2e) were the leading causes of GHG emissions. The energy sector accounted for ~36 percent of the total emissions. Within the sector, the transport category was the key emitter (~511.54 tCO_2e), followed by electricity consumption (~279.35 tCO_2e), diesel pumps (~194.14 tCO_2e), and residential cooking (~275.60 tCO_2e). The waste sector accounted for ~12 percent of the total emissions, comprising of emissions from domestic wastewater (~344.61tCO_2e) (see Figure 11).

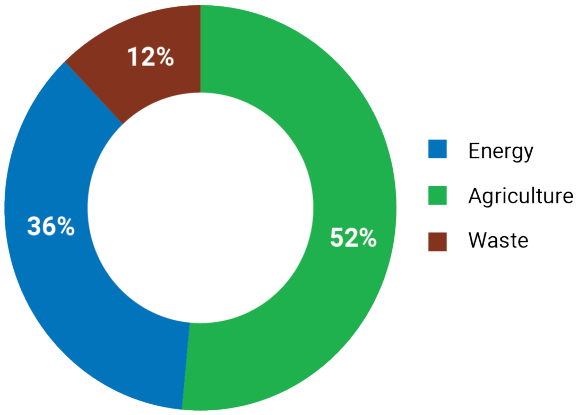


Figure 11: Share of sectors in carbon footprint of Benda in 2022

24 Emissions due to electricity consumption are categorized as Scope 2 emissions, as the fuel (coal) combustion for electricity generation takes place outside the GP boundary

4 Broad Issues Identified

The broad issues identified are based on the data collected and analysis conducted to establish the GP baseline, the inherent characteristics of the agro-climatic zone in which the GP is located as well as the inputs received from the community members during the field surveys, and focus group discussions.

Wherever possible, this information was corroborated with available government data sources. However, certain issues are completely based on information from the community because for these GP level data was not available for corroboration. The issues identified in the GP are summarised below. Further, the detailed issues are listed in the respective themes of the recommendations section.

Broad Issues:

- Changes in seasonal durations and erratic rainfall affecting sowing time, harvesting time and irrigation needs of crops, among other impacts in the GP.
- Frequent occurrence of drought-like conditions between the months of June and July.
- Rising instances of heat waves in the months of April to June.
- Nearly 35% of agricultural land is unsuitable for cultivation.
- Unsustainable agricultural and animal husbandry practices.
- Limited management of solid waste.
- Poor maintenance of natural resources, including water bodies.
- Dependence on fossil fuels and traditional fuels for cooking, agricultural and transport needs.
- Lack of awareness about climate change impacts.
- Lack of awareness about various schemes and programmes of the Central and State governments on clean energy and climate change.

5 Proposed Recommendations

Each thematic issue consists of several interventions, with focus on both mitigation and adaptation that address the key issues identified in the previous section. The interventions are described with **phased targets** and **cost estimates**[25] (to the extent possible). The targets are spread across three phases: Phase-I (2024-25 to 2026-2027); Phase-II (2027-28 to 2029-30); and Phase-III (2030-31 to 2034-35).

Targets under each phase can be further distributed into annual targets (year-on-year targets) ensuring effective and monitored implementation. The template for developing year-on-year targets can be referred from the document 'Standard Operating Procedure (SOP) for Development of Climate Smart Gram Panchayat Action Plan'. The SOP is a step-by-step approach to be used by Gram Padhans, community members or any other stakeholder to develop Climate Smart Action Plans for their respective Gram Panchayats.

The financing avenues identified include, Central or State schemes, various tied and untied funds of the Gram Panchayat or private finance through CSR interventions have been identified. The detailed recommendations are in the following section:

Recommendations suggested in the action plan span across the following themes:

1. **Management and Rejuvenation of Water Bodies**
2. **Sustainable Agriculture**
3. **Enhancing Green Spaces and Biodiversity**
4. **Sustainable Solid Waste Management and Sanitation**
5. **Access to Clean, Sustainable, Affordable and Reliable Energy**
6. **Sustainable and Enhanced Mobility**
7. **Enhancing Livelihoods & Green Entrepreneurship**

Further, while not forming a part of the recommendations, a list of possible initiatives has also been listed out for consideration by the Panchayats. These initiatives have been implemented successfully in some parts of India and could be replicated here as well. However, since these initiatives are not covered by any ongoing schemes/programmes of the Government of Uttar Pradesh, the funding for these initiatives at this point in time will have to be borne by the communities or by exploring CSR and private sources. Hence, they are not included in the recommendations.

25 Costs have been estimated based on different methods like:
inputs from key members of the Gram Panchayat,
OR cost estimates as per relevant schemes and policies,
OR approximate per unit costs of inputs required
OR schedules of rates of various departments.

1. Management and Rejuvenation of Water Bodies

Context and Issues[26]

- Benda GP relies on groundwater as the primary source of water for domestic use, while rainwater, tubewells, wells, and river are the main sources of irrigation in the GP. There have been frequent incidences of droughts in the month of April to July and September to October in last four years from 2019 to 2022.
- Between 2019 and 2023, groundwater levels in and around Benda GP remained low during both pre-monsoon and post monsoon periods. During drought-like months, the groundwater level was reported to decrease by nearly 2 metres, which affects water supply in the GP.[27] This was corroborated by information from government sources[28] .
- While there are 9 ponds in Benda, most of them are poorly maintained and filled with silt, debris, and waste. Therefore, they need to be cleaned and rejuvenated. Additionally, 6 of the wells are also filled with garbage and waste, and are unfit for use.
- The dependence on groundwater and frequent incidence of droughts in the past four years emphasise the urgent need for watershed management to conserve water and replenish groundwater resources.

The following recommendations are proposed to reduce vulnerability, build resilience, and improve water security in Benda.

26 As understood from the community during field surveys and FGDs and corroborated by relevant resources.

27 As per inputs received during the field survey

28 Atal Bhujal Yojana, Ministry of Water Resources, River Development, and Ganga Rejuvenation. https://ataljal.mowr.gov.in/Contact/Hydrogeological_reports

Rejuvenation and Conservation of Water Bodies

Phase

I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities		
1. Construction of pond retention wall 2. Reboring of hand pumps 3. Tree plantation around water bodies with tree guards 4. Capacity building of the existing Village Water and Sanitation Committee (VWSC)[29] » Mobilising community on groundwater management issues » Enhancing awareness among various key stakeholders to improve water conservation » Prepare/update Village Water Security Plan to ensure optimum utilisation of available water to meet the needs of various users » Promoting community participation in water harvesting techniques to revive barren and uncultivable land	1. Additional tree plantation around water bodies 2. Regular maintenance of water bodies 3. Capacity building of the community and other stakeholders 4. Update Village Water Security Plan to ensure optimum utilisation of available water	1. Regular maintenance of water bodies 2. Update Village Water Security Plan to ensure optimum utilisation of available water

29 VWSC Handbook, https://phed.cg.gov.in/sites/default/files/gphandbook-0.pdf

Target	1. Construction of retaining wall on Bhubhara pond[30] 2. 6 wells cleaned & desilted [31] 3. Reboring of 20 hand pumps [32] 4. Plantation of 1,000 trees with tree guards (around water bodies)	1. Maintenance of 9 ponds 2. Additional 1,000 trees planted around water bodies with tree guards	Maintenance of 9 ponds
Estimated Cost	1. Construction of retention wall: ₹10,00,000 2. Wells cleaned & desilted: ₹3,00,000 3. Reboring of 20 hand pumps: ₹12,00,000 4. Plantation around water bodies: covered in section 'Enhancing Green Spaces and Biodiversity': ₹12,70,000 *Total Cost: ₹25,00,000*	1. Maintenance of ponds: ₹33,75,000 2. Plantation around water bodies: covered in section 'Enhancing Green Spaces and Biodiversity': ₹12,70,000 *Total Cost: ₹33,75,000*	Maintenance of ponds: ₹33,75,000 *Total Cost: ₹33,75,000*

Enhancing Drainage Infrastructure

Phase	**I** 2024-25 to 2026-27	**II** 2027-28 to 2029-30	**III** 2030-31 to 2034-35
Suggested Climate Smart Activities	Cleaning, desilting, and repair of existing drains* **Ensuring a full cover of drainage network in GP*	Regular maintenance of drains	Regular maintenance of drains

30 Refer to HRVCA for specific details
31 Refer to HRVCA for specific location details
32 Refert to HRVCA for specific location details

Target	Cleaning and desilting of existing drain	Regular maintenance of existing drains in the GP	Regular maintenance of existing drains in the GP
Estimated Cost	Cleaning and desilting of existing drains: As per requirement	As per requirement	As per requirement

Rainwater Harvesting (RwH) Practices

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. RwH structures installation in government/Panchayati Raj Institution (PRI) buildings 2. Recharge pits for recharging groundwater 3. Incorporating RwH system in all new buildings	1. Installation of RwH structures in residential buildings above a plot size of 1500 sq. ft. 2. Digging of more recharge pits/trenches in the identified catchment areas 3. Incorporating RwH system in all new buildings	1. Installation of RwH structures in residential buildings 1000 sq. ft. 2. Incorporating RwH system in all new buildings
Target	1. RwH in all government buildings- Installation of recharge pit of storage capacity 10 m^3 2. 50 recharge pits dug[33]	1. 106 pucca households to install RwH structures with an average storage capacity of 10 m^3 Larger houses in the GP to be targeted first 2. Digging more recharge pits as per requirements	70 pucca households to install RwH structures with an average storage capacity of 10 m^3

33 Refer to the HRVCA for specific location details

Estimated Cost	1. RwH: ₹7,00,000 for 20 units 2. Recharge pits: ₹17,50,000 for 50 units *Total Cost: ₹ 24,50,000*	1. RwH: ₹37,10,000 for 106 units 2. Recharge pits: cost as per requirement *Total Cost: ₹ 37,10,000*	RwH: ₹24,50,000 for 70 units *Total Cost: ₹24,50,000*

Existing Schemes and Programmes

- Development of rainwater harvesting systems can be carried out through provisions and resources made available through Jal Shakti Abhiyan: Catch the Rain campaign.
- UP State Annual Budget under Irrigation Department can be channelled for GP level water body conservation and restoration activities.
- Annual budgets under MGNREGA and Watershed Development components under Pradhan Mantri Krishi Sinchai Yojana (PMKSY) can be leveraged for watershed development activities.
- Groundwater management initiatives can be implemented under *Atal Bhujal Yojana* (ABY) of Government of India[34].

Other Sources of Finance

- Corporate/CSR can be encouraged to 'adopt a water body' to contribute to the maintenance and upkeep of water bodies and wells.

Key Departments

- Department of Rural Development
- Irrigation and Water Resources Department, Ministry of Jal Shakti
- Uttar Pradesh Department of Land Resources

34 Atal Bhujal Yojana https://ataljal.mowr.gov.in/Home/Index

2. Sustainable Agriculture

Context and Issues

- Nearly 81% of the households in the GP depend on agriculture and animal husbandry practices for income.
- The total area under agriculture in Benda is ~1,900 ha and the net sown area is nearly 1,200 ha. Additionally, gross cropped area was ~1,210 ha, with most farmers practising single cropping.
- Nearly 700 ha of agricultural land was reported to be uncultivable due to lack of water and prominent threat of nilgai and wild boars[35].
- The major crops grown are wheat (~630 ha), lentil (~140 ha), jowar (~100 ha), green chickpeas (~100 ha), across kharif and rabi seasons.
- From 2019-2022, Benda GP experienced drought/drought-like conditions 4 times, typically during April to July and September to October[36], leading to crop failures on ~724 ha land, as well as fodder shortages that threaten farmers' livelihoods.
- Due to delayed monsoons, the sowing time for jowar and bajra has shifted from June to July, while the sowing time of wheat has shifted from October to November[37].
- Between 2018 to 2022, crop losses were caused by erratic rainfall, intense summer season, and diseases. The losses amount to around 2,340 quintals of produce (jowar & moong) or approximately Rs 36.50 lakh (corroborated by prevailing MSP of the respective years).
- Due to extreme weather conditions, nearly 668 goats, and 1,250 chickens succumbed to cold waves and other diseases between 2018 and 2022.[38]
- Farmers in Benda use ~150 tonnes of urea, ~99 tonnes of DAP, and other nitrogenous fertilisers annually which leads to GHG emissions of ~280 tonnes CO_2e per year. Additionally, farmers rely on other chemical inputs such as pesticides and weedicides.
- The irrigation demand has increased significantly, as reported in the field survey, stressing on the need for water conservation and improved irrigation techniques.
- Households practising animal husbandry lack sustainable manure management practices and face a shortage of fodder during periods of drought.[39]

The above points underscore the need for adopting sustainable and drought resilient agricultural practices to enhance adaptive capacity.

35 Based on inputs received from the Gram Pradhan
36 Based on inputs from the community during field surveys
37 As reported by GP during field surveys
38 As reported by GP during field surveys
39 As reported by GP during field surveys

Drought Management for Agriculture

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Promotion and adoption of micro irrigation practices like drip irrigation and sprinkler irrigation 2. Use of mulching to minimise evaporation losses from irrigated fields 3. Construction of bunds with trees around agricultural fields 4. Adoption of drought tolerant variety of rice and shift to dry direct seeded rice to reduce water requirement of the crop 5. Adoption of drought-tolerant variety of wheat 6. Need based nutrient management in crops[40] (e.g. organic recycling, nutrient for foliar spray, etc.) 7. Additional area under millet crops 8. Promote artificial recharge by building farm ponds where feasible 9. Creating awareness about various insurance programmes for farmers to protect them from crop loss	1. Expansion of micro irrigation 2. Construction of additional bunds 3. Construction of more farm ponds 4. Expansion of phase I activities to adopt drough-tolerant variety 5. Crop rotation and mixed cropping with drought resistance crops such as millets and legumes 6. Continue the initiatives on creating awareness and provide support to farmer to avail various insurance programmes to protect them from crop loss	1. Expansion of micro irrigation 2. Expansion of Phase II activities to adopt drought tolerant variety

40 Drought Manual (2020), https://vedas.sac.gov.in/static/pdf/Drought%20Manual-2020.pdf

Target	1. 600 ha to have bunds with trees (50% of total agricultural area) 2. Micro-irrigation practices introduced on ~58 ha (15% of agricultural land under green chickpeas, yellow lentil, red lentil, peas, mustard, vegetable etc.) 3. Construction of 5-10 farm ponds of 300 m^3 capacity each as feasible	1. 600 ha additional agricultural land to have bunds with trees (100% of agricultural land) 2. Micro irrigation practices introduced in ~195 ha (50% of agricultural land under green chickpeas, yellow lentil, red lentil, peas, mustard, vegetable, etc.) 3. Construction of 15-20 farm ponds as feasible	1. Micro irrigation practices introduced in ~137 ha (100% of total agricultural land under green chickpeas, yellow lentil, red lentil, peas, mustard, vegetable, etc.) 2. Maintenance of bunds and farm ponds
Estimated Cost	1. Construction of bunds: ~₹3,67,500 2. Micro irrigation: ₹58,00,000 3. Construction of farm ponds: ₹4,50,000 to ₹9,00,000 *Total cost: ₹66,17,500 to ₹70,67,500*	1. Construction of bunds: around ₹3,67,500 2. Micro irrigation: ₹1,95,00,000 3. Construction of farm ponds: ₹13,50,000 to ₹18,00,000 *Total cost: ₹2,12,17,500 to ₹2,16,67,500*	*Micro irrigation: ₹1,37,00,000* *Total cost: ₹1,37,00,000*

Transition to Natural Farming

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Promote natural farming through the use of organic fertiliser bio-pesticides and bio-weedicides » Training and demonstrations » Development of nursery and local seed bank » Natural/Organic farming certification process to initiated	1. Continuing the transition of agricultural land to natural farming (nursery, seed bank certification mechanism and market linkages established) 2. Promotion and adoption of practices implemented in Phase I	Transitioning 100% of agricultural land to natural farming

Suggested Climate Smart Activities	» Market linkages to be explored 2. Promotion and adoption of practices such as mixed cropping, crop rotation, mulching, zero tillage		
Target	Transitioning 180 ha (15%) of agricultural land to natural farming	Transitioning 408 ha (40%) of agricultural land to natural farming	Transitioning remaining 612 ha (100% covered) of agricultural land to natural farming
Estimated Cost	1. Cost of training (one time): ₹60,000 2. Transition of land to natural farming: ~₹4,44,78,000 *Total cost: ₹4,45,38,000*	1. Cost of training (one time): ₹60,000 2. Transition of land to natural farming: ~₹10,08,16,800 *Total cost: ₹10,08,76,800*	1. Cost of training (one time): ₹60,000 2. Transition of land to natural farming: ~₹15,12,25,200 *Total cost: ₹15,12,85,200*

Solar-powered Farm Fencing[41]

Phase	**I** 2024-25 to 2026-27	**II** 2027-28 to 2029-30	**III** 2030-31 to 2034-35
Suggested Climate Smart Activities	Construction of solar-powered farm fences along farm boundaries affected by movement of wild animals (*Nilgai* and wild boars)	Construction of additional solar-powered farm fences along affected farmland	Construction of additional solar-powered farm fences along affected farmland
Target	Construction of farm fences along 25% of identified affected farmland	Construction of solar-powered farm fences along additional 25% affected farmland	Construction of additional solar-powered farm fences as per requirement
Estimated Cost	As per requirement	As per requirement	As per requirement

41 Mukhyamantri Khet Suraksha Yojana https://timesofindia.indiatimes.com/city/lucknow/motivate-farmers-to-opt-for-solar-fencing-up-cm-yogi-adityanath-to-officers/articleshow/106223953.cms

Revival of Barren and Uncultivable Land[42]

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Expansion of soil health card programme to improve soil nutrition and productivity[43] 2. Construction of farm ponds of 300 m^3 capacity as feasible 3. Agroforestry adopted in low productivity and uncultivable land [44] 4. Promotion of mixed/ inter cropping and agronomic measures[45]	1. Continue expansion of soil health card programme 2. Construction of 15-20 farm ponds of 300 m^3 capacity each as feasible 3. Agroforestry adopted in additional uncultivable land 4. Continue implementation of mixed/intercropping and agronomic measures	1. Continue expansion of soil health card programme 2. Expansion of agroforestry in remaining uncultivable land 3. Continue implementation of mixed/inter cropping and agronomic measures
Target	1. 25% farmers to hold soil health cards (Owners of land with limited cultivability can be prioritised in this phase) and increased use of required nutrients to improve soil nutrient management 2. Construction of 5-10 farm ponds of 300 m^3 capacity each 3. Agroforestry in ~70 ha (10 %)of uncultivable land; ~21,000 trees planted (300 trees/ha) Sequestration potential of teak plantation: 1,17,600 tCO_2 to 2,10,000 tCO_2 in 20 years	1. 50% farmers to hold soil health cards 2. Construction of 15-20 farm ponds of 300 m^3 capacity each 3. Agroforestry in ~70 ha (10% of uncultivable land); ~52,500 trees planted Sequestration potential of teak plantation:1,17,600 tCO_2 to 2,10,000 tCO_2 in 20 years 4. Continued adoption of mixed cropping practices and agronomic measures	1. 100% of farmers to hold soil health cards 2. Maintenance of farm ponds 3. Agroforestry adopted in remaining ~140 ha (20% of uncultivable land); ~42,000 trees planted Sequestration potential of teak plantation: 2,35,000 tCO_2 to 4,20,000 tCO_2 in 20 years 4. Continued adoption of mixed cropping practices and agronomic measures

42 As inputs received from Gram Pradhan, there is nearly 700 ha of agricultural land which is uncultivable

43 Impact of Soil Health Card Scheme on Soil Fertility and Crop Production Among the Adopted Farmers. (2022). Indian Journal of Extension Education, 59(1), 122-126. https://epubs.icar.org.in/index.php/IJEE/article/view/131881

44 Overview of agroforestry in Bundelkhand region https://planning.up.nic.in/Go/BOOK-2/PDF-Agriculture/1.10-RK%20Tripathi.pdf

45 Agriculture Contingency Plan for District: Banda. https://krishi.icar.gov.in/jspui/bitstream/123456789/29281/1/UP%2012-Banda%20draft%20plan-10.07.14.pdf

Target	4. Promoting mixed cropping with crops such as sorghum, sesame, green/black gram, etc. 5. Implementing agronomic measures such as straw mulching, ridge-furrow sowing, etc.		
Estimated Cost	1. Construction of farm ponds: ₹4,50,000 to ₹9,00,000 2. Agroforestry plantation: ₹56,00,000 *Total Cost: ₹60,50,000 to ₹65,00,000*	1. Construction of farm ponds: ₹13,50,000 to ₹18,00,000 2. Agroforestry plantation: ₹56,00,000 *Total Cost: ₹69,50,000 to ₹1,43,50,000*	1. Maintenance of farm ponds: As per requirement 2. Agroforestry plantation: ₹1,12,00,000 *Total Cost: ₹1,12,00,000*

Sustainable Livestock Management

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Raising awareness and capacity building for households engaged in animal husbandry for livestock management 2. Training community members as animal healthworkers/para-vet training for improving access to livestock health services 3. Refer to section *'Additional Recommendations for Consideration'* for intervention on reducing methane emission from livestock	1. Expansion of training and capacity building activities 2. Scaling up para-vet training as per requirement	1. Expansion of training and capacity building activities 2. Scaling up para-vet training as per requirement

Suggested Climate Smart Activities	4. CSR support from sand mining companies can support farmers in setting up vertical fodder growing units to enhance fodder availability (See section 'Additional Recommendations for Consideration' for detailed description of this activity)		
Target	1. Workshops organised for households engaged in animal husbandry on sustainable rearing practices, disease prevention, and management of livestock health 2. Training of 2 para-vets[46]	1. Additional workshops on disease prevention and sustainable rearing practices organised 2. Continued training and capacity building for livestock management	1. Additional workshops on disease prevention and sustainable rearing practices organised 2. Continued training and capacity building for livestock management
Estimated Cost	Cost of workshop and para-vet training: As per requirement	As per requirement	As per requirement

Existing Schemes and Programmes

- Drought management and proofing practices can be supported through funds and subsidies from Pradhan Mantri Krishi Sinchai Yojana (PMKSY), UP Millets revival programme, Pradhan Mantri Fasal Bima Yojana, National Agricultural Insurance Scheme, Weather-based Crop Insurance Scheme, Gramin Krishi Mausam Seva Scheme.
- Drought proofing activities and creation of nurseries and seed banks can be streamlined through MGNREGA.
- Organic farming practices can be supported through funds and subsidies provided under various schemes such as: Paramparagat Krishi Vikas Yojana (PKVY) and Soil Health Management Scheme.
- Technical and knowledge support as well as organic farming demonstrations for farmers can be enabled through National and Regional Centres for Organic Farming (NCOF & RCOF), Krishi Vigyan Kendra (KVK), nearest Organic Farming Cell of the Department of Agriculture, Cooperation and Farmer Welfare.
- Agricultural Technology Management Agency (ATMA) can be tapped into for support for training and capacity building of the farmers and FPOs for technology upgradation and sustainable farming.
- Krishi Raksha Scheme supports farmers in pest control through different ecological resources and to promote use of bio-chemicals.

46 No. of community-based animal health workers trained based on requirement of the GP

- *Mukhyamantri Khet Suraksha Yojana* of the Government of Uttar Pradesh can be leveraged to construct solar-powered fencing for agricultural fields.
- Para-veterinarian training and capacity building can be leveraged through state schemes like State Rural Livelihood Mission, Uttar Pradesh *Pashudhan Swasthya Evam Rog Niyantran Yojana*, and *Rashtriya Gokul Mission*

Other Sources of Finance

- Set-up & operationalise (in alignment with schemes mentioned in 'Access to Clean, Sustainable, Affordable and Reliable Energy' section
  - » Cold-storage facility to help minimise post-harvest losses
- Raising awareness: information on organic farming practices and benefits, inputs required, demonstrations, relevant sources of information and guidance, registration process, verification and certification process, market linkages and weather-based information services, etc.
- Provide guidance, training, and capacity building for farmers, FPOs, SHGs and other community members to avail insurance, benefits of different schemes as well as for technical aspects of implementing Climate Smart Agriculture practices including adoption of organic fertilisers, eventual transition to organic farming, drought proofing agriculture and sustainable livestock management.
- Further, capacity building of farmers, FPOs, SHGs and other community members engaged in sustainable agriculture in Benda can be carried out in collaboration with technical experts and institutes in the region, local NGOs, CSOs and corporates.

Key Departments

- Department of Agriculture, Cooperation and Farmer Welfare
- Department of Horticulture and Food Processing
- CIPM - Centre for Integrated Pest Management
- Department of Land Resources
- Jal Shakti Department
- Agriculture Technology Management Agency (ATMA)
- Animal Husbandry Department
- Uttar Pradesh New & Renewable Energy Development Agency (UPNEDA)
- Regional Centres for Organic Farming
- Krishi Vigyan Kendra, Banda
- Banda University of Agriculture & Technology, Banda

3. Enhancing Green Spaces and Biodiversity

Context and Issues

- In the GP, nearly 58 ha of land is demarcated as forest, which is notified by the Forest Department.
- Plantations in Benda include ~1 ha of community plantation beside ponds, and near Panchayat building, which were carried out under the National Agro-forestry Mission (NAM), Social forestry, Watershed Management Programme, and MGNREGA.
- Survival rate of new plantations of saplings was reported to be affected due to the presence of wildlife, including *Nilgai* and wild boars.

Benda GP has the potential to enhance lung spaces through enhancing green spaces, which will not only improve thermal comfort and provide shade but also improve soil health and water levels in the long term, in addition to enhancing carbon sink in the GP.

Improving Green Cover

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Annual community-based plantation activities[47] through various initiatives: » **Green Stewardship programme[48]** for students (5 students selected) » Creation of a Food Forest by planting indigenous fruit trees 2. Development of Arogya Van - procurement and preparation of land, species selection and plantation of various medicinal herbs, shrubs and trees[49]. 3. Creation of riparian vegetation buffer ar sand mining sites[50]	1. Existing plantations maintained 2. Additional saplings planted in buffer zone and existing plantation maintained 3. Farmer encouraged to adopt agroforestry	1. Plantation activities to continue and maintained 2. Maintenance of buffer zone 3. Agroforestry adopted on additional land suitable for agroforestry
Target	1. 2,000 saplings of common and endangered trees to be planted and ensure at least 65 percent survival rate **(using tree guards)** Sequestration potential: 11,200 tCO_2 to 20,000 tCO_2 in 15-20 years 2. Plantation of suitable tree species[51] near at least 1 sand mining site	1. Additional 3,000 to 4,000 sapling planted, along roads, pathways, along Yamuna river and around water bodies in the GP (using tree guards) Sequestration potential: ~16,800 tCO_2 to ~40,000 tCO_2 in 15-20 years	1. Additional 3,000 to 4,000 saplings planted (using tree guards) Sequestration potential 16,800 tCO_2 to 40,000 tCO_2 in 15-20 years

47 Trees species listed in Annexure VI

48 School students will be engaged in planting trees and Student Leaders will be picked from each class who will motivate their fellows as well as the GP community to plant trees.

