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CLIMATE SMART GRAM PANCHAYAT ACTION PLAN

Swami Mustakil Gram Panchayat

Department of Environment, Forest and Climate Change

Government of Uttar Pradesh

GEAG
GORAKHPUR ENVIRONMENTAL ACTION GROUP

VASUDHA FOUNDATION
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संदेश

वर्तमान में जैसा कि जलवायु परिवर्तन से उत्पन्न चुनौतियों को देख रहे हैं, इस स्थिति में ज़मीनी स्तर पर तत्काल और व्यापक कार्यवाही किये जाने की आवश्यकता है। हमारी ग्राम पंचायतें, समुदाय के निकटतम शासन की एक आवश्यक इकाई होने के नाते जलवायु संबंधी चुनौतियों को कम करने और सतत् विकास को बढ़ावा देने में महत्वपूर्ण भूमिका निभा सकती है। हमारे समुदाय, हमारा पारिस्थितिकी तंत्र और हमारी अर्थव्यवस्था सब आपस में जुडे है और हमारे लिये ऐसी रणनीतियों को अपनाना आवश्यक है, जो जलवायु से जुडे जोखिमों को कम करती हों।

इस दिशा में ग्राम पंचायतों को जलवायु सजग ग्राम पंचायत बनाने हेतु समर्पित क्लाइमेट स्मार्ट **ग्राम पंचायत स्वामी मुस्तकिल, विकास खण्ड बिचपुरी, जनपद आगरा** की कार्ययोजना तैयार करायी गयी है, जो ग्राम पंचायतों में जलवायु पर कार्य करने के प्रति हमारी प्रतिबद्धता को क्लाइमेट स्मार्ट पंचायत बनाने के लिये एक मार्गदर्शक के रूप में कार्य करेगी।

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

(भानू चन्द्र गोस्वामी)
जिलाधिकारी,
आगरा।

मुख्य विकास अधिकारी,
जनपद आगरा

संदेश

मैं क्लाइमेट स्मार्ट ग्राम पंचायत योजना विकसित करने में **पर्यावरण, वन एवं जलवायु परिवर्तन विभाग, उत्तर प्रदेश, तकनीकी सहयोगी वसुधा फाउंडेशन, नई दिल्ली,** स्थानीय सहयोगी संस्था **गोरखपुर एनवायरमेंट एक्शन ग्रुप (जी.ई.ए.जी), गोरखपुर तथा राष्ट्रीय मूक बधिर समिति, फिरोज़ाबाद** के समर्पित प्रयासों के लिये हार्दिक आभार व्यक्त करती 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 बढावा देकर हमारा लक्ष्य एक ऐसा मॉडल तैयार करना है जो न केवल हमारी पर्यावरण की रक्षा करे बल्कि समुदाय के समग्र कल्याण को भी बढ़ाये।

यह कार्ययोजना हमारी ग्राम पंचायत में संवाद, सहयोग और क्रियान्वयन को प्रेरित करे। साथ मिलकर हम प्रभावी जलवायु नीतियों को लागू कर सकते है, स्थायी लक्ष्यों को अपना सकते हैं और एक ऐसे भविष्य का निर्माण कर सकते है जो न केवल पर्यावरणीय रूप से मज़बूत हो बल्कि सामाजिक रूप में भी न्यायसंगत हो।

एक बार फिर क्लाइमेट स्मार्ट कार्ययोजना तैयार करने में अमूल्य योगदान के लिये आप सभी को धन्यवाद। हम योजना के सफल कार्यान्वयन और समुदाय एवं पर्यावरण पर इसके सकारात्मक प्रभाव की आशा करते हैं।

धन्यवाद !

(प्रतिभा सिंह)
प्रतिभा सिंह
मुख्य विकास अधिकारी
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आभार

सर्वप्रथम आप सभी को प्रधान, ग्राम पंचायत स्वामी/कैलाश मंदिर, विकास खण्ड बिचपुरी, जनपद आगरा की ओर से सादर नमस्कार और अभिनंदन। मुझे आशा ही नहीं पूर्ण विश्वास है कि आप सभी स्वास्थ्य होंगे। मै अपनी ग्राम पंचायत को क्लाइमेट स्मार्ट ग्राम पंचायत बनाने की ओर बढ़ाये गये प्रथम कदम/प्रयास को आपसे साझा करते हुए रोमांचित हूँ।