49 Suitable species are listed in Annexure VI

50 The grove/green space developed under this activity can be leveraged for raising carbon credits for Benda GP, which can be used as a possible financing tool for sustainable developmental activities

51 Tree species commonly found in ravines in Benda region include Holoptelea Integrifolia (chilbi), Balanites Aegyptiaca, Ziziphus sp. (ber), etc. Source: Indian Council of Agricultural Research. Available at https://krishi.icar.gov.in/jspui/bitstream/123456789/67707/1/2016_4.53_Tree_diverstiy_Indian%20Journal%20of%20Agroforestry.pdf

Target		2. Additional plantation of saplings near one additional mining site 3. Agroforestry adopted in ~51 ha of agricultural land (40 percent of land suitable for agroforestry covered)[52], 5,100 trees planted Sequestration potential of teak plantation: 28,560 tCO_2 to 51,000 tCO_2 in 20 years	2. Agroforestry adopted in addition. ~77 ha of land (100% of suitable land covered), and 7,700 trees planted Sequestration potential= 43,120 tCO_2 to 77,000 tCO_2 in 20 years for teak plantation
Estimated Cost[53]	1. Community-based plantation activities: ₹25,40,000 2. Cost of plantation in the sand mining buffer zone can be financed through CSR resources by leveraging partnerships with mining companies and entities *Total cost: ₹25.4 lakhs*	1. Plantation activities: ₹38,10,000 to ₹50,80,000 2. Agro-forestry activities: ₹20,40,000 3. Maintenance of plantations: ₹1,80,000 *Total cost: ₹60.3 lakhs to ₹73 lakhs*	1. Plantation activities: ₹38,10,000 to ₹50,80,000 2. Agro-forestry activities: ₹30,80,000 3. Maintenance of plantations: ₹1,80,000 *Total cost: ₹70.7 lakhs to ₹83.4 lakhs*

People's Biodiversity Register

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Updating People's Biodiversity Register 2. Build awareness	1. Updating of People's Biodiversity Register continued 2. Strengthen awareness	1. Updating of People's Biodiversity Register continued 2. Strengthen awareness

52 Agricultural land where crops such as yellow lentil, green chickpea, pea, and red lentil is cultivated has been considered for agroforestry, which was around 128 ha.

53 Cost as per HRVCA

Target	1. Formation and capacity enhancement of the Biodiversity Management Committee (BMC) 2. Participatory update of the People's Biodiversity Register	Participatory update of the People's Biodiversity Register continues	Participatory update of the People's Biodiversity Register continues
Estimated Cost	*Formation of BMC and training cost*[54] *: ₹25,000*		

Existing Schemes and Programmes

- Plantation activities can be aligned and carried out through provisions under 'Trees Outside Forests in India' initiative by MoEFCC, Green India Mission, Jal Jeevan Mission and UP State Plantation Targets.
- Annual budgeting under UP State Compensatory Afforestation Fund Management and Planning Authority Fund (State CAMPA fund) can be directed for:
  - » Afforestation, enrichment of biodiversity, improvement of wildlife habitat, and soil and water conservation activities in the GP
- Plantation activities can be aligned with MGNREGS and the local community can also be engaged in providing '*shramdaan*'.
- The Sub-Mission on Agroforestry under the National Mission on Sustainable Agriculture can be leveraged to:
  - » Avail 28,000 per ha of agroforestry plantation
  - » Assistance for plantations can be availed in year-wise proportion of 40:20:20:20 for four years
- Programmes by the National Biodiversity Authority and Uttar Pradesh State Biodiversity Board can be tapped into for training and capacity building of BMCs.

Other Sources of Finance

- Resources allocated to Gram Panchayat under 15th Finance Commission and Own Source Revenue (OSR).
- CSR funds for purchase of saplings, organising plantation drive, erection of tree guards to ensure protection of saplings can be availed.

Key Departments

- Department of Environment, Forest and Climate Change
- State Biodiversity Board
- Panchayati Raj Department
- Department of Rural Development

54 Guidelines for Operationalising Biodiversity Management Committees (BMCs), 2013, National Biodiversity Authority. http://nbaindia.org/uploaded/pdf/Guidelines%20for%20BMC.pdf

4. Sustainable Solid Waste Management and Sanitation

Context and Issues

- The total waste generated[55] from all domestic activities (household, public and semi-public spaces, and commercial areas) in the GP is approximately 662 kg per day. Out of this, ~384 kg biodegradable/organic waste and ~278 kg non-biodegradable waste.
- As per inputs received during field surveys, there is a lack of solid waste management in the GP[56].
- The large quantities of agricultural and animal waste also add to the waste management issues in Benda. At the time of field survey, total livestock population in the GP was 2,200 (including cow, buffalos, and goats) and the estimated dung output is roughly 16 tonnes per day which can be managed substantially through interventions such as composting, vermicomposting, natural fertilisers production and biogas generation in Benda[57].
- The household toilet coverage in the GP is nearly 78%.

Against this backdrop, the following solutions are proposed to ensure 100% solid waste management as well as boost the rural economy and create livelihood opportunities.

55 Refer to Annexure IV for estimation methodology

56 As reported during field surveys

57 Assuming cows produce 10 kg dung/day, buffalos produce 15 kg dung/day, and goats produce 150 g dung/day

Establishing a Waste Management System

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Enhancing community awareness and sensitisation on household level waste segregation 2. Electric vehicle for collection and transportation of waste from households to RRC[58] 3. Installation of waste collection bins at strategic locations (markets, shops, tea stalls, etc.) 4. Setting up partnerships between Panchayat, SHGs, informal ragpickers, local scrap dealers, local businesses, and Micro, Small, and Medium Enterprises (MSMEs)	1. Maintenance of RRC 2. Maintenance of existing waste bins installed and additional installation of bins at new strategic locations, as per requirement. 3. Scaling up partnership beyond GP to other villages/districts	1. Maintenance of RRC 2. Maintenance of existing waste bins installed 3. Scaling up partnership beyond GP to other villages/districts
Target	1. 2 electric vehicles (EV) for daily waste collection 2. 1,610 households (100 percent) covered under GP's waste management system 3. Installation of 60 waste bins at strategic locations such as PRI buildings, public spaces, market, etc.	1. Maintenance of existing facilities and waste management system 2. Installation of additional waste bins as per requirement	1. Maintenance of existing facilities and waste management system 2. Installation of additional waste bins as per requirement

58 It was reported during the field survey that the GP has 1 operation Resource Recovery Center (RRC)

Estimated Cost	1. 2 EV: ₹2,10,000 2. 60 waste bins/ containers: ₹4,00,000 *Total cost: ₹6,10,000*	As per requirement	As per requirement

Management of Organic Waste

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Setting up vermicompost pits for each hamlet 2. Partnership building between Panchayat and relevant stakeholders	1. Setting up of additional compost pits for treatment of biodegradable/organic waste 2. Regular maintenance of vermicompost pits and construction of additional vermicompost pits as per requirement 3. Scaling up partnership beyond GP to other villages/districts	1. Setting up of additional compost pits for treatment of biodegradable/organic waste 2. Regular maintenance of vermicompost pits and construction of additional vermicompost pits as per requirement 3. Scaling up partnership beyond GP to other villages/districts
Target	1. Setting up of 39 vermicomposting pits 2. Partnership model between panchayat, community members and farmer groups for (explained in detail in 'Enhancing Livelihoods and Green Entrepreneurship' section): » Production and sale of compost » Sale of agricultural waste	1. Setting up of additional compost pits for treatment of all (100 percent) of biodegradable/organic waste from households, public/ semi-public facilities, commercial set ups and agriculture 2. Maintenance of compost pits and construction of additional pits as per requirement 3. Scaling up partnership	1. Setting up of additional compost pits for treatment of all (100 percent) of biodegradable/ organic waste from households, public/ semi-public facilities, commercial set ups and agriculture 2. Maintenance compost pits and construction of additional pits as per requirement 3. Scaling up partnership

Estimated Cost	Cost of 39 vermicompost pits: ₹7,80,000 *Total cost: ₹7,80,000*	As per requirement	As per requirement

Ban on Single Use Plastics

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Awareness training and capacity-building programs for: » Village Water and Sanitation Committee (VWSC) » Students & youth groups » Community members & commercial establishments 2. Partnership model between panchayat women and SHGs for manufacturing products from plastic alternative products (explained in detail in 'Enhancing Livelihoods and Green Entrepreneurship' section)	1. Regular awareness training and capacity-building programs 2. Scaling up partnership beyond GP to other villages/districts	1. Regular awareness training and capacity-building programs 2. Scaling up partnership beyond GP to other villages/districts
Target	1. Complete ban on single use plastics (SUPs) 2. 100-120 women to be engaged in manufacturing plastic alternative products (out of the 150 women currently engaged with SHGs)	1. Ban on SUPs upheld 2. Increased engagement from this GP & nearby villages of: » Additional 200 women » Additional SHGs, MSMEs & individual entrepreneurs	1. Ban on SUPs upheld 2. Consumer-wide plastic use diminishes as alternatives are available readily

Enhancing Sanitation Infrastructure

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Construction of disability accessible toilet 2. Maintenance of community toilets 3. Construction of soak pits	1. Regular maintenance of community toilet 2. Construction of additional soak pits 3. Regular maintenance of soak pits	1. Regular maintenance of community toilet 2. Construction of additional soak pits 3. Regular maintenance of soak pits
Target	1. Construction of 1 disability accessible toilet[59] 2. Maintenance of 1 community toilet 3. Construction of 39 soak pits (at least 1 in each hamlet)	1. Maintenance of 1 community toilet 2. Construction of additional soak pits as per requirement 3. Regular maintenance of soak pits	1. Maintenance of 1 community toilet 2. Construction of additional soak pits as per requirement 3. Regular maintenance of soak pits
Estimated Cost	1. Construction of disability-accessible toilet for disabled community: ₹7,00,000 2. Cost of construction 39 soak pits: ₹3,90,000 *Total cost: ₹10.9 lakhs*	As per requirement	As per requirement

59 Refer to HRVCA for location details

Existing Schemes and Programmes

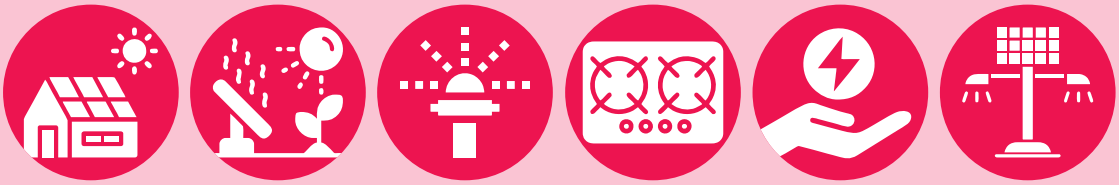
- MGNREGA can be tapped into for the construction of community-based composting facilities, waste collection and segregation pits; segregation and storage shed.
- The development of infrastructure and training and capacity building can be supported by initiatives under the Swachh Bharat (Gramin) Mission.

Other Sources of Finance

- CSR funding and Panchayat-Private-Partnership (PPP) models can help to develop and operate infrastructure like plants, segregation yard, plastic-alternative enterprises, marketing, procurement of e-vehicles for waste transport, etc.
- Further, CSR support will be crucial in increasing awareness, training, and capacity building of all stakeholders involved in the production of alternative products for plastic, composting processes and to promote sustainable consumption behaviour at the individual level.
- GP's own resources, including ties and untied funds, can be utilised to develop the required infrastructure for waste management as per Swachh Bharat Mission – Gramin (SBM-G) guidelines.

Key Departments

- Panchayati Raj Department
- Department of Health and Family Welfare
- Department of Rural Development
- Department of Agriculture
- Uttar Pradesh Khadi and Village Industries Board



5. Access to Clean, Sustainable, Affordable, and Reliable Energy

Context and Issues

- Benda GP consumed approximately 3,41,000 units of electricity in 2022-23. While ~92% of households in the GP have electricity connection, the power supply, as understood from the community members is not 24*7. On average, the GP experience ~7 hours of power cuts every day[60].
- Additionally, there are 185 diesel pumps used for irrigation, which consume nearly 72 kl of fuel annually.
- Incandescent lamps, CFL (compact fluorescent) lights and other electrical fixtures and appliances with low efficiency are in use in many homes and public utilities. Additionally, the GP has expressed a need for 310 solar street lights (10 high mast lights and 300 LED streetlights[61]
- In Benda, nearly 73% households use LPG for cooking, while cowdung and fuelwood is used for cooking in 150 households[62]. Therefore, there is a need to transition to cleaner cooking solutions that will not only lead to a reduction in emissions but also yield co-benefits such as improved indoor air quality.
- With increasing temperature, thermal comfort levels in homes are reducing and there is a need for sustainable space cooling.

Based on the energy related concerns identified of the GP, in combination with the recently launched as well as ongoing programmes of the Central and State Government, such as the PM Surya Ghar Bijli Muft Yojana, PM KUSUM scheme, UP State Solar Policy 2022, among others, the following solutions are proposed for implementation in Benda. The intent of the suggested activities is to ensure access to clean, sustainable, affordable and reliable energy for the communities in the GP. This would not only enhance their quality of life but also help to supplement incomes through productive use of energy.

60 As shared by the community in field survey
61 Based on inputs received from Gram Pradhan
62 As reported during field surveys

Solar Rooftop Installation

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	Solar rooftops to be installed on all government buildings[63]	1. All new construction can be installed with solar PV 2. Solar rooftop capacity installed on 283 (40%) pucca households	1. All new construction can be installed with solar PV 2. Solar rooftop photovoltaic set-up for 435 remaining houses (100% of existing pucca houses)
Target	Solar rooftop capacity installed on: a. Panchayat bhawan (~334 sq. m rooftop area): ~10 kWp b. 8 Primary schools (~116 sq.m rooftop area of each school thus, ~8 kWp for each school): ~80 kWp c. 4 Junior high schools (~162 sq. m. rooftop area of each school thus, ~10 kWp for each school): ~40 kWp d. 7 Anganwadi centres (~33 sq.m rooftop area of each Anganwadi thus, ~2 kWp for each Anganwadi): ~14 kWp e. Health Sub-Centre (~139 sq.m. rooftop area): ~9 kWp Total solar rooftop capacity installed: ~153 kWp Total annual electricity generated: 2,04,898 kWh per year (~561 units per day) GHG emissions avoided: approximately 168 tCO_2e per year	Solar rooftop capacity installed on 283 (~40 percent) of pucca houses[64] Solar rooftop capacity installed: 849 kWp Total annual electricity generated: 11,36,980 kWh per year[65] (~3,115 units per day) GHG emissions avoided[66]: approximately 932 tCO_2e per year	Solar rooftop capacity installed on 435 (~100 percent) of pucca houses Solar rooftop capacity installed: 1,305 kWp Total annual electricity generated: ~17,47,656 kWh per year[67](~4,788 units per day) GHG emissions avoided: approximately 1,433 tCO_2e per year

63 Solar rooftop installation in PRI buildings is capped at 10kWh
64 Average area of households considered to be 130 sq.m; 3 kWp rooftop installation estimated per household
65 This generation is three times higher than the current electricity consumption in the GP
66 The emissions avoided will help move the GP towards carbon neutrality
67 This generation is five times higher than the current electricity consumption in the GP

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Target	*In light of much needed and ambitious targets of the recently launched PM Surya Ghar Yojana, households can also be part of ifthis phase of solar PV installation on rooftops*		
Estimated Cost	*Total cost: ₹76,50,000(₹50,000/kWp)*	*Total cost: ₹4,24,50,000* *Indicative subsidy[68] : ~40 percent (State + CFA)* *Effective cost: ₹2,54,70,000*	*Total cost: ₹6,52,50,000* *Indicative subsidy: ~40 percent (State + CFA)* *Effective cost: ₹3,91,50,000*

Agro-photovoltaic Installations

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	Awareness generation amongst farmers, farmer groups, women's groups, etc.	Agro-photovoltaic installed on area portion of suitable agricultural land (under horticulture and legume crops)	Agro-photovoltaic installed on area portion of suitable agricultural land (under horticulture and legume crops)
Target	Organising awareness campaigns and orientation sessions to encourage uptake of agro-photovoltaic initiatives amongst farmers	Agro-photovoltaic installed on 2 ha Capacity installed: 500 kWp Electricity generated: 6,69,600 kWh per year (~1,835 units per day) GHG emissions avoided: 549 tCO_2e per year	Agro-photovoltaic installed on 2 ha Capacity installed: 500 kWp Electricity generated: 6,69,600 kWh per year (~1,835 units per day) GHG emissions avoided: ~549 tCO_2e per year

68 Subsidies are dynamic and are subject to change as per various parameters fixed by the State and Central government from time to time. Hence, the subsidy amount assumed is based on past trends and averages and may not be exact at prevailing time.

Estimated cost	As per the requirement	*Total cost: ₹5 crores*[69]	*Total cost: ₹5 crores*

Solar Pumps

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	Replacing 37 (20 percent) existing diesel pump sets with solar pumps* **If solar pumps are not feasible then, energy efficient pumps (Kisan Urja Daksh Pumps by EESL) can be considered*	1. Replacing 130 (cumulative 50 percent) of the existing diesel pumps with solar pumps 2. Encouraging purchase/ use of all new pump sets to be solar-powered	1. Replacing 18 remaining diesel pumps (100 percent coverage) 2. Encouraging purchase/ use of all new pump sets to be solar-powered
Target	Capacity installed: 203.5 kW Solar based electricity generated: ~2,72,527 kWh per year (~747 units per day) Diesel consumption avoided: ~7,215 litres/year Emissions avoided: 38.8 tCO_2e per year	Capacity installed: 715 kW Solar based electricity generated: ~9,57,528 kWh per year (~2,623 units per day) Diesel consumption avoided: ~25,350 litres/year Emissions avoided: 136.5 tCO_2e per year	Capacity installed: 99 kW Solar based electricity generated: ~1,32,580 kWh per year (~363 units per day) Diesel consumption avoided: ~3,510 litres/year Emissions avoided: 18.9 tCO_2e per year
Estimated cost	*Total cost: ₹1,11,00,000 to ₹1,85,00,000 (₹3,00,000 to ₹5,00,000/7.5 HP Solar pump)* Indicative subsidy: 60 percent (State +CFA) Effective cost: ₹44.40 lakhs to ₹74 lakhs	*Total cost: ₹3,90,00,000 to ₹6,50,00,000 (₹3,00,000 to ₹5,00,000/7.5 HP Solar pump)* Indicative subsidy: 60 percent (State +CFA) Effective cost: ₹1.56 crores to ₹2.60 crores	*Total cost: ₹54,00,000 to ₹90,00,000 (₹3,00,000 to ₹5,00,000/7.5 HP Solar pump)* Indicative subsidy: 60 percent (State +CFA) Effective cost: ₹21.60 lakhs to ₹36 lakhs

69 The cost of agro PV has been reducing as technology advances. However, a conservative estimate of the cost on the higher side has been taken. Further, it has been assumed that farmers tend to practice crop rotation even for land areas earmarked for horticulture and other similar crops. Hence, only a percentage of the land available under horticulture has been taken into consideration for installation of agro-photovoltaic

Clean Cooking

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	*Scenario 1:* Household Biogas + LPG *Scenario 2:* Solar powered induction cookstoves + LPG *Scenario 3:* Solar powered induction cookstoves + Improved *chulhas* + LPG	*Scenario 1:* Household Biogas + LPG *Scenario 2:* Solar powered induction cookstoves + LPG *Scenario 3:* Solar powered induction cookstoves + Improved *chulhas* + LPG All new household constructions include improved *chulhas*/ solar-powered cookstoves and/or household biogas plants	*Scenario 1:* Household Biogas + LPG *Scenario 2:* Solar powered induction cookstoves + LPG *Scenario 3:* Solar powered induction cookstoves + Improved *chulhas* + LPG All new household constructions include improved *chulhas*/solar-powered cookstoves and/or household biogas plants
Target	*Scenario 1:* 112 households use Biogas plants +1,498 households use LPG *Scenario 2:* 12 households use solar powered induction cookstoves (25 percent of households in the top income groups) + 37 households use improved *Chulha* (25 percent of households that currently use biomass) + 1,561 households use LPG This also includes the continued use of LPG in the GP	*Scenario 1:* 225 households use Biogas plants +1,273 households use LPG *Scenario 2:* 13 more households use solar powered induction cookstoves (Additional 25 percent of households in the top income groups) + 37 more households use improved *chulha* (Additional 25 percent of households that currently use biomass) + 1,511 households use LPG This also includes the use of LPG in the GP in remaining households	*Scenario 1:* 113 households use Biogas plants +1,160 households use LPG *Scenario 2*: 25 more households use Solar powered induction cookstoves (100 percent of households in the top income groups) + 76 households using improved *chulhas* (100 percent of households that currently use biomass) + 1,410 households use LPG This also includes the continued use of LPG in the GP
Estimated Cost	*Scenario 1:* ₹56,00,000 for biogas plants (₹50,000 for 2 to 3 m^3 biogas plant) *Scenario 2:* ₹6,51,000 = ₹5,40,000 for solar induction cook stove + ₹1,11,000 for improved *chulha*	*Scenario 1:* ₹1,12,50,000 for biogas plants (₹50,000 for 2 to 3 m^3 biogas plant) *Scenario 2:* ₹6,96,000 = ₹5,85,000 for solar induction cook stove + ₹1,11,000 for improved *chulha*	*Scenario 1:* ₹56,50,000 for biogas plants (₹50,000 for 2 to 3 m^3 biogas plant) *Scenario 2:* ₹13,53,000 = ₹11,25,000 for solar induction cook stove + ₹2,28,000 for improved *chulha*

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Estimated Cost	*Average cost of scenarios: ₹31,25,500*	*Average cost of scenarios: ₹59,73,000*	*Average cost of scenarios: ₹35,01,500*

Energy Efficient Fixtures

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. All light fixtures and fans to be replaced with energy efficient fixtures in all government/ public/semi-public buildings (Primary Schools, Panchayat Bhawan, Anganwadi, Health Sub-Centre) 2. Replacing light fixtures and fans in households with energy efficient efficient fixtures 3. Residents must also be encouraged to upgrade other household appliances to energy efficient appliances (4-5 star rated by BEE)	1. Replacing light fixtures and fans in households with energy efficient efficient fixtures 2. Residents must also be encouraged to upgrade other household appliances energy efficient appliances (4-5 star rated by BEE)	Replacing light fixtures and fans in households with energy efficient efficient fixtures
Target	1. All tube lights and fans (approximately 42 tube lights and 42 fans) to be replaced in all government buildings 2. Replacing existing tube lights and fans with energy efficient fixtures under following categories:	Replacing existing tube lights and fans with energy efficient fixtures under following categories: Households with area between 1,000 sq.ft. - 2,000 sq. ft.: ~30 tube lights and ~180 energy efficient fans	Replacing existing tube lights and fans with energy efficient fixtures under following categories: Households with area more than 2,000 sq.ft. - 2,000 sq. ft.: ~20 tube lights and ~200 energy efficient fans

Target	» Households with area less than 500 sq.ft.: ~20 LED tube lights and ~70 energy efficient fans » Households with area between 500 sq. ft. - 1,000 sq.ft.: ~150 tube lights and ~1200 energy efficient fans		
Estimated Cost	Cost of 212 LED tube lights: ₹46,640 Cost of 1,312 energy efficient fans: ₹14,56,320 *Total cost: ₹15,02,960*	Cost of 30 LED tube lights: ₹6,600 Cost of 180 energy efficient fans: ₹1,99,800 *Total cost: ₹2,06,400*	Cost of 20 LED tube lights: ₹4,400 Cost of 200 energy efficient fans: ₹2,22,000 *Total cost: ₹2,26,400*

Solar Streetlights

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	Install 155 solar LED streetlights along roads, public spaces and other key locations	Install 155 solar LED streetlights along roads, public spaces and other key locations	Regular maintenance and addition of streetlights as required
Target	1. Installing 5 high-mast solar LED streetlights at key locations (primary schools, Panchayat Bhawan, along road, water bodies, etc.) 2. Installing 150 solar LED streetlights along the roads and pathways	1. Installing 5 high-mast solar LED streetlights at key locations 2. Installing 150 solar LED streetlights along the roads and pathways	Regular maintenance and addition of streetlights as required

Estimated Cost	Cost of high mast streetlights: ₹2,50,000 Cost of LED streetlights: ₹15,00,000 *Total cost: ₹17,50,000*	Cost of high mast streetlights: ₹2,50,000 Cost of LED streetlights: ₹15,00,000 *Total cost: ₹17,50,000*	As per requirement

Existing Schemes and Programmes

- The Uttar Pradesh Solar Energy Policy, 2022[70] provides:
  - » Subsidy on solar installations in residential sector: from ₹15,000/kW to a maximum limit of 30,000/- per consumer over and above the Central Financial Assistance by MNRE.
  - » Provision for solar installations in institutions in RESCO[71] mode by themselves or in consultation with UPNEDA with consultancy fee of 3 percent cost of the plant.
- Central Financial Assistance by MNRE through Grid Connected Solar Rooftop Programme:
  - » CFA up to 40 percent will be given for RTS systems up to 3 kW capacity. For RTS systems of capacity above 3 kW and up to 10 kW, the CFA of 40 percent would be applicable only for the first 3 kW capacity and for capacity above 3 kW (up to 10 kW) the CFA would be limited to 20 percent.
  - » For Group Housing Societies/Residential Welfare Associations (GHS/RWA) CFA will be limited to 20 percent for installation of RTS plant for supply of power to common facilities. The capacity eligible for CFA for GHS/ RWA will be limited to 10 kWp per house and total not more than 500 kWp.
  - » Solar rooftop installations for poor households can be undertaken under the PM-Surya Ghar: Muft Bijli Yojana[72]. The scheme provides a CFA of 60% of system cost for 2 kW systems and 40% of additional system cost for systems between 2 to 3 kW capacity. The CFA will be capped at 3 kW. At current benchmark prices, this will mean Rs 30,000 subsidy for 1 kW system, ₹60,000 for 2 kW systems and ₹78,000 for 3 kW systems or higher.
- PM KUSUM Yojana provides:
  - » Component A of PM KUSUM Yojana, promotes setting up of 500 kW and larger solar power plants on agricultural land.
  - » Under Components B & C of the PM KUSUM scheme, the Centre and State government will provide a subsidy of 30 percent each per pump basis. Farmers will only need to pay an upfront cost of 10 percent and the rest can be paid to the bank in instalments.
- Contribution of U.P. government to PM KUSUM Yojana:
  - » Under Component C-1: Solarisation of installed on-grid pumps with 60 percent subsidy to farmers (70 percent subsidy to the Scheduled Tribe, Vantangia and Musahar caste farmers); this is in addition to subsidy available from central government through MNRE's PM KUSUM Scheme.
  - » Under Component C-2: Solarisation of Segregated Agriculture feeders by State government providing Viability Gap Funding (VGF) of ₹50 lakh per megawatt in addition to subsidy being

70 https://invest.up.gov.in/wp-content/uploads/2023/02/Uttar_Pradesh_Solar_Energy_Policy_2022.pdf

71 Third party (RESCO mode) {Renewable Energy Supply Company}

72 https://pmsuryaghar.gov.in/

provided by Central government through MNRE'S PM KUSUM Scheme.

- LED Street lighting projects in Gram Panchayats[73]:
  - » EESL replaces conventional streetlights with LED streetlights at its own cost and provides free replacement and maintenance of LED bulbs for up to 7 years.
  - » Atal Jyoti Yojana and MNRE Solar Streetlight Programme provide subsidies for installation of solar street lights with 12 Watt LEDs and 3 days battery back-up.
- GRAM UJALA scheme[74]:
  - » LED bulbs available at an affordable price of ₹10 per bulb.
  - » Rural customers will be given 7-watt and 12-watt LED bulbs, with a three-year warranty, in exchange for working incandescent bulbs.
- Subsidies for cold storage set ups:
  - » Government assistance in the form of credit linked back ended subsidy of 35 percent of the project cost is available through 2 schemes
    - » Department of Agriculture Cooperation and Farmers Welfare (DAC&FW) is implementing Mission for Integrated Development of Horticulture (MIDH)
    - » National Horticulture Board (NHB) is implementing a scheme namely "Capital Investment Subsidy for Construction/Expansion/Modernisation of Cold Storages and Storages for Horticulture Products
  - » Under the Pradhan Mantri Kisan Sampada Yojana, the component on Integrated Cold Chain, Value Addition and Preservation Infrastructure provides financial assistance in the form of grant-in-aid at the rate of 35 percent can be obtained for creation of infrastructure facility along the entire supply chain[75] for facilitating distribution of non-horticulture, horticulture, dairy, meat and poultry. The scheme allows flexibility in project planning with special emphasis on creation of cold chain infrastructure at farm level.
- EESL plans to initiate market-based interventions for Solar based Induction cooking solutions by leveraging Carbon financing.
- Leveraging funds through the 15th Finance Commission and schemes like GOBARDHAN (Galvanising Organic Bio-Agro Resources Dhan) scheme under Swachh Bharat Mission - Gramin (SBM-G).
  - » The GOBARDHAN scheme under SBM-G provides financial assistance up to ₹50.00 lakh per district for the period of 2020-21 to 2024-25 for setting up of cluster/community level biogas plants[76].
- UP Bio-Energy Policy 2022[77] provides incentives for setting up CBG plants in addition to incentives available from Govt. of India under the GOBARDHAN scheme:
  - » The incentive of ₹75 lakh/tonne to the maximum of ₹20 Crore on setting up Compressed Biogas (CBG) Production Plant
  - » Exemption on development charges levied by development authorities
  - » Exemption of 100 percent Stamp duty and Electricity duty
- MNRE implemented the Waste to Energy (WTE) Programme under the umbrella of the National Bio-energy Programme:
  - » The programme supports the setting up of plants for the generation of Biogas from urban,

73 Street Lighting National Programme by EESL. https://eeslindia.org/en/ourslnp/

74 Gram Ujala scheme distributes One Crore LED bulbs in rural areas (Feb 2023), PIB

75 viz. pre-cooling, weighing, sorting, grading, waxing facilities at farm level, multi product/multi temperature cold storage, CA storage, packing facility, IQF, blast freezing in the distribution hub and reefer vans, mobile cooling units

76 https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1883926

77 https://invest.up.gov.in/bio-energy-enterprises-promotion-programme-2022/

industrial, and agricultural waste.

» Financial assistance available for Biogas generation is ₹0.25 Crore per 12000 m^3/day[78].

Other Sources of Finance

- Explore tie ups with local banks, microfinance institutions and cooperative banks for loans to procure solar rooftop, solar pumps, etc.
- Explore partnerships with solar developers for agro-photovoltaics.
- CSR funds can be utilised:
  - » To cover the capital cost for installation of solar rooftops / Agro-Photovoltaics /solar pumps over and above the scheme/programme subsidy through a revolving fund model similar to those given by micro-finance institutions.
  - » Provide 'Operation and Maintenance' training to village community members/ SHGs members for the various clean technologies adopted in the GP.
  - » Organise awareness campaigns on existing government schemes/ programmes that promote rooftop solar (UP Solar Policy, 2022) and solar irrigation (PM-KUSUM, UP Solar Irrigation Scheme).

Key Departments

- Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA)
- Uttar Pradesh Power Corporation Limited (UPPCL)
- Dakshinanchal Vidyut Vitran Nigam Limited
- Panchayati Raj Department
- Rural Development Department
- Department of Agriculture
- Education Department

78 https://pib.gov.in/PressReleasePage.aspx?PRID=1896067

6. Sustainable and Enhanced Mobility

Context and Issues

- Benda has a total of 543 internal combustion engine (ICE) vehicles, including 450 two-wheelers, 30 cars, 10 jeeps, 3 autos, and 50 tractors[79].
- Additionally, there are also 8 e-rickshaws in the GP.
- The total fuel consumption of these ICE vehicles is ~100 kilolitres (kL) of diesel, and ~102 kL of petrol per annum. Overall, the fuel consumed in the transport sector has led to over 511 tCO_2e emissions[80].

Therefore, there is significant scope for improving transport infrastructure and initiating a transition to e-mobility solutions.

Enhancing Existing Road Infrastructure

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	Road construction work (RCC & interlocking) to enhance road connectivity	Regular maintenance of road infrastructure and repairs when necessary	Regular maintenance of road infrastructure and repairs when necessary
Target	Road construction at 4 locations[81]	Maintenance of existing road infrastructure	Maintenance of existing road infrastructure

79 As per inputs received during field surveys
80 Based on inputs received from community during field surveys
81 Refer to HRVCA for location details

Estimated Cost	Road construction cost: ₹24,00,000 *Total cost: ₹24 lakhs*	As per requirement	As per requirement

E-vehicles and E-tractors

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Promote electric alternatives of diesel tractors and goods transport vehicles 2. Sensitising user groups (farmers/ logistic owners/ entrepreneurs) towards long term benefits of e-vehicles over ICE vehicles 3. Establishing facility to hire e-tractors and e-goods vehicles	Continue the sensitisation activities for various user groups towards long term benefits of e-vehicles over ICE vehicles as well as the schemes and programmes available for their benefit	Continue the sensitisation activities for various user groups towards long term benefits of e-vehicles over ICE vehicles as well as the schemes and programmes available for their benefit
Target	Total 5 e-tractors and 5 e-goods carriers purchased	Additional e-vehicles and e-tractors procured if required	Additional e-vehicles and e-tractors procured if required
Estimated Cost	Total cost of 5 e-tractors: ~₹30,00,000 Total cost of 5 e-commercial vehicles: ₹25,00,00 – 50,00,000 *Total cost: ₹55 lakhs – ₹80 lakhs*	As per requirement	As per requirement

Enhancing Intermediate Public Transport

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	Replacing autorickshaws in the GP with e-autorickshaws	Introducing more e-auto rickshaws and e-rickshaws to improve last mile connectivity	More e-auto rickshaws and e-rickshaws can be procured based on demand
Target	Replacing 3 auto-rickshaws with 3 e-autorickshaws	Additional e-autorickshaws and e-rickshaw procured if required	Additional e-auto rickshaws and e-rickshaw procured if required
Estimated Cost	Cost of one e-auto rickshaws[82]: around ₹3,00,000 Available subsidy: Up to ₹12,000 per vehicle Effective cost of 3 e-autorickshaws: ₹8,64,000 GHG emissions avoided: 4.5 tCO_2e[83]	As per requirement	As per requirement

82 The cost of e-auto rickshaws ranges from a band of Rs. 1,50,000 - Rs. 4,00,000 and more, depending on the configurations, battery type, amongst others. Additionally, price of e-rickshaws Rs. 50,000 - Rs. 1,50,000. Price of e-auto rickshaws is assumed to be at the middle of the price band primarily factoring in possible subsidies/grants/seed capital/viability gap funding from philanthropies and other funding agencies

83 GHG emissions avoided per auto are estimated to be 1.50 tCO_2e per auto based on inputs from the community. Replacing diesel auto rickshaws with e-auto rickshaws will reduce this emission and contribute towards the GP becoming carbon neutral or even carbon positive.

Existing Schemes and Programmes

- Road infrastructure can be repaired and enhanced with support from Pradhan Mantri Gram Sadak Yojana and MGNREGS.
- UP Electric Vehicle Manufacturing and Mobility Policy, 2022 provides:
  - » 100 percent registration fee and Road Tax exemption to buyers (during the Policy period)
  - » Purchase Subsidy as early bird incentives[84] to buyers (one time) through dealers over a period of 1 year – E-goods Carriers: @10 percent of ex-factory cost up to ₹1,00,000 per vehicle; 2-Wheeler EV: @15 percent of ex-factory cost up to ₹5,000 per vehicle; 3-Wheeler EV: @15 percent of ex-factory cost up to ₹12,000 per vehicle.
- Subsidies for e-rickshaws can also be availed under the Faster Adoption and Manufacturing of Electric Vehicles in India Phase II (FAME II) Scheme.

Other Sources of Finance

- GP's resource envelope and OSR.
- Loans from banks and micro-finance institutions in tandem with CSR support.

Key Departments

- Infrastructure and Industrial Development Department
- Transport Department
- Panchayati Raj Department
- Department of Rural Development
- Uttar Pradesh New & Renewable Energy Development Agency (UPNEDA)

84 Subsidies provided by the government are subject to periodic changes both in terms of the quantum and number of beneficiaries. Hence, subsidies mentioned in any section of this plan are only indicative, and need to be confirmed at the time of procurement.

7. Enhancing Livelihoods and Green Entrepreneurship

Agriculture and animal husbandry are the mainstay of the GP and nearly 81 percent of the households are engaged in these activities. Both the sectors are fraught with livelihood insecurities, particularly due to the changing climate and the current unsustainable production practices. Thus, the livelihoods of a large fraction of the population are uncertain. Other key sources of income in the GP are animal husbandry and running local businesses/shops. In the past 5 years nearly 28 individuals have migrated out of the GP in search for better livelihood. This is a trend seen in most rural areas.

Presently, there are limited opportunities for jobs within the GP, beyond the activities mentioned. The recommendations mentioned in this action plan provide multiple avenues for new businesses and job opportunities in the coming years These are detailed in the following table:

Engage already Existing SHGs in Manufacture of Sustainable Products

Suggested Climate Smart Activities

1. Engaging women and SHGs for manufacturing products from plastic-alternative materials (bags, home décor, cutlery, stationery items, furniture, etc.)
2. Capacity building for:
   - » Diversification of product range
   - » Marketing/selling of the products within & outside the GP

Target

Initial engagement of:

- » 100 women
- » 8 SHGs (currently involved in tailoring, poultry, community toilet maintenance activities)
- » Utilize locally available raw materials

Long-term engagement from this GP & nearby villages:

- » Additional 200 women
- » Additional SHGs, MSMEs & individual entrepreneurs

Composting & Selling of Organic Waste as Fertiliser

Suggested Climate Smart Activities

1. Partnership model between panchayat, community members, and farmer groups for the production & sale of compost
2. Capacity building of community members and farmer groups
   - » Composting & vermicomposting techniques
   - » Marketing & selling compost within & outside the GP

Target

Immediate target:

Compost/vermicompost generated from domestic waste (organic): 384 kg per day; 11,520 kg per month (as per current waste generation)

Long-term target:

Scaling up compost generation as per organic waste generation (based on population growth)

Establishment of a Dairy Processing Unit[85] [86]

Suggested Climate Smart Activities

1. Formation of Milk Cooperative/FPO by including members of SHGs, animal husbandry practising households and farmers
2. Training on clean milk and breed improvement to milk producers
3. Training for Milk Cooperative/FPOs, on technical, finance aspects of dairy, diversification of products, etc.
4. Procurement and setting up of a milk-processing unit with a chilling plant
5. Market linkage of the products within and outside the GP

Target

Immediate target:

- » Engagement of farmers,
- » Involving 19 SHGs
- » Organising training and demonstration session on dairy operation for women and farmers
- » Integration of production, procurement, processing and marketing of milk and milk products

Long-term target:

- » Enhancing market linkage and distribution network
- » Expansion of Milk Cooperative/FPO operation by covering nearby blocks/districts

85 UP Dairy Development Policy, 2022 https://invest.up.gov.in/uttar-pradesh-dairy-farm-development-and-dairy-products-promotion-policy-2022/

86 Dairy processing & Infrastructure Development Fund (DIDF) under National Bank for Agriculture and Rural Development (NABARD) https://dahd.nic.in/schemes/programmes/didf

Facility to Hire E-goods Carriers and E-tractors

Suggested Climate Smart Activities

1. Commercial hiring (rental basis) of e-goods carriers & e-tractors presents green entrepreneurship opportunities through incentives under U.P. EV Policy 2022 and FAME-India Scheme phase-II
2. Sensitising user groups (farmers/logistic owners) towards use of e-tractors & e-goods carriers

Target

Immediate target:

» 2 or 3 e-tractors (Estimated cost: ₹6 lakh per e-tractor)

» 2 or 3 EV mini goods transport trucks (Estimated cost of mini goods EV transport truck: approximately ₹9.2 lakhs)

Mid-term target:

Additional procurement of 2 to 3 e-tractors, 2 to 3 EV mini goods transport trucks

(Note: It is assumed that a 35 HP e-tractor is typically required in Benda that costs around ₹6 lakhs)

Improving Livelihoods through Use of Solar Powered Cold Storage

Suggested Climate Smart Activities

1. Entrepreneurship opportunities through renting out of solar-powered cold storage space to smaller and medium farmers (within the GP & nearby villages) to minimise post-harvest losses
2. Business model/tie-up between entrepreneurs, farmer groups, cooperatives (like PARAS) and other institutional buyers for storage of fruits, vegetables, milk and milk products

Target

Setting up of cold storage with 5 to 10 MT capacity (tonnes based on production of vegetables and fruits/ and/or milk products)

(~1,000 litre/day milk output)

(~40 ha gross cropped area under vegetable cultivation)

Cost: approx. ₹8,00,000 to ₹15,00,000

O&M of Various RE Installations (Solar and Biogas)

Suggested Climate Smart Activities

1. Training and capacity building of community members especially graduates, youth groups and farmer groups for skill development in RE maintenance.
2. Support from CSR, upskilling schemes of central and state government in establishing Solar and Bio-gas installation and O&M businesses within the GP

Financing & Skill Development

- Sensitising banking & financial institutions to support green entrepreneurship & livelihoods (through various credit schemes, partnership/revenue models); government loan schemes such as Mudra Loan, Stree Shakti Yojana, etc. can support women entrepreneurs.
- Necessary skill development provided through supporting government schemes and programmes like: Make in India, Entrepreneur Development Programme run by Department of Science and Technology (DST), National Skill Development Missions and Atal Innovation Mission.

6 List of Additional Projects for Consideration

Given below is a list of possible projects for additional consideration for implementation at the GP level by respective Panchayats. These projects have been successfully implemented in various parts of India and in geographies that may have a lot of similarities with Uttar Pradesh. The reason for not including them in the main recommendation is that these projects do not fall or come under the ambit of any ongoing schemes or programmes of the Government of Uttar Pradesh or through Centrally Sponsored Schemes. Hence, the implementation of these projects would have to be done through alternate financing options such as self-financing, CSR, or other such sources.

If implemented, these projects could have the potential to further strengthen the adaptive capacities of communities and may also result in livelihood enhancements.

1. Solar-powered Cold Storage Unit (FPO/SHG/ Individual Farmers)

- A solar-powered cold storage unit to enhance post-harvest efficiency and reduction in loss.
- It helps farmers avoid distress sales and improves farmers' income.

This activity will strengthen initiatives discussed in the "Enhancing Livelihood and Entrepreneurship" section

Case Example/Best Practice[87,88,89]:

- Kattangur Farmers Producers Company Ltd in Hyderabad, Telangana
- Ghummar Farmer Producer Organisation (FPO) is based at village Nana of Bali tehsil of Pali district of Rajasthan

2. Solar Passive Design and Passive Cooling

For new construction and retrofitting (wherever possible): Promoting sustainable design and vernacular (local/traditional) materials in public and administrative buildings along with scaling up to residential houses to reduce energy demand and increase energy efficiency:

- Building orientation as per solar geometry
- Allow efficient movement of natural air
- Wind tower coupled with solar chimney
- Allow natural lighting through light vaults (minimizing conventional light load)
- Energy conservation activities0
- Water bodies and designed landscape (plantation/horticulture)

This activity will strengthen initiatives discussed in the "Access to Clean, Sustainable, Affordable and Reliable Energy" section

87 https://selcofoundation.org/wp-content/uploads/2023/08/Compendium_Updated_20230922.pdf
88 https://www.opportunityindia.com/article/empowering-women-fpo-through-solar-power-ghummar-fpo-34521
89 https://www.ecozensolutions.com/ecofrost/fpos-leverage-agri-infra-funds-for-ecofrost.html

Case Example/Best Practice:

The Rajkumari Ratnavati Girl's School[90], rural Thar desert, Rajasthan: for more than 400 girls that live below the poverty line.

- Building orientation to maximize thermal comfort
- Solar panel installations to run lighting and fans
- Solar panel canopy and Jallis/screens keep the heat out
- The elliptical shape of the canopy creates cooling (airflow)
- Building walls allow air penetration and keep the sun/sand out
- Use of local/vernacular material for construction

Solar Passive Complex, Punjab Energy Development Agency (PEDA), Chandigarh[91]

- 25 kWp building integrated solar power plant
- Orientation as per solar geometry
- Building envelope (design+material) to provide thermal comfort (e.g., Cavity walls, insulated roofing)
- Conditioned air and light by controlling solar access (e.g., Light vaults, Wind Tower coupled with Solar Chimneys)
- Small ponds and plantations (trees, shrubs, and grass) for cooling and air purification

3. Solar-powered RO Water Filtration System/Water ATM Kiosk (Community-based)

Solar-based RO water purification systems offer a sustainable and cost-effective solution by utilizing solar energy. It ensures a safe drinking water supply to the community while promoting the reuse of water. This initiative can be beneficial for Gram Panchayat facing issues with the quality of drinking water.

Case Example/Best Practice:

Hiwra lahe village, District - Washim, State- Maharashtra[92]

- Installing solar-powered RO water filtration system with CSR support
- Improvement in the socio-economic status of the community
- Enabling Village Water and Sanitation Committee for the operation and management of the system
- Similar initiatives have been implemented in the states of Gujarat, Telangana, Rajasthan, etc.

4. Solar-powered Cattle Sheds

Cattle sheds are an adap tive measure for livestock to protect them from heat and cold waves; this initiative can be supplemented to enable climate change mitigation by deploying solar power installations over the cattle shed roofs. This can power lighting, reduce energy demand (passive cooling and ventilation), support fodder preparations, and any other operations in the sheds. Excess power can

90 https://www.avontuura.com/rajkumari-ratnavati-girls-school-diana-kellogg-architects/

91 https://peda.gov.in/solar-passive-complex

92 https://yraindia.org/wp-content/uploads/2019/12/RO-plant-Success-story-in-Village-Hiwara-HDB-project.pdf

be fed into the grid thereby generating additional income for farmers.

Cattle sheds will also help in waste management through biogas generation and fertilizer preparation from animal waste (dung). Cattle sheds will also help in reducing the transmission of communicable diseases in livestock by providing proper segregated and secure spaces.

This activity can strengthen the Sustainable Livestock Management suggestions in the "Sustainable Agriculture" section of the recommendations.

Case Example/Best Practice

Districts: Ludhiana, Bathinda & Tarn Taran, Punjab[93,94]

- The project is being implemented in 3 districts targeting 3000 Households of small & marginal farmers having landholdings of 1-2 ha and 5-15 dairy animals.
- Climate proofing of cattle sheds and promoting sustainable livelihoods of small and marginal livestock farmers

Nirmal Gujarat Campaign[95]

- The animal hostels in Himmatnagar, Gujarat help to keep the villages clean.
- Such shelters collect dung to generate biogas and vermicompost for villagers. Further, vermicompost can be sold to raise funds for village welfare.

Additionally, there is a "Cattle Shed Subsidy Scheme under Scheduled Castes Sub Plan (SCSP)[96]" which is implemented by the Directorate of Animal Husbandry, Agriculture, Farmers Welfare and Co-operation Department, Government of Gujarat. Under this scheme, financial assistance (either 30,000/- or 50% of the cost of the cattle shed, whichever is less) is given to Scheduled Caste beneficiaries for the construction of a Cattle Shed for 2 animals.

5. Cool Roofs

Painting the roofs of households, and public and government buildings with solar-reflective paint

Case Example/Best Practice:

Slum households in Jodhpur, Bhopal, Surat, and Ahmedabad[97]

- Local community workers trained the households to paint their own cool roof
- Demonstration outreach: more than 460 roofs
- Indoor temperatures lower by 2 - 5°C compared to traditional roofs

This activity links to the section "Access to Clean, Sustainable, Affordable, and Reliable Energy."

93 https://pscst.punjab.gov.in/en/climate-resilient-livestock-production-system
94 https://moef.gov.in/wp-content/uploads/2017/08/Punjab.pdf
95 https://jayshaktiengg.com/gujarat-government-launches-solar-scheme-for-farmers/
96 https://www.myscheme.gov.in/schemes/csssscspscc
97 https://www.nrdc.org/bio/anjali-jaiswal/cool-roofs-community-led-initiatives-four-indian-cities

6. Reduction of Methane Emissions from Cattle through the Use of Feed Supplements

The Indian Council of Agricultural Research(ICAR) -National Institute of Animal Nutrition and Physiology has developed feed supplements (Harit Dhara and Tamarin Plus) to help reduce methane emissions from livestock.

This activity links to the section on "Sustainable Agriculture"

- The usage of these supplements can potentially lead to the reduction of enteric methane emissions upto 17-20%[98] when incorporated with feedstock.
- These feed supplements as reported by the ICAR cost `6 per kg

7. Solar-powered Vertical Fodder Grow Units (Household Level/Community Level)

A solar-powered, microclimate-controlled, vertical fodder grow unit enables users to harvest fresh fodder daily with less than a bucket of water. Such units will ensure the availability of fodder for livestock even in the event of droughts.

This activity links to the section on "Sustainable Agriculture"

Case Example/Best Practice:

In the states of Andhra Pradesh, Rajasthan, Karnataka, and Bihar[99]

- Adoption of fodder grow units results in increased availability of green fodder for livestock
- It leads to an increase in farmers' income

8. Panchayat Level Water Budgeting

Water management and 'Water budgeting' for climate-compatible agriculture-based livelihoods

- Calculation of annual/quarterly Water Budget
- Compute "Water Deficit" and "Water Surplus" at the village level
- Annual crop production planning based on water availability
- Water audit to account for any wastage

This activity links/adds to the initiatives Sustainable Agriculture and Water Resource Management sections of the Action Plan. This initiative supports multiple interventions like crop selection/planning, farm ponds, improved irrigation methods, water recharge, etc.

98 As reported by Indian Council for Agriculture (https://testicar.icar.gov.in/content/icar-nianp-commercializes-anti-methanogenic-feed-supplement-%E2%80%9Charit-dhara%E2%80%9D)

99 https://india.mongabay.com/2024/04/amid-fodder-crisis-hydroponics-offers-new-hope-for-indian-farmers/

Case Example/Best Practice:

7 Gram Panchayats (GP) and the neighboring hamlets, Rangareddy and Nagaurkurnool districts, Telangana[100]

- Current status of water consumption, measures to optimize consumption
- Planning for each agriculture season i.e., Kharif (monsoon), Rabi (winter), and Zaid (summer)

9. Enabling Rural Women Entrepreneurs in Climate Impact Sectors

Creating a women-led grassroots entrepreneurship support ecosystem in villages:

- Women sell clean/green technology-based products
- Women educate communities on the importance of clean-technologies e.g., clean cooking (solar cookstoves), portable Solar water purifiers, energy-efficient light fixtures, etc.
- Providing business expansion loans to women
- Facilitating rural marketing and distribution linkages

Vocational skills development, Training, and capacity building to enable rural women into the entrepreneurship ecosystem.

This initiative intends to strengthen women's role and engagement in clean energy technologies and climate impact sectors. It links to and adds to the Enhancing Livelihoods and Green Entrepreneurship section of the Action Plan.

Case Example/Best Practice

14 districts across 4 states (Maharashtra, Bihar, Gujarat and Tamil Nadu)[101]

Swayam Shishan Prayog (SSP) enabling women as clean energy entrepreneurs and climate change leaders in their rural communities:

- Enabled more than 60,000 rural women entrepreneurs in clean energy, sustainable agriculture, health and nutrition, and safe water and sanitation
- More than 1,000 women entrepreneurs trained in clean-energy technologies and started businesses

10. Community Seed Banks

- Community seed banks will promote crop diversification and sustainability in the region while mainstreaming local seed systems, and climate resilience.
- Such seed banks will encourage farmers to grow drought-tolerant and climate-resilient varieties of crops.
- Ensure safety nets for farmers, especially during unfavorable weather conditions and food shortages.

100 https://wotr.org/2018/03/31/water-budgeting-in-telangana-the-need-and-the-objective-of-the-campaign/

101 https://unfccc.int/climate-action/momentum-for-change/women-for-results/rural-community-leaders-combatting-climate-change

Case Example/Best Practice:

Community Seed Bank, Dangdhora, Jorhat, Assam (UNEP-GEF project)[102]

- Seed bank-associated farmers are trained to harvest, treat, store, and multiply seeds that are of better quality than those available in the local market.
- Seed bank initiatives in the region forward participatory crop improvement and knowledge-sharing strategies.
- Farmers and smallholders are provided with cheaper and easier access to quality seeds; bridging farmers and markets together.
- These seed systems and value chains safeguard both sustainability and food security.

11. Setting up Bio-Resource Centre (BRC)

Bio-inputs Resources Centres (BRCs) prepare and supply bio-inputs to facilitate the adoption of natural farming without individual farmers having to prepare them on their own, as preparation of bio-inputs is a time-consuming and labor-intensive activity.

- The locally prepared products/formulations utilizing biological entities or biologically derived inputs useful for improving soil health, crop growth, pest, or disease management are made available for purchase by farmers.
- BRC serves as a single-stop shop for all bio input needs of farmers in the area.

Case Example/Best Practice:

In the state of Andhra Pradesh[103]

- Contributes to sustainable climate-friendly agriculture
- Helps farmers adapt to climate change because high soil organic matter content makes soils more resilient to floods, droughts, and land degradation processes
- Minimizes risk as a result of stable agro-ecosystems and yields, and lowers production costs

102 https://alliancebioversityciat.org/stories/community-seed-banks-empower-farmers-address-climate-risk-india
103 https://www.apmas.org/pdf/csv/casestudy-1.pdf

7 Linkages to Adaptation, Co-Benefits & Sustainable Development Goals

Management and Rejuvenation of Water Bodies

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed[104]
a) Rejuvenation and conservation of water bodies 	▪ Nature-based Solutions (NbS) enhances coping ability from water scarcity and water stress ▪ Improved groundwater recharge ▪ Enhanced water quality ▪ Increased resilience to disasters like droughts, heatwaves, etc. ▪ Improved agricultural and livestock productivity ▪ Boost local biodiversity	**SDG 6: Clean Water and Sanitation** ▪ Target 6.1 ▪ Target 6.4 ▪ Target 6.5 **SDG 11: Sustainable Cities and Communities** ▪ Target 11.4 **SDG 12: Ensure Sustainable Consumption and Production Patterns** ▪ Target 12.2 **SDG 13: Climate Action** ▪ Target 13.1 ▪ Target 13.2 **SDG 15: Life on Land** ▪ Target 15.1 ▪ Target 15.5 
b) Enhancing drainage infrastructure 		
c) Rainwater harvesting (RwH) practices 		

104 Detail list of relevant SDG and respective targets in Annexure V

Sustainable Agriculture

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed
a) Drought Management for Agriculture 	▪ Food security through Eco-DRR[105] approach to increase resilience of crops from droughts, heat impacts, pests, etc. ▪ Increased agricultural productivity and profit ▪ Improved soil health ▪ Improved water quality due to reduced use of chemical inputs ▪ Improved agricultural water security ▪ Reduced losses and increased productivity of livestock during cold waves and heat waves ▪ Improved air quality and reduced emissions	**SDG 2: Zero Hunger** ▪ Target 2.3 ▪ Target 2.4 ▪ Target 2.a; Article 10.3.e **SDG 6: Clean Water and Sanitation** ▪ Target 6.4 ▪ Target 13.1 **SDG 12: Ensure Sustainable Consumption and Production Patterns** ▪ Target 12.2 **SDG 13: Climate Action** ▪ Target 13.2 ▪ Target 13.3
b) Transition to Natural Farming 		
c) Solar-powered farm fencing 		
d) Revival of barren and uncultivable land 		
e) Sustainable livestock management 		

105 Eco-Disaster Risk Reduction

Enhancing Green Spaces and Biodiversity

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed
a. Improving green cover	▪ Natural buffer from climate events/ disasters ▪ Regulating the micro-climate will aid in adaptation from heatwaves and heat stress ▪ Health benefits from access to medicinal plants ▪ Nature-based Solutions (NbS) for improved soil stability, water conservation and corresponding agricultural benefits ▪ Improved livestock productivity ▪ Revenue generation from agroforestry, production of natural medicines, etc. ▪ Improved environment and habitat for biodiversity, enhancing ecosystem health	**SDG 11: Sustainable Cities and Communities** ▪ Target 11.7 ▪ Target 11.4 **SDG 12: Ensure Sustainable Consumption and Production Patterns** ▪ Target 12.2 **SDG 13: Climate Action** ▪ Target 13.1 ▪ Target 13.2 ▪ Target 13.3 **SDG 15: Life on Land** ▪ Target 15.1 ▪ Target 15.2 ▪ Target 15.3 ▪ Target 15.5 ▪ Target 15.9
b. People's Biodiversity Register		

Sustainable Solid Waste Management and Sanitation

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed
a. Establishing a waste management system 	▪ Reduced waterlogging ▪ Reduction in water and land pollution/improved sanitation ▪ Good health and a relatively disease-free environment due to 100 percent waste management and reduction in occurrence of public health risks and epidemics ▪ Livelihood and income generation ▪ Revenue and profit generation ▪ Enhanced inputs for sustainable agriculture	**SDG 3: Good Health and Well being** ▪ Target 3.3 ▪ Target 3.9 **SDG 6: Clean Water and Sanitation** ▪ Target 6.3 ▪ Target 6.8 **SDG 8: Decent Work and Economic Growth** ▪ Target 8.3 **SDG 9: Industries, Innovation and Infrastructure** ▪ Target 9.1 **SDG 12: Ensure Sustainable Consumption and Production Patterns** ▪ Target 12.4 ▪ Target 12.5 ▪ Target 12.8 **SDG 13: Climate Action** ▪ Target 13.1 ▪ Target 13.2 ▪ Target 13.3 **SDG 15: Life on Land** ▪ Target 15.1
b. Management of organic waste 		
c. Ban on single use plastics 		
d. Enhancing sanitation infrastructure 		

Access to Clean, Sustainable, Affordable and Reliable Energy

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed
a. Solar rooftop installation 	▪ Energy security ▪ Thermal comfort ▪ Enhanced livelihood options ▪ Additional revenue generation ▪ Provides relief from high temperatures/ sun exposure, thus resulting in yield stability and boost in productivity ▪ Decline in toxic emissions/local air pollution ▪ Economic benefits after pay-back period ▪ Reduction in indoor air pollution ▪ Improvement of health, especially of women ▪ Eliminates drudgery/ physical labour of fuelwood collection ▪ Enhanced ability to cope with grid failures during disasters	**SDG 6: Clean Water and Sanitation** ▪ Target 6.4 **SDG 7: Affordable & Clean Energy** ▪ Target 7.1 ▪ Target 7.2 ▪ Target 7.3 ▪ Target 7.a ▪ Target 7.b **SDG 9: Industries, Innovation and Infrastructure** ▪ Target 9.1 **SDG 13: Climate Action** ▪ Target 13.2 ▪ Target 13.3
b. Agro-photovoltaic installation 		
c. Solar pumps 		
d. Clean cooking 		
e. Energy efficiency Fixtures 		
f. Solar street lights 		

Sustainable and Enhanced Mobility

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed
a. Enhancing Existing Road Infrastructure 	▪ Decline in local air pollution leading improved human and ecosystem health ▪ Improved accessibility for at-risk and vulnerable people ▪ Additional revenue generation ▪ Enhanced last-mile connectivity of goods and services ▪ Improved resilience through strengthening road infrastructure with co-benefits like reduced waterlogging	**SDG 7: Affordable & Clean Energy** ▪ Target 7.2 **SDG 11: Sustainable Cities and Communities** ▪ Target 11.2 **SDG 9: Industries, Innovation and Infrastructure** ▪ Target 9.1 **SDG 13: Climate Action** ▪ Target 13.2 ▪ Target 13.3
b. E-vehicles and e-tractors 		
c. Enhancing Intermediate Public Transport (IPT) 		

Enhancing Livelihoods and Green Entrepreneurship

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed
a. Engage Already Existing SHGs in Manufacturing of Sustainable Products 	▪ Enhanced livelihood options through locally sourced raw material ▪ Reduction in water and land pollution ▪ Enhanced inputs for sustainable agriculture ▪ Good health and a relatively disease-free environment due to 100% waste management and reduction in occurrence of public health risks and epidemics ▪ Health benefits from access to medicinal plants ▪ Revenue generation from agroforestry, production of natural medicines, etc. ▪ Improved environment and habitat for biodiversity, enhancing ecosystem health ▪ Decline in local air pollution leading improved human and ecosystem health ▪ Enhanced last-mile connectivity of goods and services	**SDG 5: Achieve Gender Equality and Empower All Women and Girls** ▪ Target 5.5 **SDG 8: Decent Work and Economic Growth** ▪ Target 8.3 **SDG 12: Ensure Sustainable Consumption and Production Patterns** ▪ Target 12.2 ▪ Target 12.4 ▪ Target 12.5 ▪ Target 12.8 **SDG 13: Climate Action** ▪ Target 13.1 ▪ Target 13.2 ▪ Target 13.3 
b. Composting & Selling of Organic Waste as Fertiliser 		
c. Establishing dairy processing unit 		
d. Facility to hire e-goods carriers and e-tractors 		
e. Improving livelihoods through use of solar powered cold storage 		
f. O&M of various RE installations (solar and biogas) 		

8 Way Forward

The proposed recommendations on implementation will help to not only reduce Greenhouse Gas (GHG) emissions of Benda but also to achieve energy, food and water security, thereby, making the Gram Panchayat climate smart, resilient and sustainable. It will foster a holistic and sustainable development of the GP to meet the aspirations of its residents. Additionally, these recommendations would improve quality of life while promoting a harmonious coexistence with nature. This Climate Smart Action Plan for Benda will make it '*Aatma Nirbhar*' through various aspects like, reduction of expenditure on energy, farming inputs, water, etc. and will open new avenues for economic development.

Further, with the implementation of proposed interventions, Benda would also contribute to the state's vision and targets on climate action as envisaged in the UP State Action Plan on Climate Change II, 2022, which in turn, would add to the country's endeavours to address climate change meeting the contributions listed in the NDC, 2015 and its updated version, 2022 and also meet the Sustainable Development Goals by 2030.

Addressing climate issues requires tailor-made solutions at the local level, which can only be successful with the availability of adequate climate finance and other means of implementation. This can be achieved by integrating the climate action both mitigation and adaptation into ongoing activities as envisaged in the Gram Panchayat development Plan supported under Central and State Schemes and mobilising additional financial resources. This would entail enhanced collaboration and cooperation between all relevant stakeholders: community, government administration, elected representatives and private sector. Post implementation of the Action Plan, continued action in the form of efficient management of the new infrastructure/technology will be the key in ensuring Benda becoming a model climate smart gram panchayat. The success of the present plan will possibly influence other Gram Panchayats to follow the process to make themselves smart, resilient and sustainable. To achieve this vision, it will be crucial to promote a sense of community ownership and behavioural change for adoption of a sustainable lifestyle, along the lines of LiFE Mission as envisioned by the Hon'ble Prime Minister Shri Narendra Modi.

9 Annexures

Annexure I: Background and Methodology

Background

The state of Uttar Pradesh (UP) is making rapid strides towards climate action. Under the visionary and inspirational leadership of the Hon'ble Chief Minister, Shri Yogi Adityanath, the State has initiated a wide-range of climate actions across different levels of governance. One such initiative is to develop action plans for 'Climate Smart Gram Panchayats.' This concept was envisaged by the Chief Minister of Uttar Pradesh in June, 2022. To take this work ahead, a rapid multi-criteria assessment was conducted to identify climate friendly Gram Panchayats in 39 vulnerable districts[106] of UP. The selected Gram Panchayats were announced and several of these were felicitated during the 'Conference of Panchayats' (COP) held on 5th June, 2022.

The Climate Smart Gram Panchayat Action Plan[107] for Benda GP has been developed by the Department of Environment, Forest and Climate Change, Government of UP in collaboration with Vasudha Foundation, and Gorakhpur Environmental Action Group. The action plan aims to provide a customised blueprint for mainstreaming climate action at the Gram Panchayat level. This in turn would strengthen localised climate initiatives to not only build climate resilience but also reduce emissions with the aim of becoming zero carbon/carbon neutral by 2030.

The participatory approach adopted in developing this action plan reinforces the concept of bottom-up planning. The key recommendations provided in this action plan can be converted into individual pilot projects that can be funded through a range of financing options, such as CSR funds, existing State and Central Government programmes, innovative Public-Private Partnerships, carbon finance, and private investments.

To make this feasible, the action plan also has an outline for forging Panchayat-Private-Partnership (PPP) and enhanced collaboration and cooperation between state actors and non-state actors to ensure effective implementation of this action plan.

106 39 highly vulnerable districts of UP were identified from the State Action Plan on Climate Change 2.0 of UP and the Scoping Assessment for Climate Change Adaptation Planning in Uttar Pradesh by DoEFCC, GoUP.

107 This document comprises of the main Climate Smart Gram Panchayat Action Plan and includes the following as annexures: detailed m ethodology; filled questionnaire; the Hazard, Risk, Vulnerability and Capacity Assessment (HRVCA) report, and the social and resources map of the Gram Panchayat.

Methodology

This report comprises of the main Climate Smart Gram Panchayat Action Plan as well as the inputs received from field in the form of filled questionnaire, the HRVCA report, social and resource map of the Gram Panchayat enclosed as annexures.

To develop the Climate Smart Gram Panchayat Action Plan, the following steps were undertaken:

- Preparation of survey questionnaire: to understand the ground situation and develop a baseline scenario of the Gram Panchayat a questionnaire was developed with inputs from key stakeholders and sectoral experts. The questionnaire covered various aspects such as demography, socio-economic indicators, climate variability, climate perception (past 5 years), energy, agriculture & livestock, land resources, sanitation, and health. The survey also aimed to understand the penetration of Central and State government schemes in the Gram Panchayat.
- Stakeholder consultation & Capacity building: Consultations and capacity building workshops were conducted for local NGO partners, Gram Pradhans, Panchayat Secretaries. The stakeholders were briefed about the objective and components of the Climate Smart Gram Panchayat Action Plan, the process of development of these action plans and their individual roles in the same.
- Additionally, NGO partners were also given a training on key climate change concepts, the surveying techniques to be adopted and the questionnaire developed for focus group discussions.
- Field survey: To ensure maximum participation from the community, a few rounds of Gram Sabha and focus group discussions were organised to collect primary data.
  - » Field survey included a transect walk of the GP to develop the social and resource maps of the GP.
  - » A Hazard, Risk, Vulnerability and Capacity Assessment (HRVCA) was also carried out to understand the various issues faced by the GP.
  - » Focus Group Discussions were held to identify key climate change-related issues faced by Benda GP as well as identify the development priorities of the GP.
- Based on the inputs received, the plan was developed and baseline assessments were conducted for the Gram Panchayat. This included identification of climate-smart activities that not only address the environmental and climatic issues that have been identified but also take into account the prevailing agro-climatic characteristics of the GP.
- Information gaps were identified and addressed through multiple rounds of one-on-one discussions with the Gram Pradhan, community and Panchayat Secretary.
- The draft plan was presented to the Gram Panchayat for review.
- Post accommodating required updates based on inputs from the Gram Panchayat, the action plan was finalised and presented to the GP for endorsement.

Annexure II: Questionnaire

उत्तर प्रदेश क्लाइमेट स्मार्ट ग्राम पंचायत की सर्वे प्रश्नावली

ग्राम पंचायत : बेन्दा **विकासखण्ड : तिन्दवारी** **जनपद : बांदा**

I. गाँव की रुपरेखा

		विवरण	संख्या (सूचना का स्रोत– समुदाय के सदस्य)
1		राजस्व गाँव की संख्या	01
2		टोलों की संख्या	39
3	a	कुल जनसंख्या	7085
	b	कुल पुरुषों की जनसंख्या	3871
	c	कुल महिलाओं की जनसंख्या	3214
	d	विकलांगजन की जनसंख्या	47
	e	कुल बच्चों की जनसंख्या	1052
	f	वरिष्ठ नागरिक (60 वर्ष से अधिक आयु वर्ग)	1000
4		कुल परिवार की संख्या	1183
	a	गरीबी रेखा से नीचे जीवन यापन करने वाले परिवार की संख्या	554
5		कुल भोगौलिक क्षेत्रफल	2228.906 हेक्टेयर
6	a	साक्षरता दर	60 प्रतिशत
7	a	पक्का घरों की संख्या	783
	b	कच्चा घरों की संख्या (मुख्य रूप से उपयोग की गई सामग्री का उल्लेख करें)	400 (कच्ची मिट्टी,)

II. सामाजिक आर्थिक

8	ग्राम पंचायत में केवल कृषि (प्रकार) पर आश्रित परिवार	कुल परिवारों की संख्या
	निजी भूमि/स्वयं की भूमि	710
	किराए की भूमि (हुण्डा)	180
	अनुबंध खेती	120
	दिहाड़ी मजदूर	200
	अन्य व्यवस्था (रेहन, अधिया आदि)	23
	अन्य सूचनाएं/जानकारी (एक से अधिक कृषि गतिविधि में शामिल परिवार, उल्लेख करें)	0
9	**ग्राम पंचायत में आय के स्रोत**	**कुल परिवारों की संख्या**
	सेवा क्षेत्र (उदाहरणः अध्यापन, बैंक, सरकारी नौकरी आदि)	200
	कुटीर उद्योग	0
	कृषि	830
	कला/हस्तकला	05
	पशुपालन	150
	व्यवसाय (स्थानीय दुकान)	100
	व्यवसाय/उद्यम	0
	दैनिक/दिहाड़ी मजदूर (अकृषिगत)	200
	अन्य	0

10		पलायन		हां	नहीं
	a	क्या पिछले पांच वर्षों में आप के ग्राम पंचायत से ग्रामीणों ने पलायन किया है?		✓☐	☐
	b	पलायन करने वाले स्थान	पिछले पांच वर्षों में पलायन करने वाले परिवार/ व्यक्तिगत की संख्या		पलायन के मुख्य कारण
		अन्य गांव	0		
		निकट के शहर	10	✓	आजीविका के लिए
		राज्य के प्रमुख शहर	10	✓	आजीविका के लिए
		देश के प्रमुख महानगर	08	✓	आजीविका के लिए
	c	क्या पिछले पांच वर्षों में आप के ग्राम पंचायत में परिवार/व्यक्ति ने प्रवास किए है?		हां ☐	नहीं ☐नही

	d	पिछले पांच वर्षों में आपके ग्राम पंचायत में कितने परिवार प्रवास किए हैं? मुख्य कारण स्पष्ट करें।	नहीं

11		महिलाओं की स्थिति	
	a	महिला प्रमुख परिवारों की संख्या (आय का मुख्य स्रोत– महिला)	80
	b	खेती में कार्यरत महिला	कुल संख्या
		निजी भूमि/स्वयं की भूमि	50
		किराए की भूमि/हुण्डा	30
		अनुबंध खेती	30
		दिहाड़ी मजदूर	15
		अन्य व्यवस्था	0
		अन्य सूचनाएं/जानकारी (एक से अधिक कृषि गतिविधि में संलग्न महिलाएं, उल्लेख करें)	अधिकांश महिलाएं अपनी खेती से संबंधित कार्य करती है।
	c	नौकरी/अन्य क्षेत्र में कार्यरत महिलाएं	कुल संख्या
		सेवा क्षेत्र (उदाहरणः अध्यापन, बैंक, सरकारी नौकरी आदि)	05
		कुटीर उद्योग	0
		कृषि	50
		कला/हस्तकला	0
		पशुपालन	25
		व्यवसाय (स्थानीय दुकान)	08
		दैनिक/दिहाड़ी मजदूर (अकृषिगत)	15
		अन्य	10 सिलाई आदि का काम करती है।

स्वयं सहायता समूहों				
स्वयं सहायता समूह का नाम	**सदस्यों की संख्या**	**अपनायी गई गतिविधियाँ**	**वार्षिक बचत (रु0)**	**बैंकों से जुड़ाव/अजुड़ाव**
बजरंग बली स्वयं सहायता समूह	10	सिलाई	6200/–	ळां
साकर विश्वविहार	10	सिलाई	6200/-	ळां
मां कालिका	11	बकरीपालन/छोटी दुकान/सिलाई	6840/-	ळां
विन्ध्यवासिनी	10	बकरीपालन/सिलाई	5650/-	ळां
साकर विश्वहरि	10	बकरीपालन/सिलाई	5200/–	ळां
सीता महिला	13	बकरीपालन/छोटी दुकान/सिलाई	5720/–	ळां
जय मां महिला	10	बकरीपालन	6240/–	ळां
जय मां महिला	11	बकरीपालन	6760/–	ळां
गुरू कृपा महिला	10	बकरीपालन	5720/–	ळां
जय मां संतोषी महिला	10	बकरीपालन	6240/–	ळां
सूरज महिला	11	बकरीपालन	6240/–	ळां
मुडिया देव	10	बकरीपालन	5200/–	ळां
चन्द्रमा महिला	11	सिलाई दुकान	6240/–	ळां
कालीमाता महिला	11	बकरीपालन	6240/–	ळां
ओम महिला	11	.	5720/–	ळां
पूजा महिला	11	.	5200/–	ळां
सारदा महिला	10	.	6240/–	ळां
साक्षी महिला	10	.	5720/–	ळां
जय रामेश्वर बाबा महिला	10	.	6240/–	ळां

कृषक उत्पादक संगठन (एफ0पी0ओ0)					
एफ0पी0ओ0 का नाम	क्या इस संगठन की प्रमुख महिला हैं?	प्रत्येक एफ0पी0ओ0 में सदस्यों की संख्या	एफ0पी0ओ0 से प्राप्त वार्षिक राजस्व/ बचत	कृषि उत्पाद	पोस्ट हार्वेस्ट की गतिविधियां/ गतिविधियों का क्षेत्र

	Nil	☐ नही	नही	नही	नही	नही
	Nil	☐				
	Nil	☐				
	Nil	☐				
	Nil	☐				

14	अन्य समुदाय आधारित संगठन/					
	सामाजिक संगठन/ समितियों के नाम	क्या महिला प्रमुख संगठन/समिति हैं?	सदस्यों की संख्या	प्राप्त वार्षिक राजस्व/बचत	उत्पाद/सेवा	विपणन/लक्षित उपभोगकर्ता
	Nil	☐				
	Nil	☐				
	Nil	☐				
	Nil	☐				
	Nil	☐				
	Nil	☐				
	Nil	☐				
	Nil	☐				

15		योजनाएं					
	a	योजना के नाम	पंजीकृत लाभार्थी की संख्या	लाभ प्राप्त लाभार्थियों की संख्या	विगत वर्ष ग्राम पंचायत में प्राप्त कुल भगतान (रू0)	अन्य कोई बकाया (रू0)	की गई गतिविधियाँ/कार्य
		मनरेगा	750	750	53 लाख रूप्ये		मेड़बन्धी, सेक्टर मार्ग निर्माण
		प्रधानमंत्री गरीब कल्याण अन्न योजना/एन.एफ.एस.ए.	0	0	0	0	0
		प्रधानमंत्री उज्जवला योजना	700	700			
		प्रधानमंत्री कृषि सिंचाई योजना	0				

		प्रधान मंत्री कुसुम योजना	0				
	b	**अन्य योजनाएं**					
		ग्राम उज्जवला योजना	700	700			गैस चूल्हा एवं सिलेण्डर
		ऊर्जा दक्षता योजना	0				
		प्रधानमंत्री रोजगार सृजन कार्यक्रम	0				
		प्रधानमंत्री आवास योजना	310	180			
		सार्वजनिक वितरण प्रणाली (पी0डी0एस0)	1255	4943			प्रत्येक माह 5–35 किलों खाद्यान्न मिलता है।
		कम्प्यूटर प्रशिक्षण कार्यक्रम	0	0			
		उत्तर प्रदेश कौशल विकास मिशन	0				
		राष्ट्रीय कौशल विकास योजना (RKVY)	0				
		मौसम आधारित फसल बीमा	0				
		प्रधानमंत्री फसल बीमा योजना (PMFBY)	0	10			
		मृदा स्वास्थ्य कार्ड	0				
		किसान क्रेडिट कार्ड	750				
		स्वच्छ भारत मिशन	1300				लाभार्थी के घर शौचालय बना है।
		सौर सिंचाई पम्प योजना	0				
		नई/नवीन भारतीय बायोगैस व कार्बनिक खाद कार्यक्रम	0				
		विकेन्द्रित अनाज क्रय केन्द्र योजना	0				
		गोवर्धन योजना	0				
		जल पुनर्भरण योजना	0				
		रेनवाटर हार्वेस्टिंग	०१	01			

		समन्वित वाटरशेड विकास कार्यक्रम	0				
		अन्य वाटरशेड विकास योजनाएं	0				
		अन्य (एक जिला–एक उत्पाद, मेक इन इण्डिया, अन्य)	0				
		उद्यमितता सहायतित योजनाएं आदि	0				

16	सक्रिय बैंक खाता धारकों की संख्या	2000
17	ई–बैंकिंग/डिजीटल भुगतान एप/यू.पी.आई आदि से भुगतान करने वाले खाताधारकों की संख्या	700

18	निकट कृषि बाजार/क्रय केन्द्र/सरकारी केंद्र	क्या ग्राम पंचायत द्वारा बाजार/क्रय केन्द्र का उपयोग होता है		यदि नही, तो बाजार/ केन्द्र का उपयोग क्यों नही किया जाता	उत्पादित फसल (कु0)	बिक्री हुई फसल (कु0)	ग्राम पंचायत से दूरी (यदि ग्राम पंचायत से दूर है) (कि0मी0)
		ळां	नहीं				
	तिन्दवारी	□हां	□		32000 गेहूं	7000	25 किमी
		□	□				
		□	□				
		□	□				

19		शिक्षा (केवल ग्राम पंचायत में)				
		प्रकार/ स्तर	उपलब्ध छत का क्षेत्रफल (वर्ग मी0)	कुल नामांकित विद्यार्थियों की संख्या	विगत वर्ष में कुल ड्राप आऊट विद्यार्थियों की संख्या	ड्राप आऊट के मुख्य कारण (स्वास्थ्य (1), पहुँच/उपलब्धता–(2), आर्थिक समस्या–(3), अन्य–(4) उल्लेख करें)

	a	**प्राथमिक विद्यालय** 08	600	599	0	25 प्रतिशत बच्चें मानसून, जाड़े के मौसम एवं कृषि कार्यों के कारण विद्यालय में अनुपस्थित रहते हैं।
	b	**जू0 हाई स्कूल** 04	290	349	0	
	c	**हाई स्कूल**				
	D	महाराणा प्रताप बालिका इ0का0	350			
	E	**अन्य संस्थान**	0			

0	कौशल विकास/व्यवसायिक प्रशिक्षण/पुनः कौशल संस्थान (केवल ग्राम पंचायत में)	उपलब्ध छत का क्षेत्रफल (वर्ग मी0)	संस्थान के प्रकार (सरकारी 1, निजी 2)	नामांकित व्यक्तियों की संख्या	नामांकित व्यक्तियों की आयु
	Nil				

21	राज्य/राष्ट्रीय राजमार्ग की उपलब्धता			
	राजमार्ग का नाम	राज्य मार्ग 1, राष्ट्रीय राजमार्ग 2	ग्राम पंचायत से दूरी	सम्पर्क मार्ग की स्थिति अच्छा (1), खराब (2), घटिया (3), सबसे घटिया (4)
	बांदा टांडा राजमार्ग 232	2	1	1

III. भूमि संसाधनों संबंधित सूचनाएं/जानकारी

22		वन भूमि का विवरण	
	a	वन का क्षेत्र	57.895 Hec.
	b	वन विभाग द्वारा अधिसूचित क्षेत्र	57.895 Hec.
	c	सार्वजनिक उपयोग हेतु उपलब्ध वन क्षेत्र	57.895 Hec.
	d	कितने क्षेत्र पर अतिक्रमण है?	Nil
	e	विगत पांच वर्षों में कोई वन उन्मूलन/वन कटाई की गतिविधियां	Nil
	f	अनुमानित वन उन्मूलन/वन कटाई का क्षेत्रफल (एकड़)	Nil

23		अन्य भूमि का वर्गीकरण			
	a	ग्राम पंचायत के पास ग्राम सभा की कितनी भूमि उपलब्ध है?			
	b	कितनी भूमि पर अतिक्रमण है? (एकड़)			
	c	ग्राम पंचायत में खनन गतिविधियां	ळां ✓ ☐	न्हीं ☐	आच्छादित क्षेत्रफल
		खनन के प्रकार बालू खनन 1, खनिज खनन–(उल्लेख करें) 2, अन्य (उल्लेख करें) 3	बालू खनन		
		अतिरिक्त सूचनाएं	Nil		

24		जल निकाय क्षेत्र		
		विवरण	**हां**	**नहीं**
	a	क्या आप के ग्राम पंचायत में जल निकाय क्षेत्र है?	✓ ☐	☐
	b	ग्राम पंचायत में कुल जल निकाय क्षेत्रों की संख्या	10	
	c	क्या जल निकाय क्षेत्र में अतिक्रमण है?	☐	✓ ☐
	d	जल निकाय क्षेत्र में अतिक्रमण कब से है?	Nil	
	e	क्या जल निकाय क्षेत्र के आस–पास के भूमि पर अतिक्रमण किया गया है?	Nil	

25		**जल आपूर्ति**	
	a	**ग्राम पंचायत में घरों हेतु जल आपूर्ति का मुख्य स्रोत क्या है?** नहर (1) वर्षा जल–(2) भूमिगत जल–(3) तालाब / झील–(4) अन्य– (5)	3
	b	**क्या उपरोक्त जल आपूर्ति के स्रोत मौसमी या बारहमासी है?**	बारहमासी
	c	**घरों में जल आपूर्ति कैसे होती है?** पाइप जलापूर्ति (1) ग्राम पंचायत में सामान्य संग्रह केन्द्र (2) पानी टंकी (3) महिलाओं / बच्चों द्वारा दूर से लाया गया (4) हैण्डपम्प (5) ऊँचा सतही जलाशय (6) कूंआ (7) अन्य (8), उल्लेखित करें। अगर 4 है, तो कितनी दूर से लाया जा रहा है?	1 3 5 7
	d	कितने घरों में जलापूर्ति पाइप से है?	300
	e	क्या पानी का बहाव / प्रवाह दर कम, अधिक या संतोषजनक है?	संतोषजनक
	f	पइप जलापूर्ति की नियमितता 24× 7 घण्टे (1) काफी नियमित (2) अनियमित (3)	2
	g	**ग्राम पंचायत में कृषि सिंचाई हेतु जल आपूर्ति का मुख्य स्रोत क्या है?** नहर (1) वर्षा जल (2) भूमिगत जल – (नलकूप (3 A), कूआ (3 B) तालाब / झील (4)	2 , 3B, 3A,6, 7

		पानी टैंक (5) नदी (6) अन्य (7)	
	h	**क्या उपरोक्त जल आपूर्ति स्रोत मौसमी या बारहमासी है?**	नलकूप एवं व्यक्तिगत बोरिंग का प्रयोग फसल की आवश्यकतानुसार, एवं वर्षाजल मौसमी है।
	i	क्या जलापूर्ति का बहाव/प्रवाह दर कम/अधिक या संतोषजनक है?	प्रवाह दर कम
	j	अतिरिक्त जानकारी (उदाहरण : क्या घरेलू, कृषि व संबंधित गतिविधियों, उद्योगों आदि के लिए जल आपूर्ति पर्याप्त है) क्या विगत वर्षों में भूजल, नदी या नहर से जल की उपलब्धता बढ़ी/घटी या सूख गया? क्या सूखे या गर्मी के मौसम में पानी की टंकियों का उपयोग बढ़ जाता है?	घरेलू, प्रयोग हेतु पर्याप्त है एवं कृषि आदि हेतु जल आपूर्ति अपर्याप्त है। Nil ळां

IV. जलवायु की धारणा

तापमान व वर्षा में प्रमुख परिवर्तन/बदलाव				
26				
a	गर्मी के माह में देखा गया			
b	गर्मी के तापमान में देखे गए बदलाव (पिछले पांच वर्षों में)	गर्म दिनों में वृद्धि	गर्म दिनों में कमी	गर्म दिनों में कोई परिवर्तन नहीं
		✔ ☐	☐	☐
c	दिनों की संख्या	20		
d	अन्य सूचनाएं (गर्मी माह में कोई परिवर्तन)			
27				
a	सर्दी के माह में महसूस किया गया			
b	सर्दियों के तापमान में कोई परिवर्तन पाया गया (विगत पांच वर्षों में)	ठण्ड दिनों में वृद्धि	ठण्ड दिनों में कमी	ठण्ड दिनों में कोई परिवर्तन नहीं
		☐	✔ ☐	☐
c	दिनों की संख्या		30	
d	अन्य सूचनाएं (सर्दी माह में कोई परिवर्तन)			
28				
a	मानसून माह में महसूस किया गया			
b	मानसून ऋतु की वर्षा में कोई परिवर्तन देखा गया (विगत पांच वर्षों में)	वर्षा के दिनों में वृद्धि	वर्षा के दिनों में कमी	वर्षा के दिनों में कोई परिवर्तन नहीं
		☐	✔ ☐	☐
c	दिनों की संख्या		20-25	
d	अन्य सूचनाएं (मानसून माह में कोई परिवर्तन)			
29				
a	क्या गैर मानसून ऋतु की वर्षा में परिवर्तन हुआ है? (विगत पांच वर्षों में)	वर्षा के दिनों में वृद्धि	वर्षा के दिनों में कमी	वर्षा के दिनों में कोई परिवर्तन नहीं
		☐	✔ ☐	☐
b	ग्रीष्म ऋतु की वर्षा में देखे गये परिवर्तन	वर्षा दिनों में वृद्धि	वर्षा दिनों में कमी	वर्षा के दिनों में कोई परिवर्तन नहीं
		☐	✔ ☐	☐
c	दिनों की संख्या		20-25	
d	शरद ऋतु की वर्षा में देखे गये परिवर्तन	वर्षा के दिनों में वृद्धि	वर्षा के दिनों में कमी	वर्षा के दिनों में कोई परिवर्तन नहीं
		☐	✔ ☐	☐
e	दिनों की संख्या		4-5	
f	अन्य सूचनाए/जानकारी			

चरम मौसम की घटनाएं

30		**सूखा**					
	a	सूखे की घटना	प्रथम वर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थ वर्ष (2019)	पंचम वर्ष (2018)
			✔ ☐	✔ ☐	✔ ☐	✔ ☐	☐
	b	किस माह में सूखा देखा गया	जून–जुलाई	जून–जुलाई	जून–जुलाई	जून–जुलाई	
	c	सूखे का प्रबन्धन कैसे किया गया (सरकारी सहायता, निजी सहायता, कुएं खोदा आदि)	घरेलू स्तर पर प्रबन्धन कुछ नहीं करते हैं।			कृषि स्तर पर प्रबन्धन कुछ नहीं करते हैं।	
	d	सूखे की आवृत्ति : सूखे की घटना (पिछले पांच वर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			✔ ☐	☐	☐		
	e	अतिरिक्त सूचना कोई पुरानी प्रमुख घटना–1, स्वास्थ्य पर प्रभाव–2	1979 सूखा पड़ा 800 लोग प्रभावित हुए। खेती भी प्रभावित हुई।				
31		**बाढ़**					
		बाढ़ की घटना	प्रथम वर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थ वर्ष (2019)	पंचम वर्ष (2018)
			✔ ☐	✔ ☐	✔ ☐	✔ ☐	☐
	b	किस माह में बाढ़ देखा गया	सितम्बर	सितम्बर	सितम्बर	अगस्त सितम्बर	
	c	बाढ़ का प्रबन्धन कैसे किया गया (सरकारी सहायता, निजी सहायता आदि)	घरेलू स्तर पर प्रबन्धन उंचे स्थान पर घर बनाना शुरू कर दिया है।			कृषि स्तर पर प्रबन्धन कुछ नहीं करते	
	d	बाढ़ की आवृत्ति : बाढ़ की घटना (पिछले पांच वर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			✔ ☐	☐	☐		
	e	अतिरिक्त सूचना कोई पुरानी प्रमुख घटना–1, स्वास्थ्य पर प्रभाव–2					
32		**भूस्खलन**					
	a	भूस्खलन की घटना	प्रथम वर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थ वर्ष (2019)	पंचम वर्ष (2018)
			☐	☐	☐	☐	☐
	b	किस माह में भूस्खलन देखी गई	Nil				
	c	भूस्खलन का प्रबन्धन कैसे किया गया (सरकारी सहायता, निजी सहायता आदि)	घरेलू स्तर पर प्रबन्धन			कृषि स्तर पर प्रबन्धन	
	d	भूस्खलन की आवृत्ति : भूस्खलन की घटना (पिछले पांच वर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			☐	☐	☐		

	e	अतिरिक्त सूचना कोई पुरानी प्रमुख घटना–1, स्वास्थ्य पर प्रभाव–2	Nil				
33		**ओलावृष्टि**					
	a	ओलावृष्टि की घटना	प्रथम वर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थ वर्ष (2019)	पंचम वर्ष (2018)
			☐	✓ ☐	✓ ☐	☐	☐
	b	किस माह में ओलावृष्टि हुई		जनवरी	जनवरी मार्च		
	c	ओलावृष्टि का प्रबन्धन कैसे किया गया (सरकारी सहायता, निजी सहायता आदि)	घरेलू स्तर पर प्रबन्धन निजी			कृषि स्तर पर प्रबन्धन निजी	
	d	ओलावृष्टि की आवृत्ति : ओलावृष्टि की घटना (पिछले पांच वर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			☐	☐	✓ ☐		
34		**फसलों के कीट/बीमारी**					
	a	कीट/बीमारी की घटनाक्रम	प्रथम वर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थ वर्ष (2019)	पंचम वर्ष (2018)
			✓ ☐	✓ ☐	✓ ☐	✓ ☐	✓ ☐
	b	किस माह में कीट/बीमारी को देखा गया?	जनवरी फरवरी	दिसम्बर	जनवरी फरवरी	जनवरी फरवरी	जनवरी
	c	किस प्रकार के टिड्डी कीट/बीमारी को देखा गया?	गेरूई (रस्ट), झुलसा, फलछेदक एवं विषाणुजनित रोग माहो, थ्रिप्स, गंधी कीट,	गेरूई (रस्ट), झुलसा,सब्जी में फलछेदक एवं विषाणुजनित रोग माहो, थ्रिप्स, गंधी कीट,	गेरूई (रस्ट), झुलसा, फलछेदक एवं विषाणुजनित रोग माहो, थ्रिप्स, गंधी कीट,	गेरूई (रस्ट), झुलसा,सब्जी में फलछेदक एवं विषाणुजनित रोग माहो, थ्रिप्स, गंधी कीट,	गेरूई (रस्ट), झुलसा, फलछेदक एवं विषाणुजनित रोग माहो, थ्रिप्स, गंधी कीट,
	D	कीट/बीमारी का प्रबन्धन कैसे किया गया? (सरकारी सहायता, निजी सहायता आदि)	किसान स्वयं खरीदकर कीटनाशकों का छिड़काव करते है।				
	e	कीट/बीमारी की आवृत्ति : कीट बीमारी का घटनाक्रम (पिछले पांच वर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			✓ ☐	☐	☐		
		अतिरिक्त जानकारी/सूचनाएं	Nil				

35	**ग्राम पंचायत में आपदा की तैयारी**				
		ग्राम पंचायत स्तर पर क्या आपदा प्रबन्धन/तैयारी के उपाय उपलब्ध है?		**क्या ग्रामीणों तक इसकी पहुँच/उपलब्धता है?**	
	आपदा तैयारी के उपाय	**हां**	**न्हीं**	**ळां**	**नहीं**

	ग्राम आपदा प्रबन्धन योजना	✓ ☐	☐	☐	✓ ☐
	ग्राम आपदा प्रबन्धन समिति	✓ ☐	☐	✓ ☐	☐
	पूर्व चेतावनी प्रणाली/मौसमी चेतावनी प्रणाली/कृषि चेतावनी प्रणाली	☐	✓ ☐	☐	✓ ☐
	आपातकाल अनाज बैंक	☐	✓ ☐	☐	✓ ☐
	अन्य	☐	✓ ☐	☐	✓ ☐

36		**अनाज भण्डारण**	
	a	**ग्राम पंचायत के आपातकालिन खाद्य/अनाज बैंक में किस प्रकार का भोजन भण्डारित किया जाता है?**	
		अनाज (विवरण दें)	Nil
		ऐल	Nil
		चीनी	Nil
		अन्य खाद्य पदार्थ – उल्लेख करें	Nil
	b	क्या ग्राम पंचायत में शीतगृह है, अगर है तो उसकी क्षमता क्या है?	Nil

37	**ग्राम पंचायत में मौसम की चेतावनी, पूर्व चेतावनी प्रणाली, कृषि आधारित चेतावनी के लिए उपलब्ध जानकारी के स्रोत**	
	स्थानीय कृषि अधिकारी	Nil
	समाचार पत्र/समाचार/रेडियो	✓
	मोबाईल फोन/एप	✓
	मौखिक	✓
	कृषि विज्ञान केन्द्र/कृषि ज्ञान केन्द्र	Nil
	पशुपालन विभाग	Nil
	उद्यान विभाग	Nil
	अन्य	Nil

		कृषि एवं संबंधित गतिविधियों पर प्रभाव (विगत पांच वर्षों में)					
38		**फसल हानि**					
	A	घटना का वर्ष	हानि की ऋतु/मौसम	फसल का नाम	हानि के कारण	अनुमानित हानि की	परिणाम स्वरुप आय

			खरीफ (1) रबी (2) जायद/अन्य ऋतु (3)		रोग, चरम, घटनाक्रम– गर्मी, ठण्ड, वर्षा, ओलावृष्टि, मिट्टी आदि	मात्रा (कुन्तल)	में हानि (औसत रु0)
		प्रथम वर्ष (2022)	1	ज्वार मूग	रोग, वर्षा, अन्ना जानवर	750	11,25000/-
		द्वितीय वर्ष (2021)	1	ज्वार मूग	रोग, वर्षा, अन्ना जानवर	90	450000/-
		तृतीय वर्ष (2020)	1	ज्वार मूग	रोग, वर्षा, अन्ना जानवर	1000	1400000/-
		चतुर्थ वर्ष (2019)	1	ज्वार मूग	रोग, वर्षा, अन्ना जानवर		
		पंचवां वर्ष (2018)	1	ज्वार मूग	रोग, वर्षा, अन्ना जानवर	500	675000/-
	b	क्या आप फसल बीमा के बारे में जानते हैं?	हां	नहीं			
			✓ ☐	☐			
		अतिरिक्त जानकारी (फसल बीमा के लाभार्थी– बड़े किसान, लघु एवं सीमान्त किसान आदि) फसल बीमा लाभार्थी का संतुष्टि स्तर क्या है?	फसल बीमा का लाभ नहीं मिल पाता है।				

39		फसल पद्धति में बदलाव				
	A	सामान्य फसल	खरीफ मूंग ज्वार बाजरा अरहर उर्द	रबी चना मसूर गेंहू सरसों मटर	जायद / अन्य ऋतु	
	B	फसल का नाम	पारम्परिक बोआई का समय	विगत 5 वर्षों में बोआई के समय में परिवर्तन हुआ है / देखा है	अभी बोआई का समय	परिवर्तन के कारण
		ज्वार मूंग बाजरा	जून का द्वितीय, तृतीय सप्ताह	जून– जुलाई	जुलाई के अंतिम सप्ताह	वर्षा न होने के कारण
		गेंहू	अक्टूबर	अक्टूबर नवम्बर	नवम्बर दिसम्बर	ठंड का देर से होना, इस वर्ष अक्टूबर में पानी बरसने के कारण जल्दी बुवाई से निचले स्थानों में दिसम्बर के अंतिम सप्ताह में हुई है।
		सरसों	अक्टूबर	अक्टूबर	सितम्बर का अंतिम सप्ताह एवं अक्टूबर का प्रथम सप्ताह	अगैती सरसों की बुवाई, अगैती सरसों की बुवाई होने से माहो का प्रकोप कम होता है।
	C	अन्य सूचना / जानकारी (विलुप्त फसल / प्रजाति आदि उल्लेख करें)	मोटे अनाज की फसलें			

40	सिंचाई प्रणाली / पद्धति में परिवर्तन

	a	फसल का नाम	वर्तमान में सिंचाई पद्धति का उपयोग फव्वारा सिंचाई (1), टपक विधि (2), नहर (3), वर्षा आधारित (4), पारम्परिक (5), अन्य (6) (उल्लेखित करें)	वर्तमान में उपयोग किए गए पानी की मात्रा (रुपया/एकड़)	पूर्व में सिंचाई पद्धति का उपयोग फव्वारा सिंचाई (1), टपक विधि (2), नहर (3), वर्षा आधारित (4), पारम्परिक (5), अन्य (6) (उल्लेखित करें)	पूर्व में उपयोग किए गए पानी की मात्रा (रुपया/एकड़)	
		ज्वार बाजरा	वर्षा आधारित (4),	4000	वर्षा आधारित (4),	2500	
		गेंहू	वर्षा आधारित (4), (6) ट्यूब वेल/पम्पिंग सेट ,	4000	वर्षा आधारित (4), (6) ट्यूब वेल/पम्पिंग सेट ,	2500	
	b	ग्राम पंचायत में सिंचाई हेतु पम्पों की संख्या	डीजल आधारित	विद्युत आधारित	सौर पम्प	पारम्परिक सिंचाई विधियां	
			185	Nil	Nil	वर्षा आधारित	नदी
	c	अन्य सूचनाएं/जानकारी अगर कोई है	Nil				
41		**पशु पालन/पशुधन**					
	a	ग्राम पंचायत में प्रचलित पशुधन और पशुपालन सम्बन्धित गतिविधियां श्रेणी : डेयरी (1) मुर्गी पालन (2) मत्स्य पालन (3) सूअर पालन (4) मधुमक्खी पालन (5) अन्य– स्पष्ट करें (6)		(1) (2) (6)			
	b	डेयरी पर प्रभाव	पशु हानि गाय (1) भैंस (2) अन्य (3)	पशु हानि की संख्या (प्रत्येक पशु को उल्लेख करें)	हानि के कारण (रोग, आयु, दुर्घटना आदि)	हानि का मौसम	उत्पादकता में कोई परिवर्तन देखा गया? वृद्वि (1) कमी (2) परिवर्तन नहीं (3)
		प्रथम वर्ष (2022)	अन्य (3) बकरी	बकरी 140	शीतलहर व रोग	सर्दी बरसात	(2)

		द्वितीय वर्ष (2021)	अन्य (3) बकरी	बकरी 210	शीतलहर व रोग	सर्दी बरसात	(2)
		तृतीय वर्ष (2020)	अन्य (3) बकरी	बकरी 78	शीतलहर व रोग	सर्दी बरसात	(2)
		चतुर्थ वर्ष (2019)	अन्य (3) बकरी	बकरी 105	शीतलहर व रोग	सर्दी बरसात	(2)
		पंचम वर्ष (2018))	अन्य (3) बकरी	बकरी 135	शीतलहर व रोग	सर्दी बरसात	(2)
		अन्य जानकारी / सूचनाएं	Nil				
	c	मुर्गी पालन पर प्रभाव	पक्षी हानि मुर्गी (1) बत्तख (2) अन्य (3)	पक्षी हानि की संख्या (प्रत्येक पक्षी का उल्लेख करें)	हानि के कारण	हानि के मौसम / ऋतु	उत्पादकता में कोई परिवर्तन पाया गया है? वृद्धि (1) कमी (2) परिवर्तन नहीं (3)
		प्रथम वर्ष (2022)	मुर्गी (1)	250 मुर्गी के चूजे(1)	शीतलहर	सर्दी	(2)
		द्वितीय वर्ष (2021)	मुर्गी (1)	200 मुर्गी के चूजे(1)	शीतलहर	सर्दी	(2)
		तृतीय वर्ष (2020)	मुर्गी (1)	250 मुर्गी के चूजे(1)	शीतलहर	सर्दी	(2)
		चतुर्थ वर्ष (2019)	मुर्गी (1)	200 मुर्गी के चूजे(1)	शीतलहर	सर्दी	(2)
		पंचम वर्ष (2018))	मुर्गी (1)	250 मुर्गी के चूजे(1)	शीतलहर	सर्दी	(2)
		अन्य जानकारी / सूचनाएं	Nil				
	d	अन्य पशुओं पर प्रभाव	पशु हानि (कृपया निर्दिष्ट करें कि कौन से है)	पशु हानि की संख्या (प्रत्येक पशु का उल्लेख करें)	हानि के कारण	हानि की ऋतु	उत्पादकता में कोई परिवर्तन पाया गया है? वृद्धि (1) कमी (2) परिवर्तन नहीं (3)
		प्रथम वर्ष (2022)	Nil				
		द्वितीय वर्ष (2021)	Nil				
		तृतीय वर्ष (2020)	Nil				
		चतुर्थ वर्ष (2019)	Nil				

		पंचम वर्ष (2018)	Nil				
		अन्य जानकारी / सूचनाए	Nil				

V. कृषि व पशुपालन

42	a	प्रमुख उगाई जाने वाले फसलें व सम्बन्धित सूचनाएं/जानकारी											
					उर्वरक उपयोग			कीटनाशक उपयोग			खरपतवारनाशी		
		फसल (अनाज, तिलहन, दलहन, उद्यान एवं फूल आदि)	ऋतु/ मौसम	उपज (कु0)	उर्वरक के प्रकार	औसत प्रयुक्त मात्रा (किग्रा0/ एकड़)	क्या विगत पांच वर्षों में उपयोग किये गये उर्वरकों की मात्रा में वृद्धि (1) कमी (2) परिवर्तन नही है (3)	कीटनाशकों के प्रकार	औसत प्रयुक्त मात्रा (किग्रा/ एकड़)	क्या विगत पांच वर्षों में उपयोग किये गये कीटनाशकों की मात्रा में वृद्धि (1) कमी (2) परिवर्तन नहीं है (3)	खरपतवार नाशीं के प्रकार	औसत प्रयुक्त मात्रा (किग्रा/एकड़)	क्या विगत पांच वर्षों में उपयोग किये गये खरपतवार की मात्रा में वृद्धि (1) कमी (2) परिवर्तन नहीं है (3)
		ज्वार बाजरा मूंग	गर्मी	2000							2–4द	250 एमएल /एकड	1
		गेंहू	सर्दी	7000	यूरिया, डीएपी	100 किलो यूरिया, 80 किलो डीएपी	1	कराटे, (कीटनाशक) फ्यूराडान,	200 ml /एकड 200 gram /एकड	1			
		गेंहू				8 किलो जिंक		स्ट्रेप्टोसाइक्लिन, कापर आक्सीक्लोराइड	12 gram /एकड 200 gram /एकड				
		सरसों	सर्दी	1000	यूरिया, डाई पोटास सुपर	60 किलो यूरिया, 40 किलो डाई	1	कराटे, (कीटनाशक) फ्यूराडान	200 ml/एकड 200 gram /एकड	1		Nil	nil

					फास्फेट	3 किलो सल्फर							
	b	क्या ग्राम पंचायत में फसल अवशेष जलायें जाते हैं	हां ☐	नहीं ✓ ☐	जलाये गये खेतो का कुल क्षेत्रफल (एकड़)	क्या यह फसल अवशेष पूर्व में जलाये जाते थे	अगर नही तो, कब से जलाना आरम्भ किया		क्या फसल अवशेष प्रबन्धन की योजनाओं को जानते/जागरूक है?				
				✓									

43	जैविक खेती सम्बन्धित गतिविधियां				
	फसल	क्षेत्रफल	प्रति फसल आय (रू0 / कुन्तल)	बिक्री हेतु बाजार	तृतीय पक्ष द्वारा प्रमाणित / सत्यापित
	Nil	Nil			
	Nil	Nil			
	Nil	Nil			
	Nil	Nil			
	Nil	Nil			
	Nil	Nil			

44	अन्य स्थाई खेती सम्बन्धी गतिविधियां (जैसे शून्य / जीरो बजट प्राकृतिक खेती)			
	फसल	स्थाई गतिविधियां (शून्य जुताई, मल्चिंग, फसल चक्र, अर्न्तःफसलें, वर्मी कम्पोस्ट, कम्पोस्ट, मिश्रित फसले, प्राकृतिक कीट प्रबन्धन, जैव पदार्थ में वृद्धि आदि)	क्षेत्रफल (एकड़)	प्रति फसल प्राप्त आय (रूपया)
	Nil			
	Nil			
	Nil			
	Nil			
	Nil			

45	कृषि वानिकी, सामाजिक वानिकी, परती भूमि विकास और अन्य वृक्षारोपण गतिविधियां										
	पौध रोपण गतिविधियों के प्रकार	आच्छादित क्षेत्रफल	स्थान	योजना अन्तर्गत राष्ट्रीय कृषि वानिकी मिशन (1), समन्वित वाटरशेड प्रबन्धन कार्यक्रम (2), वर्षा आधारित क्षेत्र कार्यक्रम (3), मनरेगा (4), वृक्षारोपण जन आन्दोलन (5), अन्य (6)– उल्लेख करें	मोनोक्लचर (1), मिश्रित प्रजाति (2)	रोपित प्रजातियां	आरम्भ दिनांक	सफलता (प्रतिशत)	कृषि वानिकी गतिविधियों के लाभ तक लोगों की पहुंच/ अवसर	पिछले 10 वर्षों में पहुंच/अवसर में परिवर्तन, वृद्धि (1), कमी (2), कोई परिवर्तन नहीं (3)	परिवर्तन के कारण– लाभ में वृद्धि (1), लाभ में कमी (2), प्रजाति सम्बन्धित (3), वन उन्मूलन (4) अन्य (5)– उल्लेख करें
	कृषि वानिकी, सामाजिक वानिकी	7 एकड़	निजी खेत एवं तालाब के भीटों में	1 4	1 2	आंवला पीपल बरगद नीम कटहल सहजन	10–13 वर्ष पूर्व	60	व्यक्तिगत लाभ फल एवं जलौनी	1	1
	सामाजिक वानिकी सामान्य	57.895 हेक्टेयर	बेन्दा वन ब्लाक	1, 2 , 3, 4,	2	शीशम कंजी कट सागौन सागौन आंवला जामुन केसिया सेमिया	2021–22	88	व्यक्तिगत लाभ फल एवं जलौनी	1	1
	सुरक्षा खांई	12	बेन्दा वन ब्लाक	1, 2 , 3, 4,	2	बबूल अर्रू चिलबिल ढाक, अकेशिया	2021–22	95	व्यक्तिगत लाभ फल एवं जलौनी	1	1

46	अपनाये गये स्थायी पशुधन प्रबन्धन तकनीक			
	पशुधन के प्रकार	**ग्राम पंचायत में कुल संख्या (लगभग)**	**अपनाई गई गतिविधियां (चारा में परिवर्तन, पोषण पूरक अर्थात् पशुआहार, खुले में चराई आदि)**	**प्राप्त/उत्पादित आय प्रति पशुधन (रू0) (वार्षिक)**
	गाय (देशी नस्ल)	400	पशुआहार, खुले में चराई	6000/–
	गाय (संकर नस्ल)	Nil		
	भैंस (देशी नस्ल)	800	पशुआहार, खुले में चराई	9500/–
	भैंस (संकर नस्ल)	Nil	.....	.....
	बकरी	1000	पशुआहार, खुले में चराई	3000/– प्रति पशुधन बेचने पर
	सुअर	200	पशुआहार, खुले में चराई	1000/-
	मुर्गी	4000	पोषण पूरक, आहार	200/– प्रति पशुधन बेचने पर
	मत्स्य			
	अन्य			

VI. स्वच्छता एवं स्वास्थ्य

47		जल की गुणवत्ता (पेयजल या नल जल से आपूर्ति परिवार)						
	a	आपूर्ति किये जाने वाले पानी की गुणवत्ता कैसी है?	उपयुक्त	अनुपयुक्त				
			✓ □	□				
	b	जल का स्वाद कैसा लगता है?	तीक्ष्ण	न्मकीन	सामान्य			
			□	□	✓ □			
	c	आपूर्ति होने वाले जल में सामान्यतः दूषित पदार्थ क्या है?	नमकीन	गन्दा	मटमैला	बालू/कीचड़	गन्ध	
			□	□	✓ □	□	□	
	d	जल को शुद्व करने के लिए आप किस विधि का प्रयोग करते हैं?	उबालकर	जल शोधक	आयोडीन/फिटकरी मिलाकर	सौर शुद्धीकरण	क्ले वेसल फिल्ट्रेशन	अन्य, (कृपया उल्लेख करें)
			□	✓ □	□	□	□	□

48		ठोस अपशिष्ट उत्पादन/अपशिष्ट प्रबन्धन					
	a	अपने घर में प्रतिदिन उत्पन्न होने वाला अपशिष्ट पदार्थ/कचरा	सब्जी का छिलका, सूखा कचरा				
	b	आपके ग्राम पंचायत में अपशिष्ट पदार्थ/कचरा कैसे इकट्ठा किया जाता है?	इकट्ठा नहीं होता हैं। वर्तमान समय में लोग कचरा अपने बाडों में डालते है।				
	c	कचरा संग्रह कितनी बार होता है?	□प्रतिदिन	✓ साप्ताहिक	□ वैकल्पिक दिन		
			हां	नहीं			
	d	क्या आपके क्षेत्र में कोई स्थान है, जहां कचरा इकट्ठा डाला जा सकता है? यदि हां तो कृपया आपकी ग्राम पंचायत से कितनी दूरी पर है या किस स्थान पर है?	✓ □	□	ग्राम पंचायत से दूरी/ग्राम पंचायत में अवस्थिति	500 मी0	
	e	क्या आपके ग्राम पंचायत क्षेत्र में सामान्य कूड़ेदान रखे गये हैं?	□	✓ □			
	f	क्या आप कचरे को सूखे और गीले कचरे की श्रेणी में बांटते हैं?	□	✓ □			
	g	आप गृह स्तर पर कचरे का उपचार कैसे करते हैं?	पुनःचक्रमण	कम्पोटिंग	वर्मी कम्पोस्ट / अपशिष्ट	जलाना	अन्य (उल्लेखित करें)
			□	□	□	□	फेंक देते हैं

49		खुले में शौच मुक्त स्थिति			
	a	क्या आपका गांव खुले में शौच मुक्त घोषित है?	✓ □ हां	□ नहीं	
	b	स्वयं के शौचालय वाले परिवारों की संख्या	700	□	
	c	सामुदायिक शौचालय/इज्जत घर की संख्या	1	□	प्रमुख स्थान देवी जी के मन्दिर के पास
	d	क्या शौचालय का उपयोग किया जा रहा है?	ळां		
	e	अगर शौचालय का उपयोग नहीं किया जा रहा है तो क्यों? (साफ–सफाई का अभाव, रख–रखाव का अभाव, बहुत दूर आदि)			

50		अपशिष्ट जल	घरेलू	व्यवसायिक	औद्योगिक	कृषि गतिविधियां	गंदा नाला
	a	अपशिष्ट जल का क्या स्रोत है?	हां	□	□	□	□
	b	उत्पन्न अपशिष्ट जल की मात्रा (अनुमानित लीटर प्रतिदिन)	60 प्रतिघर			15–.20 ली विपणन हेतु सब्ज़ी की सफाई	
	c	गांव में किया गया अपशिष्ट जल उपचार, यदि कोई है तो–	नहीं				
	d	अपशिष्ट जल पुनःचक्रण या पुनः उपयोग की गतिविधि, यदि कोई हैं तो–	नहीं				

51		स्वास्थ्य देखभाल की सुविधा			
		स्वास्थ्य केन्द्र की उपलब्धता	हां	नहीं	उपलब्ध छत का क्षेत्रफल (वर्गमीटर)
	a	प्राथमिक स्वास्थ्य केन्द्र	□	✓ □	
	b	सामुदायिक स्वास्थ्य केन्द्र	□	✓ □	
	c	उपस्वास्थ्य केन्द्र	✓ □	□	36वर्ग मीटर
	d	आंगनवाड़ी	✓ □	□	120वर्ग मीटर
	e	आशा	✓ □	□	
	f	स्वाथ्य कैम्प/मेला	✓ □	□	
	g	डिजीटल स्वास्थ्य देखभाल	□	✓ □	

52		रोग/बीमारी							
		विगत वर्ष निम्नवत् बीमारी/रोग से कितने लोग प्रभावित हुए हैं?	प्रभावित कुल व्यक्तियों की संख्या	प्रभावित आयु समूह			सामान्य उपचार का विकल्प		
				प्रभावित बच्चों की संख्या	प्रभावित व्यवस्कों की संख्या	प्रभावित वरिष्ठ नागरिकों की संख्या	स्थानीय स्वास्थ्य देखभाल सुविधाएं (उल्लेख करें)	घरेलू देखभाल	घर–घर जाने वाला	अन्य (उल्लेख करें)
	a	वेक्टर–जनित रोग (मलेरिया, डेंगू, चिकेनगुनिया आदि)	95	45	30	20	nil	□	□	

	b	जल–जनित रोग (हैजा / डायरिया / टाईफाई ड / हैपेटाइटिस आदि)	80	35	25	20	nil	□	□	
	c	श्वास सम्बन्धी रोग जो वायु प्रदूषण से होते हैं (इनडोर एण्ड आउटडोर)	25	6	10	9	nil	□	□	
	d	कुपोषण	3	3				□	□	

VII. उर्जा

53			
	a	आपके ग्राम पंचायत में कुल कितने घर विद्युतकृत हैं	1000
	b	ग्राम पंचायत में निम्नलिखित अनुमानित विद्युत उपकरणों की संख्या	
		ए0सी0	3
		एयर कुलर	200
		रेफ्रिजेटर / फ्रीज	150

54		विद्युत कटौती की आवृत्ति	
	a	दिन में कुछ बार	✓ □
		दिन में एक बार	□
		विद्युत कटौती नही	□
	b	प्रतिदिन कितने घण्टे गुल रहती है?	6–8 धण्टे
		यदि प्रतिदिन नही तो सप्ताह में कितने घण्टे बिजली गुल होती है?	Nil

55	वोल्टेज अस्थिरता / उतार–चढ़ाव की आवृत्ति क्या है?	
	दिन में कुछ बार	✓ □
	दिन में एक बार	□
	अस्थिरता / उतार–चढ़ाव नहीं	□

56	पावर बैकअप का मतलब विद्युत कटौती के दौरान उपयोग	संख्या

	डीजल चलित जेनरेटर	0
	सौर उर्जा	0
	इमरजेंसी लाईट	200
	इन्टवटर्स	80
	अन्य साधन (उल्लेख करें)	0

57		नवीकरणीय/अक्षय ऊर्जा के स्रोत		
	a	क्या गांव में निम्नलिखित में से कोई स्थापना है?	इंस्टालेशन (स्थापना) की संख्या	कुल स्थापित क्षमता (किलोवाट)
		घर की छतों पर सौर उर्जा स्थापना	Nil	Nil
		विद्यालय की छत पर सौर उर्जा स्थापना	Nil	Nil
		चिकित्सालय की छत पर सौर उर्जा स्थापना	Nil	Nil
		ग्राम पंचायत भवन पर सौर उर्जा स्थापना	Nil	Nil
		अन्य सौर उर्जा स्थापना	Nil	Nil
		सौर स्ट्रीट लाईट	Nil	Nil
		बायोगैस	Nil	Nil
		विकेन्द्रित नवीनीकरण उर्जा/मिनी ग्रीड	Nil	Nil
	b	क्या आप सौर उर्जा स्थापना के लिए उपलब्ध अनुदान के बारे में जानते हैं (कुछ योजनाओं/कार्यक्रमों का उल्लेख करें)	Nil	Nil

58	भोजन बनाने हेतु प्रयुक्त ईधन	परिवारों की संख्या	प्रति परिवार प्रयुक्त औसत मात्रा (किग्रा/महीना)
	पारम्परिक जलौनी (उपले/जलौनी लकड़ी)	300	40–50
	बायोगैस	0	.....
	एलपीजी गैस	700	1
	विद्युत	Nil	Nil
	सौर उर्जा	Nil	Nil

	अन्य (कोयला, मिट्टी का तेल, चारकोल आदि)	Nil	Nil

59	वाहन की संख्या			
	वाहन के प्रकार	**ग्राम पंचायत में वाहन संख्या (अनुमानित)**	**प्रयुक्त ईधन के प्रकार**	**तय की गई औसत दूरी (किमी प्रतिदिन)**
a	जीप	10	डीजल	40–70 किमी/प्रतिदिन
b	कार	30	डीजल एवं पेट्रोल	20–50 किमी/प्रतिदिन
c	दो पहिया वाहन	450	पेट्रोल	30 किमी/प्रतिदिन
d	विद्युत चालित वाहन	Nil	Nil	Nil
e	आटो	3	डीजल	50 किमी/प्रतिदिन
f	ई–रिक्शा	8	इले0	50 किमी/प्रतिदिन
g	अन्य	Nil	Nil	Nil

60	**कृषि यंत्र**	**ग्राम पंचायत में कृषि यंत्रों/मशीनों की सख्या**	**प्रयुक्त ईधन के प्रकार**	**तय की गई औसत दूरी** (किमी प्रतिदिन)
a	टैक्ट्रर	50	डीजल	25 किमी/प्रतिदिन नोट : केवल जुताई – बुवाई के प्रयोग हेतु
b	कम्बाईन हारवेस्टर	Nil	Nil	Nil
c	अन्य (कृपया उल्लेख करें)	Nil	Nil	Nil

61		ग्राम पंचायत में अवस्थित पेट्रोल पम्प (अगर कोई है)										
		ईधन के प्रकार	प्रतिदिन की बिकी	पम्प से आपूर्ति वाले गांव की संख्या	कितने प्रकार के वाहन एक दिन/महीना में पेट्रोल पम्प से ईधन लेते हैं? (समय/ अवधि का उल्लेख करें)							
					टैक्ट्रर	कृषि यंत्र	जीप	कार	दो पहिया वाहन	आटो	ई–रिक्शा	अन्य
	a	Nil										
	b	Nil										

62		औद्योगिक इकाई			
		उद्योग के प्रकार	संख्या	उर्जा के स्रोतः ग्रिड विद्युत (1), डीजल जेनरेटर (2), नवीनीकरण/अक्षय उर्जा (3)	उर्जा की खपत प्रति माह विद्युत का उपयोग (किलोवाट) ईधन उपयोग (लीटर प्रतिदिन)
		Nil			
		Nil			

ग्राम उन्मेष संस्थान, बांदा टीम
अम्बरीष कुमार श्रीवास्तव, निदेशक
राम कुमार सिंह
संजय कुमार
अनिल कुमार
रोहित हेमराज
एवं श्रीमती बन्दना

Annexure III: HRVCA Report

क्लाइमेट स्मार्ट ग्राम पंचायत विकास योजना

ग्राम पंचायत – बेंदा

विकासखण्ड – तिंदवारी

जनपद – बॉदा

2023–24

खतरा, जोखिम, नाजुकता एवं क्षमता विश्लेषण जलवायु परिवर्तनशीलता –

प्रवृत्ति/परिवर्तन, मुख्य चुनौतियां/ झटके एवं तनाव –

ग्राम पंचायत बेंदा जनपद बांदा मुख्यालय से लगभग 50 किमी की दूरी पर यमुना नदी के तट के पास कई मजरों में बसा हुआ है। इस ग्राम पंचायत में सभी मौसम, सर्दी, गर्मी, एवं बरसात का प्रभाव रहता है। ग्राम पंचायत में 20 वर्ष पूर्व सर्दी नवम्बर माह से फरवरी–मार्च तक पड़ती थी किन्तु अब सर्दी पूर्व की अपेक्षा देर से शुरू हो रही है, दिसम्बर माह के अन्त में सर्दी शुरू हो रही है और जनवरी के बाद ही समाप्त हो जाती है। पहले बरसात मई माह से अगस्त माह तक एक दो दिन के अंतर पर होती रहती थी, सितम्बर में भी बारिश हो जाती थी। किन्तु वर्ष 2022 में मई–जून में बारिश हुई ही नहीं और जुलाई माह में एक–दो दिन में ही अधिक वर्षा हो गई फिर कई दिनों तक बारिश नहीं हुई जिससे सूखा जैसी स्थिति बन गई। खेती–किसानी करने वाले लोगों से पता चला कि आज से 20 वर्ष पहले खरीफ की खेती करने में केवल एक से दो सिंचाई की आवश्यकता पड़ती थी किन्तु 2022 में खरीफ फसलों में चार से पॉच बार सिंचाई करना पड़ी है।

गांव के लोगों ने बताया कि पहले गर्मी मई–जून से लेकर अगस्त तक होती थी। किन्तु अब गर्मी मार्च से सितम्बर तक रहती है। विभिन्न प्रक्रिया के तहत पीआरए विधियों का उपयोग करते हुए विभिन्न टूल्स के माध्यम से सम्पादित की गई गतिविधियों से प्राप्त सूचना एवं प्राथमिक आंकड़ों के आधार पर जलवायुगत आपदा खतरा जोखिम प्रोफाइल में अपेक्षित सूचनाओं का संकलन किया गया। आपदा–खतरा जोखिम प्रोफाइल से संबंधित सूचनांए निम्नवार वार हैं

1. गांव को प्रभावित करने वाली अपदाओं की पहचान करना एवं इनका प्राथिमीकीकरण

समुदाय के साथ उन आपदाओं के बारे में विस्तृतरूप से चर्चा व विचार–विमर्श किया गया जिनसे उनकी दैनिक दिनचर्या, आजीविका, शिक्षा, स्वास्थ्य, पेयजल एवं साफसफाई आदि प्रभावित होते हैं। चर्चा के आधार पर आपदाओं की एक सूची प्राप्त हुई। इस सूची में सम्मिलित आपदाओं के प्रभाव को एवं इनसे उत्पन्न समस्याओं की तुलनात्मक रैंकिंग को देखते हुए उनका प्राथिमीकरण किया गया। इस गांव की मुख्य आपदा छुट्टा जानवर एवं सूखा है। इससे खेती, आजीविका, स्वास्थ्य एवं पेयजल, साफसफाई आदि में जोखिम की संभावना बनी हैं।

आपदा की पहचान एवं प्राथिमीकीकरण के आधार पर निम्न आपदाएं ग्राम पंचायत बेंदा को प्रभावित करते है –

क्रम संख्या	मुख्य आपदा का नाम	जनवरी	फरवरी	मार्च	अप्रैल	मई	जून	जुलाई	अगस्त	सितम्बर	अक्टूबर	नवम्बर	दिसम्बर
1	सूखा				■	■	■	■		■	■		
2	लू				■	■	■						
3	शीत लहर	■											■
4	आधी तुफान					■	■	■					
5	ओला – पत्थर	■	■	■									■

समुदाय से हुई चर्चा एवं आपदा का मौसमी कैलेण्डर बनाने से यह स्पष्ट हुआ कि कम दिनों में अधिक वर्षा, वर्षा विहिन दिनों की संख्या में वृद्वि तथा चरम पर तापमान पहुंचने से बहुत सारी समस्याओं का सामना गांव को करना पड़ रहा है।

सूखा इस ग्राम पंचायत की मुख्य समस्या है। पिछले कई वर्षों से सूखे ने लगभग पूरे गांव को प्रभावित किया है। जो प्रत्येक वर्ष समुदाय के खेती एवं मजदूरी को पूरी तरह प्रभावित करती है। साथ ही मई–जून में अत्यधिक गर्मी का पड़ना, सामान्यतः मानसून के दिनों में जून–जुलाई में वर्षा का न होना/कम होना आदि सूखा पड़ने के संकेत विगत कई वर्षों से प्रतीत हो रहे हैं जिसका दूरगामी प्रभाव सिंचाई, पेयजल, खाद्यान्न उत्पादन एवं पशुपालन के चारे का संकट बनकर पूरे वर्ष झेलना पड रहा है। पिछले 10 वर्षों से प्रत्येक वर्ष खरीफ की फसल छुट्टा जानवरों व सूखा से प्रभावित हो रही है। वहीं दूसरी तरफ रबी की फसल में आंधी–तूफान एवं ओला पत्थर, पाला, तेज गर्मी एवं लू के कारण कम पैदावार की भी संभावना बहुत अधिक बनी रहती है। गर्मी के कारण से फसल जल्दी सूख जाती हैं शीतलहर से पशुपालन मुख्यतः बकरीपालन प्रभावित हो रहा है, अर्थात बकरियों का बहुत नुकसान होता है।

2. जलवायु परिवर्तन जनित आपदा के जोखिम/खतरों का मानचित्रण एवं आंकलन

क्रम	आसन्न आपदा/ खतरे	संभावित जोखिम का क्षेत्र	संभावित जोखिम प्रभावित क्षेत्र			
			जोखिम	आबादी	घर	संसाधन
1	सूखा	पेयजल	जलस्तर का नीचे जाना पेयजल की कमी / संकट	पूरा गांव	1183	85 कुओं में 62 कुएं व 256 में 213 हैण्डपम्प व 8 राजकीय नलकूप व 21 प्राइवेट नलकूप का जलस्तर 2 से 4 मी0 तक कम हो जाता है।
		कृषि	उपज का प्रभावित होना	पूरा गांव	1183	724 हे0 खेती, 57 हे0 वन
		उधान/ सब्जी उत्पादन	सिचाई लागत अधिक			30–35 एकड सब्जी पर प्रभाव
		पशुपालन	जानवरों को चारा का संकट, बिमारियों का होना व उत्पादन कम होना	गाय, भैंस एवं बकरी पालक	200	चारागाह सूख जाता है।
2	लू	स्वास्थ्य	मानव एवं पशुओं को लू लगना, स्वास्थ्य खराब होना, टीकाकरण में बाधा	पूरा गांव	1183 घर	–
		शिक्षा	बच्चों का स्वास्थ्य प्रभावित		310 बच्चे	–
3	शीतलहर	स्वास्थ्य	मानव एवं जानवरों को ठण्ड लगना।	पूरा गांव – बुजुर्गो सांस की बीमारी में वृद्वि	बुजुर्ग एवं बच्चे	शीतलहर के प्रकोप से मानव स्वास्थ्य हानि
		कृषि	शीतलहर से फसलों को नुकसान	रोग लगना		उत्पादन में कमी

		पशुपालन	पशु क्षति, खेत में फसल का नुकसान	पूरा गांव	200 पशु पालक घर	प्रत्येक वर्ष 80–90 बकरियों एवं पशुओं की मृत्यु
4	आधी तुफान	मानव स्वास्थ्य एवं पशु	फसलों को नुकसान जानवर नुकासान	पूरा गांव	400 घर	–
5	ओला–पत्थर	मानव स्वास्थ्य एवं पेयज	छोटे बच्चें, वृद्वजन, महिलाएं के गिरने, चोट लगने का खतरा जानवरों के घायल होना	पूरा गांव	400 घर	कच्चे घरो का क्षतिग्रस्त होना, फसलों का नष्ट होना

आजीविका के साधनों पर आपदा का प्रभाव

इस क्षेत्र के आजीविका का मुख्य साधन कृषि, कृषिगत मजदूरी एवं पशुपालन है। सूखा के दौरान आजीविका हेतु लोग पलायन करते हैं। आजीविका के साधन आपदा से सर्वाधिक प्रभावित होते हैं। इससे सम्बधित सूचनाएं संकलित कर संलग्न की गयी हैं।

3. नाजुकता विश्लेषण

आपदाओं का बार–बार सामना करने से उससे प्रभावित समुदाय साामाजिक, आर्थिक रूप से कमजोर हो जाता है। समुदाय एवं गांव को आपदा की दृष्टि से सुरक्षित बनाने की दिशा में नाजुक समुदाय, नाजुक संसाधन, नाजुक स्थल आदि को जानना अति आवश्यक था। इसे जानने के लिए पुनः समुदाय, आशा, आंगनबाड़ी कार्यकत्री आदि की मदद से नाजुक वर्ग; जाति, लिंग, उम्र, आय के आधार पर गांव में नाजुक स्थल, एवं आपदा के कारण प्रभावित होने वाले ग्राम पंचायत में स्थित संसाधनों एवं उनकी संख्याओं के बारे में जानकारी प्राप्त की गयी।

1. सूखा

समुदाय के साथ चर्चा से यह तथ्य निकल कर आया कि सूखा गांव की मुख्य बड़ी आपदा है। आज से 20 वर्ष पहले बरसात मई माह से अगस्त माह तक होती रहती थी, सितम्बर में भी बारिश हो जाती थी। किन्तु अब बरसात अनियमित और असमय होती है। विगत 5–6 वर्षो से बरसात के मौसम में जून में बारिश हुई ही नहीं और जुलाई माह में एक–दो दिन में ही अधिक वर्षा हो गई फिर कई दिनों तक बारिश नहीं हुई। इससे सूखा जैसी स्थिति हो गयी है। जिससे लोग पलायन करने को मजबूर हो जाते हैं। सूखे की स्थिति में निम्नलिखित गतिविधियां और वृद्वि कर रही है।

- गांव यमुना नदी के बीहड में बसा होने के कारण जमीन उबड़खाबड़ है। इसके साथ ही कटान क्षेत्र होने के कारण वर्षा का पानी बह कर निकल जाता है।
- गांव के खेतों में मेडबन्धी जैसी जलसंरक्षण की गतिविधियों की कमी है
- गांव में बाग बगीचे कम मात्रा में है।
- छुट्टा पशु होने के कारण पौधरोपण व जंगलों को नुकसान हुआ है।
- खेतों में केवल रसायनिक खाद का प्रयोग किया जाता है।
- वृक्षारोपण पौधरोपण की कमी है।

सूखा का समुदाय पर प्रभाव

- पेयजल प्रभावित हुआ है गर्मी के दिनों में 62 कुओं व 213 हैण्डपम्पों एवं निजी नलकूपों का जल स्तर नीचे चला जाता है।
- सूखे के प्रभाव से खरीफ की फसल विलुप्त होती जा रही है।
- जानवरों का चारा संकट हो जाता है साथ ही तापमान बढने से पशुओं को विभिन्न प्रकार की बीमारियां हो जाती हैं।
- छुट्टा पशुओं की संख्या में निरन्तर वृद्वि होती जा रही है।
- सूखे से उत्पादन प्रभावित होता है जिससे लोग पलायन करने को मजबूर हो जाते है।

2. लू

समुदाय के साथ चर्चा से यह निकलन कर आया कि गर्मियों के दिनों में मई से जून तक तापमान अत्यधिक बढ़ जाता हैं और गर्म हवा चलने लगती हैं। सन 2022 में तापमान 49^0 बढ़ गया था।

इससे समुदाय के स्वास्थ्य पर इसका बहुत प्रभाव पड़ता हैं। मानव एवं पशुओं को लू लगने से उनका स्वास्थ्य खराब हो जाता है। विशेषकर बच्चों एवं बुजुर्गों पर इसका विशेष प्रभाव पड़ता है। बच्चों की शिक्षा एवं स्वास्थ्य सेवाएं प्रभावित होती है। पशुओं को चारा एवं पेयजल हेतु पानी की समस्या होती है।

3. शीतलहर

सर्दियों के मौसम में 25 दिसम्बर से 20 जनवरी तक शीतलहर का प्रभाव रहता है। शीतलहर मानव एवं पशुओं के स्वास्थ्य के साथ कृषि को भी प्रभावित करता है। शीतलहर के प्रभाव से प्रत्येक वर्ष पशुपालन पर नकारात्मक प्रभाव पड रहा है। बच्चों की शिक्षा एवं स्वास्थ्य सेवाएं प्रभावित होती है।

बच्चों में निमोनिया, खांसी एवं दस्त की समस्या हो जाती है। फसलों पर मुख्यतः आलू, दलहन एवं तिलहन पर पाले का प्रभाव पड़ता है, परिणामस्वरूप पौधों की बढ़वार थम जाती है, फसल सूख जाती है। कीट–पतंगों का प्रकोप बढ़ जाता है।

4. ओला–वृष्टि

छोटे बच्चें, वृद्वजन, महिलाएं के गिरने, चोट लगने का खतरा जानवरों के घायल होना, घरो ं का क्षतिग्रस्त होना, फसलों का नष्ट होना आदि। 13 मार्च 2020 में बेंदा गॉव ओला वृष्टि से चना, गेहूॅ सरसों की फसल बहुत ज्यादा क्षति हुआ था।

उपरोक्त के अतिरिक्त समुदाय की व्यवहारगत एवं ढ़ाचागत संरचना में कमियां हैं जो कि निम्नवार है–

- लोगों में जानकारी एवं जागरूकता का अभाव है, लोगों को कल्याणकारी कार्यक्रमों, योजनाओं एवं कृषिगत जानकारियों का अभाव है। लोग पशुपालन तो करते हैं किन्तु नस्ल सुधार, पशुओं का बीमा, फसल बीमा आदि की जानकारी बहुत कम लोगों को है।
- गांव में समुदाय आधारित संगठनों की कमी है। कृषि केन्द्र, बीज केन्द्र, किसान संगठन, सामुदायिक अनाज बैंक, युवा मण्डल दल आदि सामाजिक संगठन की कमी है।

- खेती में विविधता मिश्रित खेती एवं मिश्रित फसलों एवं कम लागत, कम समय स्थायी कृषि आदि संबधित गतिविधियां नहीं है, जिससे किसानों को आपदा के समय जोखिम का सामना करना पडता है। गांव में मुख्यतः फसलों में गेंहू, सरसों, चना, मटर, ज्वार बाजरा व अरहर ही उगाते हैं।
- गांव में गाय, भैस आदि पशुपालन होने के बावजूद भी गोबर का प्रयोग जैविक खाद एवं कम्पोस्ट खाद बनाने हेतु नहीं करते हैं बल्कि सडकों के किनारे ढेर लगाकर धूर बना देते हैं तथा कुछ जगहों पर कण्डे बनाकर खाना बनाने में प्रयोग किया जाता है।
- कृषिगत गतिविधियों में रासायनिक खाद, कीटनाशकों, खरपतवारनाशक एवं कीटनाशक का अत्यधिक प्रयोग किया जाता है।
- मानसून के दिनों में जलजनित एवं मच्छर–मक्खियों के कारण होने वाली बिमारियां अधिक होती है। यहां पर टायफायड बुखार श्वास आदि की बीमारियां होती रहती हैं।
- यहां पर कृषि परामर्श एवं मौसम पूर्वानुमान की व्यवस्था न होने के कारण लोगों की त नाजुकता में वृद्धि होती है।

4. क्षमता विष्लेषण

आपदाओं के सन्दर्भ में गांव को क्लाइमेट स्मार्ट बनाने की दृष्टि से गांव स्वयं में कितना सक्षम है, इसकी जानकारी हेतु समुदाय के साथ मिलकर समग्र ग्राम पंचायत की क्षमता का आकलन किया गया। जलवायु परिवर्तन से उत्पन्न होने वाले आपदाओं एंव खतरों से गांव के साथ ही आसपास उपलब्ध संसाधन भी प्रभावित होते है। यह संसाधन भौतिक, पर्यावरणीय एवं मानव संसाधन के रूप में उपलब्ध होते है। इनकी पहचान होने से आपदा के खतरों से निपटने में आसानी होती हैं।

ग्राम पंचायत बेंदा बॉदा जिला मुख्यालय से लगभग 50 किलोमीटर फतेहपुर रोड पर स्थित है समुदाय के साथ चर्चा से पता चला हैं कि बेंदा गॉव में 39 मजरे हैं। 7 ऑगनवाडी केंद्र, 4 पूर्व माध्यमिक विद्यालय, 8 प्राथमिक विद्यालय, 01 महाराणा प्रताप इण्टर कालेज बालिका, 85 कुआ, 256 हैंडपम्प और 11 राजकीय नलकूप हैं।

सुविधा संसाधन मानचित्र से लिए गये आंकड़े एवं तथ्य

विशेषकर संसाधनों के सन्दर्भ में किये गये क्षमता आकलन को तीन भागों में विभक्त किया गया, जिसमें गांव में उपलब्ध भौतिक एवं पर्यावरणीय संसाधनों को सामाजिक मानचित्रण एवं सुविधा मानचित्र पर अंकित किया गया, जबकि मानव संसाधन के बारे में समुदाय के साथ चर्चा कर सूचनाएं प्राप्त की गयीं, जो निम्न प्रारूप पर दर्ज हैं–

भौतिक संसाधनों की उपलब्धता एवं गांव से दूरी

विवरण	संख्या	संपर्क व्यक्ति का नाम एवं संख्या	गांव से दूरीकिमी0
प्राथमिक विद्यालय	8	बन्दना मिश्रा 9450302620	1
पूर्व माध्यमिक विद्यालय	4	मान सिंह 9653059358	1
पंचायत भवन	1	विनोद कुमार 9335034255	0
सरकारी राशन कार्ड की दुकान	2	पुष्पेन्द्र सिंह 7909730286	1
थाना	1	तिन्दवारी	25

कचहरी बॉदा	1		50
जिला चिकित्सालय एम्बुलेंस व्यवस्था बॉदा	1		50
विकासखण्ड कार्यालय तिंदवारी	1		25
प्राथमिक स्वास्थ्य केन्द्रतिंदवारी	1		25
आपदा विभाग, बांदा	1		50
पोस्ट ऑफिस,	1		.5
बिजली विभाग,	1		25
डिग्री कालेज	5		50
फायर स्टेशन	1		50
बस स्टेशन	1		50
रेलवे स्टेशन बॉदा	1		50
खाद बीज, दवा केन्द	1		25
बाजार	1		1
बैंक	1		1

प्राकृतिक संसाधन उपलब्धता संख्या एवं दूरी

संसाधन	**संख्या**	**विवरण/नाम /संपर्क संख्या**	**दूरी किमी0**
तालाब	9		0 से 1
कूंआ	85		0 से 1
नाला	1		1
नदी	1		.5
कृषिगत क्षेत्र	1957.2		0 से 4
खुला क्षेत्र/ सामुदायिक भूमि	154		0 से 4
मानव संसाधन			
ग्राम प्रधान	1	श्री ब्रजेष सिंह	8707549280
आंगनवाड़ी	7	मीना देवी	8726859613
आशा बहू	3	केषकली	8009331569
एएनएम	1	ममता पटेल	9936710252
झोलाछाप डाक्टर	0		
भूतपूर्व सैनिक	35		

आपदा के समय सुविधाओं व उपलब्ध संसाधनों का महत्वपूर्ण योगदान होता है। यह सुविधाएं आपदा के प्रभाव को कम करने में सहायक होती है। साथ ही, यह भी आवश्यक है कि इन सुविधाओं से समुदाय लाभान्वित हो रहे है कि नहीं और ये सुविधाएं समुदाय की पहुॅच में है कि नहीं। संसाधनों से जुड़े तथ्यों की यह पूरी प्रक्रिया समुदाय की सहभागिता के आधार पर पारदर्शी तरीके से प्रदर्शित होती है जिसका पूरा विवरण संकलित किया गया है।

वित्तीय संसाधन –

उपरोक्त के अतिरिक्त गांव के पास वित्तीय संसाधन भी उपलब्ध है। ग्राम पंचायत के पास वित्तीय वर्ष 2023–24 में उपलब्ध होने वाले सम्भावित वित्तीय संसाधनों के विवरण निम्न प्रकार होंगे –

क्र0सं0	मद	वर्ष 2022–23
1	15वां वित्त आयोग	40 लाख रूपये
2	स्वयं के राजस्व का स्त्रोत	–

क्लाईमेट स्मार्ट ग्राम पंचायत बेंदा की कार्ययोजना का निर्माण–

क्लाईमेट स्मार्ट ग्राम पंचायत विकास योजना बनाने हेतु सभी अभ्यासों को करने के उपरान्त सेक्टरवार जानकारी प्राप्त करने के लिए समूह चर्चा की गयी। इस चर्चा के दौरान ही सभी 4 सेक्टरों अन्तर्गत आने वाले विभिन्न बिन्दुओं की ग्राम पंचायत में वर्तमान स्थिति उससे संबंधित समस्यायें उन समस्याओं के निराकरण हेतु विशिष्ट कार्ययोजना के बारे में जानकारी प्राप्त की गयी। उपरोक्त सूचनाओं तथ्यों एवं ग्रामीणों से हुई चर्चा व विचार विर्मश के बाद क्लाईमेट स्मार्ट ग्राम अवधारणा के तहत योजना को तैयार किया गया है। जिसमें आपदा, खतरा, जोखिम, के कारण व समाधान आदि के बारे में संकलन तैयार किया गया है –

सेक्टरवार क्लाईमेट स्मार्ट ग्राम पंचायत बेंदा की कार्ययोजना तालिका –

क्र0सं0	कार्य का क्षेत्र	कार्य का नाम	कार्य का विवरण	परिसमपत्ति का स्थान	अनुमानित धनराशि रू0	अवधि	योजना का परिव्यय
1	सेक्टर–1 मानव विकास एवं सामाजिक सुरक्षा साफ–सफाई एवं स्वच्छता	कचरे से पटे 6 कुएं की सफाई सुरक्षा एवं मरम्मत कार्य	बेंदा खास के रास्ते से होते हुए, रूकइया ताला तक के रास्ते में ।	विभिन्न स्थानों पर	3 लाख	3 माह	15वां वित्त एवं राज्य वित
2		कूड़ा पात्र	कूड़ा निस्तारण हेतु 60 कूड़ा पात्र	विभिन्न स्थानों पर	4 लाख	1 माह	15वां वित्त व ग्राम निधि
3		शौचालय निर्माण (दिव्यांग)	महिला /पुरूष दिव्यांग हेतु शौचालय निर्माण	काली देवी जी के स्थान के पास	7 लाख	6 माह	15वां वित्त व ग्राम निधि
4		जैविक–अजैविक कूड़ा प्रबन्धन केन्द्र का निर्माण	ग्राम पंचायत की जमीन पर संरचना	खगाईया ताला के पास	5 लाख	3 माह	15वां वित्त व ग्राम निधि
5		हैण्डपम्प रिबोर	20 हैण्डपम्पों को रिबोर कराना	खगाईया ताला –4, लाहा डेरा–4, परिहारन डेरा–4, बेंदा खास–4, भैरम पुरवा–3 खैरी, गाड़ी डेरा–3	12 लाख	6 माह	15वां वित्त व ग्राम निधि
6		नाला निर्माण	वॉटर रिचार्ज एवं कृषि सिंचाई के लिए	चौहावन डेरा, पण्डितन डेरा, परिहारन डेरा, भैरम पुरवा, गाड़ी डेरा	30 लाख	3 माह	15वां वित्त व ग्राम निधि
7		पुलिया निर्माण	आवागमन व जल निकास हेतु सुविधा	मुन्शी डेरा, लाहा डेरा, उसरहा नाला में	15 लाख	3 माह	15वां वित्त व ग्राम निधि

8	सेक्टर–2 बुनियादी / आधारभूत संरचना एवं पर्यावरण	स्कूल के भवनों का जीर्णोद्धार	दीवार एवं छत की मरम्मत	बेंदा प्रा0वि0	20 लाख	6 माह	15वां वित्त एवं राज्य वित
9		सोख्ता गड्डा	भूगर्भ जल प्रबन्धन हेतु 50 सोख्ता गड्डा	विभिन्न स्थानों पर	5 लाख	5 माह	15वां वित्त एवं राज्य वित
10		तालाब संरक्षण	भुभरा तालाब में रिटेनिंगवॉल	भुभरा तालाब	10 लाख	5 माह	15वां वित्त, राज्य वित्त एवं मनरेगा
11		आर0सी0सी0 / इण्टरलॉकिंग / खण्डजा	लगदेवरा में मेन रोड से स्वरूप निषाद के घर	–	4 लाख	1 माह	15वां वित्त, राज्य वित्त एवं मनरेगा
12		इण्टरलॉकिंग कार्य	बेंदा घाट पुलिस चौकी प्रागंण में	–	5 लाख	1 माह	15वां वित्त, राज्य वित्त एवं मनरेगा
13		आर0सी0सी0 रोड निर्माण	खगाईया ताला में जयकरन के दरवाजे से दीनदयाल के दरवाजे तक	–	10 लाख	1 माह	15वां वित्त, राज्य वित्त एवं मनरेगा
14		इण्टरलॉकिंग कार्य	सामुदायिक शौचालय से रोड तक	–	5 लाख	1 माह	15वां, राज्य वित्त एवं मनरेगा
15		खण्डजा निर्माण	अरवारी डेरा में रामकरन के दरवाजे से देव सिंह के खलिहान तक	–	5 लाख	1 माह	15वां वित्त, राज्य वित्त एवं मनरेगा
16		सौर ऊर्जा	50 लाभार्थी	घरों की छतों पर	50 लाख	6 माह	15वां वित्त, राज्य वित्त एवं मनरेगा
17	सेक्टर–3 आजीविका कृषि पशुपालन	स्थायी कैटल सेल्टर / गोट सेल्टर / कुकुट पालन	30 लाभार्थी	सभी मजरों पर	50 लाख	6 माह	15वां वित्त, राज्य वित्त एवं मनरेगा

क्लाइमेट स्मार्ट ग्राम पंचायत विकास योजना के निरूपण की सहभागी प्रक्रिया–

वातावरण निर्माण

ग्राम पंचायत बेंदा की आगामी वित्तीय वर्षो हेतु क्लाइमेट स्मार्ट ग्राम पंचायत विकास योजना के निरूपण हेतु ग्राम पंचायत के समग्र जन की सहभागिता सुनिश्चित करने की दृष्टि से ग्राम प्रधान श्री बृजेष सिंह द्वारा 17 फरवरी 2023 को पूरे ग्राम सभा में लाउडस्पीकर द्वारा सूचना की गयी कि दिनांक 20 फरवरी 2023 को पंचायत भवन बेंदा में खुली बैठक आयोजित की गयी है।

खुली बैठक

ग्राम पंचायत बेंदा की आगामी वित्तीय वर्षों हेतु क्लाइमेट स्मार्ट ग्राम पंचायत विकास योजना के निरूपण हेतु ग्राम पंचायत के समग्र जन की सहभागिता सुनिश्चित करने की दृष्टि से ग्राम प्रधान ब्रिजेश सिंह द्वारा दिनांक 17 फरवरी, 2023 को पूरे ग्राम सभा में लाउडस्पीकर द्वारा सूचना की गयी कि दिनांक 20.02.2023 को पंचायत भवन, बेंदा पर खुली बैठक आयोजित की गई है। खुली बैठक ग्राम पंचायत बेंदा के लिए क्लाइमेट स्मार्ट ग्राम पंचायत कार्ययोजना निरूपण हेतु हितभागियों की ग्राम सभा की खुली बैठक पूर्व निर्धारित सूचना के अनुसार दिनांक 20.02.2023 को पंचायत भवन में खुली बैठक का आयोजन किया गया। इस खुली बैठक में ग्राम प्रधान, उप ग्राम प्रधान, वार्ड सदस्य, स्वयं सहायता समूह के सदस्य, आंगनवाड़ी कार्यकत्री, आशा, ग्रामीण किसान महिलाएं एवं पुरूष के साथ अन्य बुजुर्ग ग्रामवासी एवं बच्चे उपस्थित हुए। इस में ग्राम पंचायत के सभी मजरों से कुल 125 लोगों (पुरूष–80, महिला–40 एवं बच्चे– 05) ने भाग लिया।

इसमें ग्राम पंचायत के सभी मजरो से कुल 125 लोगों ने प्रतिभाग किया इस बैठक की अध्यक्षता ग्राम प्रधान श्री बृजे"ा कुमार सिंह ने किया। बैठक के प्रारम्भ में सभी का स्वागत परिचय ग्राम पंचायत सचिव श्री विनोद कुमार जी द्वारा किया गया। बैठक के उद्देश्य पर सचिव महोदय ने प्रकाष डाला एवं बताया कि जलवायु परिवर्तन का असर पूरा वि"व झेल रहा है। इसका पूरा प्रभाव हमारी ग्राम पंचायत एवं ग्राम वासियों पर पड रहा है। सरकार इस दिशा में सतत प्रयास कर रही है यह बैठक इसी उद्देष्य पर कार्य करने हेतु आयोजित की गयी है। उत्तर प्रदेश के 39 जनपद जो कि जलवायु परिवर्तन के अधिक प्रभाव को झेल रहे है। बांदा जनपद भी इसी में सम्मिलित

है बांदा के तिन्दवारी ब्लाक अन्तर्गत ग्राम पंचायत बेंदा को इस कार्य के लिए चयनित किया गया है। पहले भी हमारी ग्राम पंचायत की विकास येाजना बनी है परन्तु इस तीन चार दिनों में जलवायुगत/ मौसम से सम्बधित समस्याओं से सम्बधित समस्याओं के समाधान हेतु विकास के सभी मुद्दों के साथ जलवायु स्मार्ट ग्राम पंचायत योजना के निर्माण की प्रकिया पूर्ण करनी है। जिसमें हम सभी की सहभागिता होनी चाहिए यहां ग्राम पंचायत के उत्तर में यमुना नदी है जो कि परि"चम और पूरब दिषा तक फैली है बरसात के दिनों में नदी में बाढ आने की बजह से पूरी ग्राम पंचायत प्रभावित होती होती है। गांव का अधिकांष क्षेत्र डूब क्षेत्र में आता है इस नदी के प्रभाव से ही ग्राम मैदा के 39 मजरे बने है। जो कि उचें क्षेत्रों में जाकर बसाहट हुयी है। नदी के कारण ग्राम पंचायत का अधिकांष क्षेत्र कटाव युक्त व बजंर हो चुका है बरसात में अधिकांष लोगों के आबास बाढ से प्रभावित हो जाते हैं। यह हमारे लिए जहां जीवन दायिनी है वहीं खतरें भी पैदा करती है।

ग्राम पंचायत समितियों का विवरण –

प्रषासनिक समिति	**निर्माण कार्य समिति**	**स्वास्थ्य एवं कल्याण समिति**
अध्यक्ष – ब्रजेष कुमार सिंह सदस्य – ब्रजबिलाष, गजराज, मीना देवी, राहुल, शेर बहादुर	अध्यक्ष – हरिपाल सदस्य – ब्रजबिलाष, रमसखिया, रूद्रप्रताप सिंह, ज्वाला, राहुल सिंह	अध्यक्ष– सिमरन, सदस्य – ब्रजबिलाष, हरिपाल, राजकुमारी, शेर बहादुर, ज्वाला
पेयजल स्वच्छता एवं जल प्रबन्धन समिति अध्यक्ष – ब्रजबिलाष, सदस्य – रानी, ज्वाला, सिमरन, राहुल, रूद्रप्रताप	नियोजन एवं विकास समिति अध्यक्ष – ब्रजेष कुमार सिंह सदस्य – रानी,नरेन्द्र, राजकुमारी, रूद्रप्रताप, ब्रजबिलाष	शिक्षा समिति अध्यक्ष – ब्रजेष कुमार सिंह सदस्य – रानी, नरेन्द्र, सुषीला, शेरबहादुर, सिमरन

क्रमांक	**पंचायत सदस्य का नाम**	**मोबाइल नम्बर**
1	श्रीब्रजेश कुमार सिंह ग्राम प्रधान	8707549280
2	श्रीमती रानी देवी वार्ड सदस्य	8400830570
3	श्रीमती सुषीला वार्ड सदस्य	9519782470
4	श्रीमती सिमरन वार्ड सदस्य	9559552670
5	श्रीमती अर्चना वार्ड सदस्य	6306098639
6	श्रीमती राजकुमारी वार्ड सदस्य	7054439326
7	श्री रूद्रप्रताप सिंह वार्ड सदस्य	9792413433
8	श्री नरेन्द्र सिंह वार्ड सदस्य	8009964320
9	श्री ज्वाला वार्ड सदस्य	9621894094
10	श्री ब्रजबिलाश वार्ड सदस्य	8953194606
11	श्री रमसखिया वार्ड सदस्य	7521808774
12	श्री राहुल सिंह वार्ड सदस्य	9794030453
13	श्री गजराज वार्ड सदस्य	9559578755
14	श्री शेरबहादुर वार्ड सदस्य	8303938971
15	श्री हरिपाल वार्ड सदस्य	9452677737
16	श्रीमती मीना सिंह वार्ड सदस्य	

ट्रांजेक्ट वॉक (ग्राम भ्रमण)

समग्र ग्राम पंचायत के जलवायु गत अपदा एवं जोखिम को समझने की दृश्टि से खुली बैठक में उपस्थित ग्राम प्रधान, पंचायत सचिव, 19 स्वयं सहायता समूह की महिलांए एवं पुरूष समुदाय के सभी वर्गों के लोगों ने ग्राम पंचायत के 39 मजरों का ट्रान्जेक्ट वाक किया। पंचायत भवन से शुरू कर बेंदा खास, खगइया ताला, लाहाडेरा, लगदेउरा, बगईहार डांडी डेरा अदि के साथ यमुना क्षेत्र तालाब व जंगल के भ्रमण के साथ पुनः पंचायत भवन पर समाप्त हुयी। ग्राम पंचायत का क्षेत्रफल लगभग 5 किमी है यह फैलाव यमुना की बाढ की वजह से संयुक्त गांव बिखर कर पुरवों व मजरों में बस चुका है।

ट्रांजेक्ट वाक के दौरान अवलोकन की गयी स्थितियां –

बसाहट	राष्ट्रीय राजमार्ग से दायें तरफ प्रवेश करते ही बेंदा ग्राम पंचायत की शुरूआत हो जाती है। ग्राम पंचायत के 39 मजरे हैं जो दूर दूर उबड खाबड यमुना नदी के टीलों व स्वयं खेतों में बसा हुआ है। यहां पर कच्चे व पक्के मकानों में लोग गुजर बसर कर रहे है। यहां पर यमुना नदी का प्रभाव देखने को मिलता है क्योकि लोगों ने अपने घरों को उचें में बसाने का प्रयास किया है। यहां के बेन्दा खास व खगइया ताला में अधिकांशत संभ्रात परिवार निवास करते है, जिनकी राजनीतिक क्षेत्र में पहुंच है। अधिकांष मजरों में खपरैल वाले कच्ची मिट्टी के घर हैं। प्रत्येक मजरे तक जाने के लिए सम्पर्क मार्ग है। सभी मजरों में कुए और हैण्डपम्प लगे हुए हैं जिनसे लोग पीने व नहाने तथा घरेलू कार्य के लिए प्रयोग करते है। यहां पर छुट्टा पशुओं का झुण्ड भी देखने को मिला जो अलग अलग स्थानों में देखने को मिला। इसके अलावा लोगों ने बक्री गाय भैंस आदि पषु पाल रखे है।
ताल तलैया	ग्रामपंचायत के अन्तर्गत 9 छोटे छोटे तालाब हैं, जो बरसात के मौसम में भरते है और दिसम्बर जनवरी तक सूख जाते है।
नाला	ग्राम पंचायत में सदाबहारी नाला नहीं है मात्र बरसाती नालें हैं जो वारिस के मौसम में खेतों व घरों का पानी एकत्र होकर नाले के रूप में कटाव करता हुआ यमुना नदी में गायब हो जाते है।
नदी	ग्राम पंचायत के उत्तर दिशा में यमुना नदी है जिसका प्रभाव गांव में दिखता है लोगों ने उचें टीलों में अपने आवासों को बनाये हुए है।
हरित क्षेत्र बाग –बगीचा	ग्राम पंचायत के भ्रमण के दौरान हरित क्षेत्र कम देखने को मिले।
भौतिक संसाधन	ग्राम पंचायत के अर्न्तगत हैण्डपम्प व कुओं से ही पानी की आवश्यकता की पूर्ति होती है। यहां पर 85 कुएं है जिनमें से मात्र 13 कुओं का प्रयोग हो रहा है। तथा 256 हैण्डपम्प हैं। यहां पर 7 आंगनबाडी केन्द्र है जो विभिन्न विद्यालयों में संचालित होते हैं। ग्राम पंचायत के अर्न्तगत 8 प्राथमिक, 4 पूर्व माध्यमिक व 1 प्राइवेट बालिका इ0का0 है। सभी विद्यालयों में शौंचालय व हैण्डपम्प लगे हुए हैं।

सामाजिक मानचित्रण

सभी मजरों के भ्रमण के पश्चात ग्राम पंचायत बेंदा में स्थित कालका देवी मन्दिर के परिसर में ग्रामवासियों के उपस्थिति में सामाजिक मानचित्रण तैयार किया गया, जिसके आधार पर प्राप्त सूचनाएं निम्न तालिका में प्रदर्शित हैं–

विवरण	संख्या	गुणात्मक विवरण
ग्राम पंचायत की चौहद्दी का क्षेत्रफल	2228 हे0	बसाहट बाग बगीचा एवं खेती का स्थान मिलाकर
कुल मजरों की संख्या	39	ग्राम पंचायत के सभी मजरे
कुल घरों की संख्या	1183	ग्राम पंचायत के अर्न्तगत सभी रिहायषी घर
कुल पक्के घरों की संख्या	783	प्रत्येक मजरे पर अधिकांषतः पक्की छत वाले मकान
कुल कच्चे घरों की संख्या	400	प्रत्येक मजरे पर अधिकांषतः खपरैल व मिट्टी से बने हुए घर
आर्थिक रूप से कमजोर परिवारों की संख्या	175	सभी मजरों पर
दिव्यांगजनों की संख्या	47	दिब्यांगजनों में 13 महिलाएं व 34 पुरूष
महिला मुखिया परिवारों की संख्या	70	सभी मजरों पर
इण्यिामार्का हैण्डपम्प	256	सभी मजरों पर
कूंआं	85	सभी मजरों पर

जतिगत /श्रेणीगत विवरण

सामान्य जाति के घरों की संख्या	567
पिछडी जाति के घरों की संख्या	349
अनुसूचित जाति के घरों की संख्या	267
कुल घरों की संख्या	**1183**

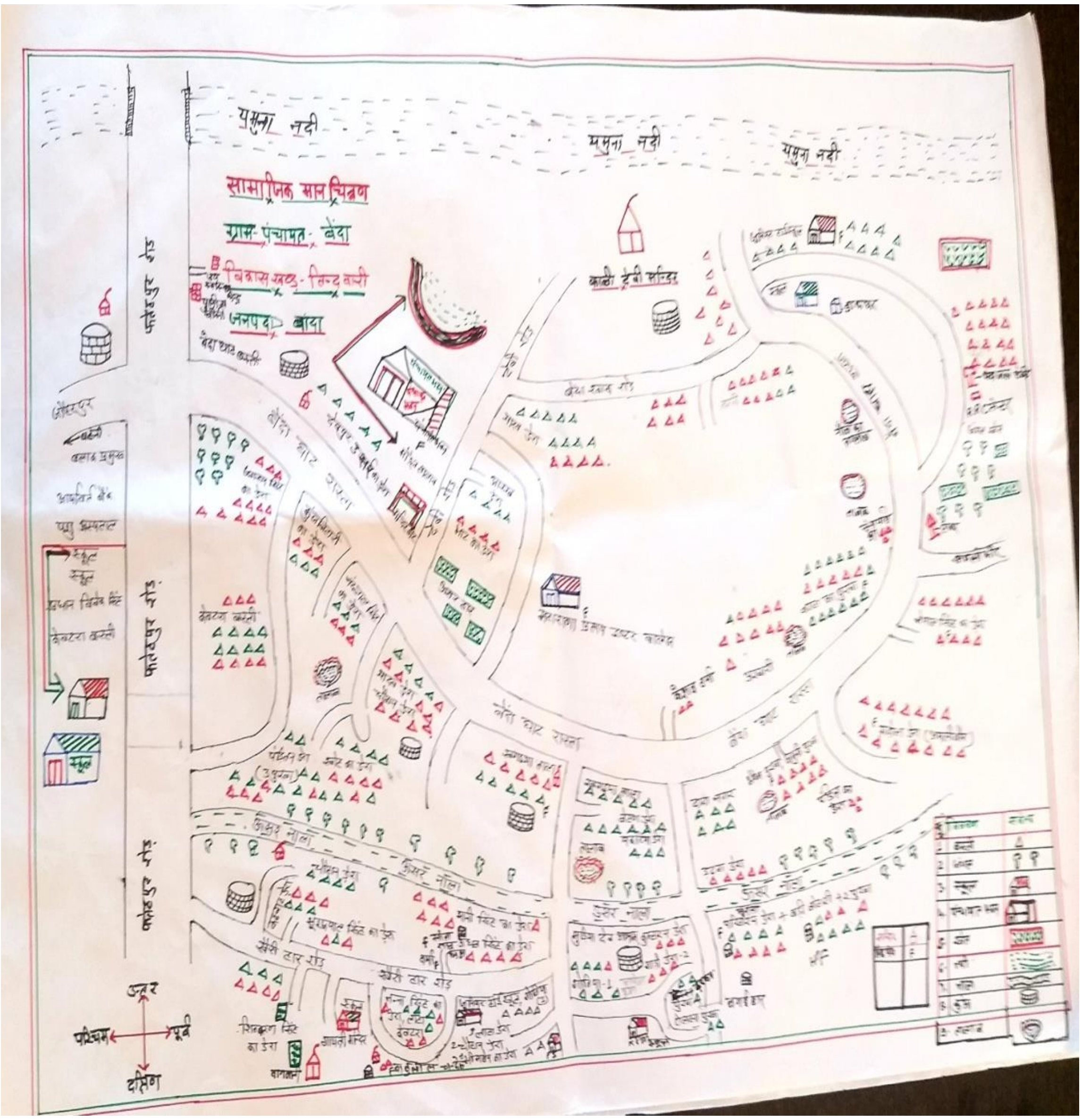
ग्राम पंचायत बेंदा बांदा जनपद से 50 किमी0 की दूरी पर बांदा कानपुर हाईवे से यमुना नदी किनारे बसा हुआ है। इस ग्राम पंचायत के अन्तर्गत यमुना नदी पश्चिम उत्तर से पूरब उत्तर दिशा की ओर यमुना नदी गुजरती है। जिससे गांव डूब क्षेत्र के अन्तर्गत आता है। बाढ़ से होने वाली कटाव के कारण यहां बड़ी–बड़ी कगारे बन गयी है। जिससे गांव 39 मजरों में बंट चुका है। यहां ठाकुर, पण्डित, धोबी, कहार, यादव, केवट, कुम्हार, चमार, डोमार, कोरी आदि जातियां निवास करती है।

ग्राम में कुल 175 परिवार आर्थिक रूप से कमजोर वर्ग के है। ग्राम पंचायत बेंदा में 15 परिवार भूमिहीन है। बेंदा खास के उत्तर पूर्व में निचली भूमि है इसलिए लोगों ने अपने मकान छोड़कर अपने खेतों में आवास बनवायें है। यहां पर बेंदा खास के पास कालिका देवी का मन्दिर है जिसमें बड़ी संख्या में लोग धार्मिक अनुष्ठान करने के लिए आते है। यहां 47 दिब्यांगजनों में 13 महिलाएं व 34 पुरूष है। सभी आंशिक रूप से विकलांग है।

60 प्रतिशत लोग साक्षर की श्रेणी में आते है जबकि 55 प्रतिशत महिलाएं साक्षर है। 70 घर ऐसे है जहां महिला मुखिया है।

आजीविका के साधन –

आजीविका के साधन	परिवार की संख्या
सरकारी नौकरी	200
छोटे उद्योग–धंधे	0
कृषि आधारित	830
कला एवं शिल्पकार	05
पशुपालन	150
लोकल दुकान	100
गैर कृषि मजदूरी	200
अन्य	60



यमुना नदी
सामाजिक मानचित्रण
ग्राम पंचायत- बेंदा
विकास खण्ड- तिन्दवारी
जनपद- बांदा
काली देवी मन्दिर
उत्तर
दक्षिण
पश्चिम
पूर्व

आपदाओं का ऐतिहासिक समय रेखा एवं घटनाक्रम –

ग्राम पंचायत बेंदा का ऐतिहासिक समयरेखा आपदाओं एवं उसके प्रभाव को जानने के बाद सामुदाय के साथ यह भी जानने का प्रयास किया गया कि ये आपदायें इस ग्राम पंचायत को कब–कब प्रभावित कर रही है। इस क्रम में इन आपदाओं का ऐतिहासिक समय रेखा जानने का प्रयास किया गया। इसके अन्तर्गत सामुदाय ने माना कि सूखा एक ऐसी समस्या है कि जो पूरे क्षेत्र को लगातार प्रभावित कर रही है। इससे लोगों की आजीविका तो प्रभावित हो ही रही है लोग पलायन को भी मजबूर हो रहे है। यह लगातार प्रत्येक वर्ष बढ़ रही है। हाल के वर्षो में सूखा के अलावा आंधी–तूफान ओला, कोरोना एवं शीतलहर का प्रकोप भी ग्राम पंचायत को झेलना पड़ा है। प्राप्त सूचनाओं को निम्नवत दर्ज कियाा गया है –

क्र0 सं0	वर्ष	आपदा/खतरा	घटनाओं का कारण	मृतको की संख्या	प्रभावित लोगों की संख्या	आर्थिक क्षति	न्यूनीकरण हेतु किया गया कार्य
1	1978	बाढ़	पहाड़ी क्षेत्रों में अधिक बारिश होने से बांधों में पानी का भराव होने के वजह से पट खोले गये जिससे कि बाढ़ आई।	–	700 परिवार प्रभावित	1100 हे0 खेत प्रभावित	नदियों के गठजोड़ का कार्य प्रगति पर है।
2	1979	सूखा	वारिस न होना व तापमान में वृद्वि से नीचे चले जाना इसकारण से बडे बडे वृक्ष सूख गये।	.	गांव की 60 प्रतिशत फसल नष्ट हो गयी।	700 परिवार प्रभावित	स्रकार द्वारा योजना चलाकर मिट्टी के कार्य व खाद्यान्न योजना चलायी गयी।
3	2005	बाढ़	अति वृष्टि व यमुना की बाढ के कारण घर गिर गये		425 परिवार	फसलें नष्ट हो गयी और घर गिर गये।	स्रकार द्वारा राहत ि"ाविर बनाकर लोगों का सहयोग किया गया।
4	2005	सूखा	वारिस न होना व तापमान में वृद्वि से नीचे चले जाना		गांव की 65 प्रतिशत फसल नष्ट हो गयी।	775 परिवार प्रभावित	सरकार द्वारा सूखा राहत पैकेज दिये गये।

			इस कारण से बडे बडे वृक्ष सूख गये।				
5	2013	अतिवृष्टि	अधिक वारिस से खडी फसलें नष्ट हो गयी		345	खरीफ की फसलें नष्ट जिसमें ज्वार मूंग उडद बाजरा प्रमुख है।	कोई सहयोग नहीं मिला
6	2022	लू का प्रकोप	गर्म हवा व कडीधूप के प्रभाव से लोगों व जानवरों को नुकसान		गांव के सभी परिवार प्रभावित	डायरिया व बुखार के रोगियों में वृद्वि	सरकार द्वारा स्वास्थ्य कैम्प लगाकर लोगों का इलाज किया गया।
7	2020	कोरोन का प्रभाव	हवा में फैलने वाली बीमारी			रोजगार बन्द लोग घरों में कैद	लाक डाउन

आजीविका के साधनों पर आपदाओं का प्रभाव –

क्र0 सं0	आजीविका के प्रकार	परिवार की संख्या	आपदा	आपदा का प्रभाव			क्या प्रभाव पड़ता है
				अधिक	मध्यम	कम	
1	कृषि	830	सूखा				• खेत की खड़ी फसल सू है। • सिंचाई खर्च अधिक लग • जानवरों को पीने व उपलब्ध नहीं होता। • दुग्ध उत्पादन घट जाता • फसलों की बढ़वार नहीं • बेरोजगारी बढ़ती है। • लोग पलायन को मजबूर • छुट्टा प्रथा को बढ़ावा मि
2			शीतलहर (पाला)				• शीत लहर से फसले झुल है। • सरसों में माहू का प्रकोप है। • अरहर की फसल सूख • फसलों का फूल मरता उत्पादन घट जाता है।
			ओला बृष्टि				• कच्चे घरों का खपरैल है। • घर गिर जाते है। • फसलों को भारी नुकस है। • ओला वृष्टि से जानवर घ है।
2	मजदूरी	200 परिवार	सूखा				• कृषिगत मजदूरी का व मिलता है। • खान–पान पर प्रभाव पड़ • आर्थिक संकट उत्पन्न है। • आजीविका प्रभावित होती • पलायन करना पड़ता है
			शीतलहर				• मजदूरी नहीं मिल पाती • स्वास्थ्य खराब रहता है। • खाने की समस्या हो जा

							• खर्चा बढ़ जाता है।
3	पशुपालन	(गाय, भैस, बकरी, मुर्गी, पालन आदि)	सूखा				• पशुओं में दूध उत्पादन कम हो जाता है। • गाय–भैसों को पीने के पानी की समस्या हो जाती है। • चारा कम हो जाता है। • छुट्टा प्रथा को बढ़ावा मिलता है। • तप्ती धूप के कारण जानवारों में बीमारी हो जाती है।
			शीतलहर				• बकरियों में रोग होने से मृत्यु दर संख्या बढ़ जाती है। • पशुओं में दुग्ध उत्पादन कम हो जाता है। • चारे की समस्या बढ़ जाती है।
3	स्वयं का व्यवसाय (छोटी दुकान आदि)		सूखा				• लोग दुकानों से सामान कम खरीदते है। • उधारी लेने वालों की संख्या बढ़ जाती है। • व्यवसाय प्रभावित होता है। • सामान महंगा हो जाता है।
			शीतलहर				• व्यवसाय मध्यम हो जाता है। • लेन–देन पर प्रभाव पड़ता है।

ग्राम उन्मेष संस्थान, बांदा टीम

अम्बरीष कुमार श्रीवास्तव, निदेशक

राम कुमार सिंह संजय कुमार

अनिल कुमार रोहित

हेमराज एवं श्रीमती बन्दना

Annexure IV: Estimating Targets and Costs

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
Enhancing green spaces and biodiversity				
1	Plantation activities	**Phase 1:** Similar to current level of plantation activities that the GP does (to be asked during consultation with the Pradhan) **Phase 2:** Increase plantation targets by 500-1000 based on availability of land **Phase 3:** Further increase target by 500-1000 based on availability of land	Tree plantation (preparation, sapling, labour, etc.)[108] = **Rs. 70 per tree** (saplings are also available at no cost from DoEFCC, GoUP) Tree Guards (metal)[109] = **Rs. 1,200 per unit** Maintenance of plantations: **1.5 lakh/ha**	
2	Arogya van	For a GP with area less than **300-400 ha**, one *Arogya van* can be suggested with **0.1 ha** area can be suggested. For a GP with area of around **1000 ha**, one *Arogya van* can be suggested with an area of **0.2- 0.5 ha** based on availability of land		Sequestration potential estimated based on teak species - 5.6 to 10 tCO_2e sequestered per tree
3	Agro-forestry	(Can be subjective and agro-forestry activities can be started from **Phase 1**) **Phase 2:** 40 % of total agricultural land; with +100 trees planted per hectare **Phase 3:** Remaining agricultural land; with + 100 trees planted per hectare	Cost of agroforestry[110] = **Rs 40,000/ hectare**[111]	Plantation density for agro forestry is considered 100 trees/ha

108 Cost as per plantation guidelines and inputs from GPs
109 Cost as per market rates
110 Cost as per Sub-mission on Agroforestry Guidelines, National Mission for Sustainable Agriculture
111 https://link.springer.com/article/10.1007/s42535-022-00348-9

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
Sustainable Agriculture				
1	Micro irrigation- drip and sprinkler irrigation	**Phase 1:** 30% of total agricultural land to be covered **Phase 2:** 70% of total agricultural land to be covered **Phase 3:** 100% of total agricultural land to be covered	Rs 1 lakh per hectare	
2	Construction of bunds	**Phase 1:** 50% of total agricultural land to be covered **Phase 2:** 100% of total agricultural land to be covered **Phase 3**: Maintenance of bunds - Bunding is done on periphery of agricultural fields - Farmers in GP have land holdings of various sizes **Assumption**: all fields are square	**1m of bunding[112]= Rs 150**	
3	Construction of farm ponds	**Phase 1**: 5-10 ponds **Phase 2**: 15- 20 ponds Phase: More if required + Maintenance of ponds Capacity of 1 farm pond= 300 m^3 Depends on number of large farms in GP + requirement of ponds (based on conversation with Pradhan)	Construction of 1 farm pond[113]= **Rs 90,000**	
4	Revival of barren and uncultivable land	Phase I: Construction of Farm Ponds; Agroforestry	1. Construction of farm ponds: Same as S. No. 3 in 'Sustainable Agriculture' given above 2. Agroforestry on barren and uncultivable land: 80,000 per ha	Sequestration potential estimated based on teak species - 5.6 to 10 tCO_2e sequestered per tree Plantation density for agroforestry is considered 100 trees/ha

112 Cost as per inputs received from GPs in HRVCA
113 Cost as per inputs received from GPs in HRVCA

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
5	Transition to natural farming	**Phase 1**: 15% of total agricultural land to be covered **Phase 2**: 40% of total agricultural land to be covered **Phase 3**: 100% of total agricultural land to be covered	A. Training & demonstration (3 sessions): **Rs 60,000** B. Certification (based on expert consultation): **Rs 33,000** C. Introduction of cropping system- organic seed procurement; planting nitrogen harvestingplants--> Cost per acre = **Rs 2,500** D. Integrated manure management - Procuring liquid bio fertiliser & its application; Procuring liquid biopesticide & its application; Natural pest control mechanism set up; Phosphate rich organic manure ---> Cost per acre= **Rs 2,500** E. Calculation (cost of transition per acre)= A+B+C+ D= Rs 1,00,000 Total Cost[114]: Area (ha) * E -> 2.471 * 1,00,000 = **Rs 2,47,100**	

114 UP State Organic Certification Agency (UPSOCA_Tariff_20March.pdf (apeda.gov.in)) and National Mission for Sustainable Agriculture (NMSA) Guidelines

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
Management & rejuvenation of water bodies				
1	Maintenance of Water Bodies (Cost not to be double counted if these plantations are a part of the overall green space enhancement initiative as mentioned above)	**Phase I:** Construction of pond retention wall Reboring of handpumps; Tree plantation with tree guard **Phase II:** Additional 100 tree plantations (along with tree guards) around water bodies + continued maintenance of water bodies **Phase III:** Continued maintenance of water bodies	Approximate cost : 1. Retention wall around 1 pond = 10 lakhs 2. Reboring of 20 handpumps: 12 lakhs 3. Tree plantation with tree guard = 1,200 per unit 4. Maintenance Cost: a. 1 Pond/water body = 3,75,000 b. 1 Retention Pond = 50,000 c. Tree with tree guard = 20 per unit	
2	Enhancing Drainage and Sewage Infrastructure	**Phase I:** Cleaning & desilting of existing drains + enhancing drainage infrastructure (construction of new drains) **Phase II & III:** Continued activities carried out in Phase I	Refer mostly to the costs provided in the HRVCA	

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
3	Rainwater harvesting (RwH) structures	**Phase I:** Installation of rainwater harvesting structures (RwH) in all PRI buildings + recharge pits (as recommended in HRVCA) **Phase II:** Installation of RwH structures in residential buildings above a plot size of 1500 sq. ft. + Additional recharge pits + Incorporating RwH system in all new buildings **Phase III:** Installation of RwH structures in residential buildings 1000 sq.ft.+ Incorporating RwH system in all new buildings	Cost of 1 rainwater harvesting structure with 10 m^3 capacity = **₹35,000** Cost of 1 recharge pit = **₹35,000**	
4	Improving Sanitation Infrastructure	Phase I: Construction of community toilets and construction of soak pits Phase II & III: Maintenance of existing infrastructure	Cost of 1 soak pit =**₹9,300**	

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
Sustainable and Enhanced Mobility				
1	Enhancing existing road infrastructure	**Phase 1**: Road elevation works + Road Rcc/ Interlocking works **Phase 2** & 3: Continued maintenance of roads	Cost per km of road upgradation/ repair[115]: **Rs 50,00,000 per km**	
2	Enhancing Intermediate Public Transport (IPT)	E-autorickshaws as per inputs on requirement of GP	Cost of 1 e-autorickshaw: **~ Rs. 3,00,000** Available subsidy: up to **Rs. 12,000 per vehicle**	
3	Facility to hire e-tractors & e-goods vehicles	**Phase 1**: Promote electric alternatives of diesel tractors and goods transport vehicles + sensitising farmers about long-term benefits of e-vehicles **Phase 2 & 3**: Continued sensitisation	Cost of 1 e-tractor= **Rs 6,00,000** Cost of 1 commercial e-vehicle= Rs 5 to 10 lakhs	

115 Cost as per Pradhan Mantri Gram Sadak Yojana (PMGSY) rate/km and inputs received from GPs in HRVCA

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
Sustainable Solid Waste Management and Sanitation				
1	Establishing a waste management system	**Phase 1**: a. Coverage of 100% households under GP's door-to-door waste collection system b. Provision for Electric Garbage Vans to collect 100% of existing waste generated c. Installation of waste bins d. Building partnership with other stakeholders (SHGs, local scrap dealers, local businesses, and MSMEs)	Total waste generated = Primary data, if not available, take average per capita waste generated in the GP as approximately **80 g per day**; biodegradable/ organic waste- 58% non-biodegradable /inorganic waste - 42% No. of e-garbage Vans required[116] = Total waste generated / capacity of each van (310 kg) No. of waste bins = from HRVCA or can be estimated by identifying strategic locations (PRI buildings, public buildings, parks, etc.)	

116 Cost as per market rates

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
		Phase 2: a. Installation of additional waste bins b. Provision for additional Electric Garbage Vans c. Maintenance of existing facilities/ infrastructure d. Scaling up partnership	Additional waste bins = from HRVCA or estimated by identifying strategic locations (PRI buildings, public buildings, parks, etc.)	
		Phase 3: a. Maintenance works b. Scaling up partnership	COST[117]: 1. 1 Electric Garbage Van = Rs. 95,000 to 1,00,000 2. 1 waste bins/ containers[118] = Rs. 15,000 3. Plastic shredder unit[119] = Rs. 50,000 per unit	
2	Improved Sanitation Management	**Phase I:** Enhancing household toilet coverage **Phase II & III:** Increasing toilet coverage and maintenance of existing infrastructure	Cost of 1 twin pit toilet = 15,000 to 20,000	

117 Cost as per market rates
118 Cost as per SBM guidelines and inputs in HRVCA reports
119 Cost as per market rates

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
3	Sustainable Management of Organic Waste	**Phase I:** a. Setting up compost & vermi-compost pits through community involvement b. Partnership model between panchayat, community members and farmer groups for: 1. Production & sale of compost 2. Sale of agricultural waste	Total biodegradable/ organic waste generated = Primary data Organic waste from houses, commercial shops, PRI buildings, public buildings and open spaces, etc. = xxx kg per day (as per primary data) Potential compost quantity (kg per day) which can be generated[120] = xxx kg/day of organic waste / 2 Periodic composting of __ kg per year of agricultural waste (as per primary data)	
		Phase II and III: a. Maintenance and increasing compost pits capacity b. Scaling up partnership	Cost : 20 Compost Pits cost reference: = 4,00,000	

120 https://www.biocycle.net/connection-CO_2-math-for-compost-benefits/#:~:text=In%20the%20process%20of%20making%20compost%20the%20microbes,food%20waste%20turns%20into%2050%20kg%20of%20compost

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
4	Ban on single-use plastics	**Phase 1**: a. Complete ban on Single Use Plastics b. Awareness, training, and capacity-building programs c. Leveraging RACE Campaign and LiFE Mission d. Partnership model between panchayat, women and SHGs	Engagement of 100 women in manufacturing	
		Phase 2: a. Continued Awareness, training, and capacity-building programs b. Increased engagement from this GP & nearby villages of women, SHGs, MSMEs & individual entrepreneurs	Additional 200 women	
		Phase 3: a. Continued Awareness, training, and capacity-building programs b. Increased engagement from this GP & nearby villages of women, SHGs, MSMEs & individual entrepreneurs	Additional 300 women	

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
Access to clean, sustainable, affordable and reliable energy				
1	Solar rooftops	**Phase 1:** PRI buildings (Panchayat Bhawan, schools, anganwadi, PHC, CHC, CSC etc) Assumption- 70% of rooftop area is available for solar rooftop installation	Use MNRE solar rooftop portal to calculate solar potential.[121] Annual clean electricity generated (in kWh) = installed capacity (kWp) *310 (sunny days)*24 (hrs)*0.18 (CUF) (calculate this for each PRI building and add up for total) Installed capacity- from the above website Total installed capacity= Panchayat Bhawan+ School 1+ School 2.... + any other PRI buildings Cost per kWh= **Rs 50,000** No. of units of clean electricity generated per day= Electricity generated/ 365	Annual electricity generated (kWh)* 0.82/ 1000= ____ tonnes of CO<

121 https://solarrooftop.gov.in/rooftop_calculator

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
		Phase 2 & 3: Households Assumption- 70% of rooftop area is available for solar rooftop installation Installed capacity taken to be 3 kWp **Phase 2**: 40% of total pucca houses to install **Phase 3**: 100% of total pucca houses to install	Average Installed capacity per Household= 3 kWp Total capacity installed at Household level= No. of Household * 3 kWp Annual clean electricity generated (in kWh)=Total capacity installed at Household level (kWp) *310 (sunny days)*24 (hrs)*0.18 (CUF) Cost per kWh= Rs 50,000[122] No. of units of clean electricity generated per day= Annual Electricity generated/ 365	

122 Cost as per MNRE and current market rates

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
2	Agro-photovoltaic	**Phase 2**: 25 % of suitable agricultural area **Phase 3**: 50% of suitable agricultural area Suitable agri area- area under legumes & vegetables (keep the value under 10 ha)	250 kWp installed per hectare Total capacity installed = Area (ha) * 250 kWp Annual clean electricity generated (in kWh)=Total capacity installed (kWp) *310 (sunny days)*24 (hrs)*0.18 (CUF) Cost per kWh= **Rs 1 lakh**[123] No. of units of clean electricity generated per day= Annual Electricity generated/ 365	

123 Cost as per market rate of installation

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
3	Solar pumps	**Phase 1**: 20% of diesel pumps replaced **Phase 2**: 50% of diesel pumps replaced **Phase 3**: 100% of diesel pumps replaced	Installed capacity = 5.5 kWh per pump Total installed capacity= No.of pumps replaced * 5.5 kWh Annual clean electricity generated= Total installed capacity (kWh) *310 (days)*24 (hrs)*0.18 (CUF) No. of units of clean electricity generated per day= Annual Electricity generated/ 365 Cost per pump = Rs 3 to 5 lakhs[124]	Diesel consumption avoided= 390 litres/ per/ year Total diesel consumption avoided per year= No.of pumps replaced * 390 Emissions avoided= 1.05 tonnes CO_2e per pump per year
4	Clean cooking	**Phase 1**: 25% of households having cattle to install biogas + 25% of households in the top income groups to have solar induction cookstoves + 50% of households that currently use biomass to have improved chulhas **Phase 2**: 50% of households having cattle to install biogas + 50% of households in the top income groups to have solar induction cookstoves + 100% of households that currently use biomass to have improved chulhas **Phase 3**: 100% of households having cattle to install biogas + 100% of households in the top income groups to have solar induction cookstoves	Cost for 1 biogas plant= **Rs 50,000** for 2 to 3 m^3 biogas plant Cost for 1 for double burner solar cookstove without battery= **Rs 45,000** Cost for 1 improved Chulhas= **Rs 3,000**[125]	

124 Cost as per market rates and PMKSY guidelines
125 Costs as per market rates

Sl. No.	Suggested Actions	Broad Guidelines to decide targets of various activities (can be subject to change based on Gram Panchayat context)	Calculation/ formula for estimating quantitative target	Sequestration potential/ emissions avoided
5	Energy efficiency (EE)	**Phase 1**: All PRI buildings to replace all fixtures and fans with energy efficient fixtures and fans + All Household to replace 1 incandescent/CFL bulb with LED bulb or 1 fluorescent tube lights with LED tube light **Phase 2**: All incandescent/CFL bulbs replaced with with LED bulb & all fluorescent tube lights replaced with LED tube light + 1 conventional fan replaced with EE fan in all Household **Phase 3**: All fans in all Household to be replaced with EE fans	Cost of 1 LED bulb= **Rs 70** Cost of 1 LED tubelight= **Rs 220** Cost of 1 EE fan= **Rs 1,110**[126]	
6	Solar streetlights	Based on inputs from Pradhan High-mast solar street light- 1 (or more as per requirement) for each PRI building, pond/lake, green space/parks/ playground/ gardens/ arogya van	Cost of 1 high-mast= **Rs 50,000** Cost of 1 solar LED street light= **Rs 10,000**[127]	
Enhancing Livelihoods and Green Entrepreneurship				
1	Construction & renting out of solar-powered cold storage	Setting up of cold storage	Capacity : 1 unit = **5 - 10** metric tonnes based on production of vegetables and fruits/ and/ or milk and milk products Cost: **Rs 8-15** lakh per unit	

126 Costs as per UJALA scheme guidelines by Ministry of Power (https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/jun/doc202261464801.pdf)

127 Costs as per market rates

Annexure V: Relevant SDGs & Targets

SDG 2: Zero Hunger

Target 2.3: Double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

Target 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

Target 2.a; Article 10.3.e: Development of sustainable irrigation programmes

SDG 3: Good Health and Well being

Target 3.3: End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

Target 3.9: Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

SDG 6: Clean Water and Sanitation

Target 6.1: Achieve universal and equitable access to drinking water

Target 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

Target 6.4: Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals

Target 6.5: Implement integrated water resources management at all levels

Target 6.8: Support and strengthen the participation of local communities

Target 6.a: Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including wastewater treatment, recycling and reuse technologies

SDG 7: Affordable & Clean Energy

Target 7.1: Ensure universal access to affordable, reliable and modern energy services

Target 7.2: Increase share of renewable energy in energy mix

Target 7.3: Double the global rate of improvement in energy efficiency

Target 7.a: Enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

Target 7.b: Expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries in accordance with their respective programmes of support.

SDG 8: Decent Work and Economic Growth

Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalisation and growth of micro-, small- and medium-sized enterprises, including through access to financial services

SDG 9: Industries, Innovation and Infrastructure

Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure

SDG 11: Sustainable Cities and Communities

Target 11.2: Safe, affordable, accessible and sustainable transport systems for all

Target 11.4: Strengthen efforts to protect and safeguard the world's cultural and natural heritage

Target 11.7: By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

SDG 12: Ensure Sustainable Consumption and Production Patterns

Target 12.2: Achieve the sustainable management and efficient use of natural resources

Target 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to

minimize their adverse impacts on human health and the environment

Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

Target 12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

SDG 13: Climate Action

Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Target 13.2: Integrate climate change measures into national policies, strategies and planning

Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

SDG 15: Life on Land

Target 15.1: Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

Target 15.3: By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

Target 15.5: Take urgent and significant action to reduce degradation of natural habitats, halt loss of biodiversity

Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies

Annexure VI: Suitable species for plantation activities

Name of plants	Family	Local names	Uses/ Medicinal properties
Timber Trees			
Acacia nilotica	Fabaceae	Babul	It is used for such products as bodies and wheels of carts, instruments and tools
Ficus religiosa	Moraceae	Peepal	Has medicinal properties and religious value
Azadirachta indica A. Juss.	Meliaceae	Neem	All parts of the neem tree- leaves, flowers, seeds, fruits, roots and bark have been used traditionally for treatment. The wood is ideal for furniture, both strong and termite resistant.
Tectona grandis	Lamiaceae	Sagaun	It is used in the manufacture of outdoor furniture and boat decks
Dalbergia sissoo	Fabaceae	Sheesham	It has several applications in aircraft and marine plywood, as charcoal for heating and cooking food, creating musical instruments etc
Madhuca longifolia	Sapotaceae	Mahua	It provides quality timber wood for various uses
Shorea robusta	Dipterocarpaceae	Sal	It is used for railway sleepers, ship-building, and bridges.
Cinnamomum tamala	Lauraceae	Indian bay leaf	It helps manage various health issues and used in cooking.
Fruits and Wild Food Plants			
Mangifera indica	Anacardiaceae	Aam, Mango	All parts are used in traditional treatments
Artocarpus heterophyllus	Moraceae	Kathahal, Jackfruit	The timber is used for furniture. Many parts of the plant, including the bark, roots, leaves, and fruits, are known for their medicinal properties in traditional and folk medicine.
Psidium guajava	Myrtaceae	Guava, Amrood	It is a common and popular traditional remedy for various gastric ailments
Agaricus campestris L	Agaricaceae	Dharti Ka Phool	A type of mushroom
Alangium salvifolium (L.f.) Wang	Alangiaceae	Dhera, Ako	Ripe fruits are eaten
Amorphophallus paeoniifolius Dennst	Araceae	Elephant foot, Zimi Kand	Eaten as vegetable.

Name of plants	Family	Local names	Uses/ Medicinal properties
Crotolaria juncea L.	Fabaceae	Sanai	Light boiled buds eaten as vegetable.
Manilkara hexandra (Roxb) Dub	Sapoataceae	Khirini	The fruits are made into pickles & sauces.
Eugenia jambolana	Myrtaceae	Jamun	The root, leaves, fruits and bark have numerous medicinal properties
Aegle marmelos	Rutaceae	Bael	The unripe fruit, root, leaf, and branch are used to make medicine.
Morus rubra	Moraceae	Mulberry	Mulberries can be eaten raw and are also used to make jams, pies etc. They also have medicinal properties
Trees with Medicinal properties			
Withania somnifera	Solanaceae	Ashwagandha	It is useful for different types of diseases
Bacopa monnieri	Plantaginaceae	Brahmi	It is used to manage different respiratory ailments
Andrographis paniculata	Acanthaceae	Kalmegh	It helps to boost immunity and is used to manage the symptoms of the common cold, sinusitis and allergies
Rauvolfia serpentina	Apocynaceae	Sarpagandha	It is used for the treatment of many different ailments.
Endangered trees with medicinal properties			
Acorus calamus L.	Araceae	Bach, Bal, Ghorbach	A useful ethnomedicinal plants for curing bronchitis, cough, and cold
Asparagus adscendens Roxb.	Liliaceae	Satavar	Helps in treating conditions related to hormone imbalance
Celastrus paniculatus Wild.	Celastraceae	Umjain, Mujhani, Malkangani, Kakundan	Useful in the treatments of a variety of ailments
Other Trees			
Populus ciliata	Salicaceae	Semal, kapok	Its leaves are used for animal fodder and herbal teas
Eucalyptus globulus	Myrtaceae	Tailapatra	Used in medicines to treat coughs and the common cold and also used to make essential oil

GORAKHPUR ENVIRONMENTAL ACTION GROUP

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Green ways for a good earth!