जलवायु परिवर्तन से उत्पन्न चुनौतियॉ हर दिन अधिक स्पष्ट होती जा रही है और हमारे समुदाय और भावी पीढ़ियों की भलाई के लिये उन पर कार्य करना हमारी सामूहिक जिम्मेदारी है। इस विषय की गम्भीरता को समझते हुए सभी ग्रामवासियों की सर्वसहमति से हमने अपनी ग्राम पंचायत को क्लाइमेट स्मार्ट ग्राम पंचायत बनाने की प्रक्रिया को प्रारम्भ किया। सर्वप्रथम आवश्यक था ग्राम पंचायत में जलवायु परिवर्तन संबंधी समस्याओं और मुद्दों की पहचान करना जिसके लिये सामुदायिक सहभागिता के साथ ग्राम सभा की बैठक एवं समूह केन्द्रित चर्चा के आयोजन के अतिरिक्त व्यक्तिगत चर्चा की गयी और आंकड़ों को एकत्र किया गया। आंकडे एकत्र करने की प्रक्रिया को पंचायत में क्रियान्वित करने के लिये मैं स्थानीय सहयोगी संस्था **गोरखपुर एनवायरमेंट एक्शन ग्रुप (जी.ई.ए.जी), गोरखपुर तथा राष्ट्रीय मूक बधिर समिति, फिरोज़ाबाद** का तथा आंकड़ें एकत्र करने में हमारे सभी ग्रामवासियों के समर्थन और सक्रिय भागीदारी के लिये हृदय से धन्यवाद। हम सभी साथ मिलकर हमारी पंचायत में एक पर्यावरण अनुकूल वातावरण बनायेंगे जो न केवल हमारे प्राकृतिक संसाधनों की रक्षा करेगा अपितु प्रत्येक ग्रामीण के जीवन की समग्र गुणवत्ता को भी बढ़ायेगा।

इसके साथ ही मैं **पर्यावरण, वन एवं जलवायु परिवर्तन विभाग, उत्तर प्रदेश** और तकनीकी सहयोगी पार्टनर **वसुधा फाउंडेशन, 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 ग्रामवासियों अपनी पंचायत को क्लाइमेट स्मार्ट ग्राम पंचायत बनाने के लिये हाथ मिलाकर आगे बढ़ने का आग्रह करता हूँ। आइये हम सभी एक सकारात्मक बदलाव की ओर आगे बढ़े और दूसरों के लिये उदाहरण स्थापित करें।

धन्यवाद !

ग्राम पंचायत स्वामी/कैलारा मन्दिर
ब्लाक बिचपुरी, जनपद-आगरा

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1 Executive Summary

The Swami Mustakil Gram Panchayat in the District of Agra lies in Western sub tropical agro-climatic zone of Uttar Pradesh. The Climate Smart Gram Panchayat Action Plan of Swami Mustakil 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 Swami Mustakil is formulated in a manner that it can be easily and effectively integrated with the existing Gram Panchayat Development Plan (GPDP) of Swami Mustakil GP.

The action plan[1] captures the key demographic and socio-economic aspects, key issues pertaining to the Western sub tropical 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 Swami Mustakil 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 Swami Mustakil.

The GP has one revenue village and four hamlets and 638 households with a total

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 Swami Mustakil.
- *Identification of key issues*: An exhaustive list of key developmental & environmental issues was identified through responses received in Survey Questionnaire & HRVCA.
- *Carbon footprint profile estimation*: Carbon footprint was estimated for key activities* in Swami Mustakil
- *Proposed recommendations*: Recommendations were developed for Swami Mustakil based on the environmental and climatic issues identified. These recommendations also take into account the prevailing agro-climatic characteristics of Western sub tropical region. Additionally, sector-wise adaptation needs & mitigation potential of Swami Mustakil 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).

population[2] of 3,832 as reported during field surveys. The main economic activity is agriculture. A baseline assessment shows that Swami Mustakil GP has a carbon footprint of 1855.5 tCO_2e[3].

A few priority areas for immediate action identified in Swami Mustakil are:

- Wastewater Management through establishment of Decentralised Wastewater Treatment System (DEWATS).
- Harnessing Renewable Energy (RE) and energy efficiency solutions such as solar rooftop installations, solar-powered pumps, and energy efficient fixtures in households and public utilities amongst others.
- Strengthening road and drainage infrastructure to reduce waterlogging and increase resilience
- Increasing the green cover through plantation activities along Yamuna river bank, along roads/ streets, etc.

Taking in to 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 the thematic areas of agriculture, water, 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 three phases- Phase I (2024-2027), Phase II (2027-2030) & Phase III (2030-2035). The phase-wise targets can further be 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 Swami Mustakil is formulated in a manner that it can be easily and effectively integrated with the existing Gram Panchayat Development Plan (GPDP) of Swami Mustakil.

CSGPAP will supplement and complement the Swami Mustakil GPDP by:

- Broad-basing existing development initiatives and activities with a climate perspective
- Dovetailing ongoing national and state programs 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 Swami Mustakil 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 utilized to scale up renewable energy deployment.

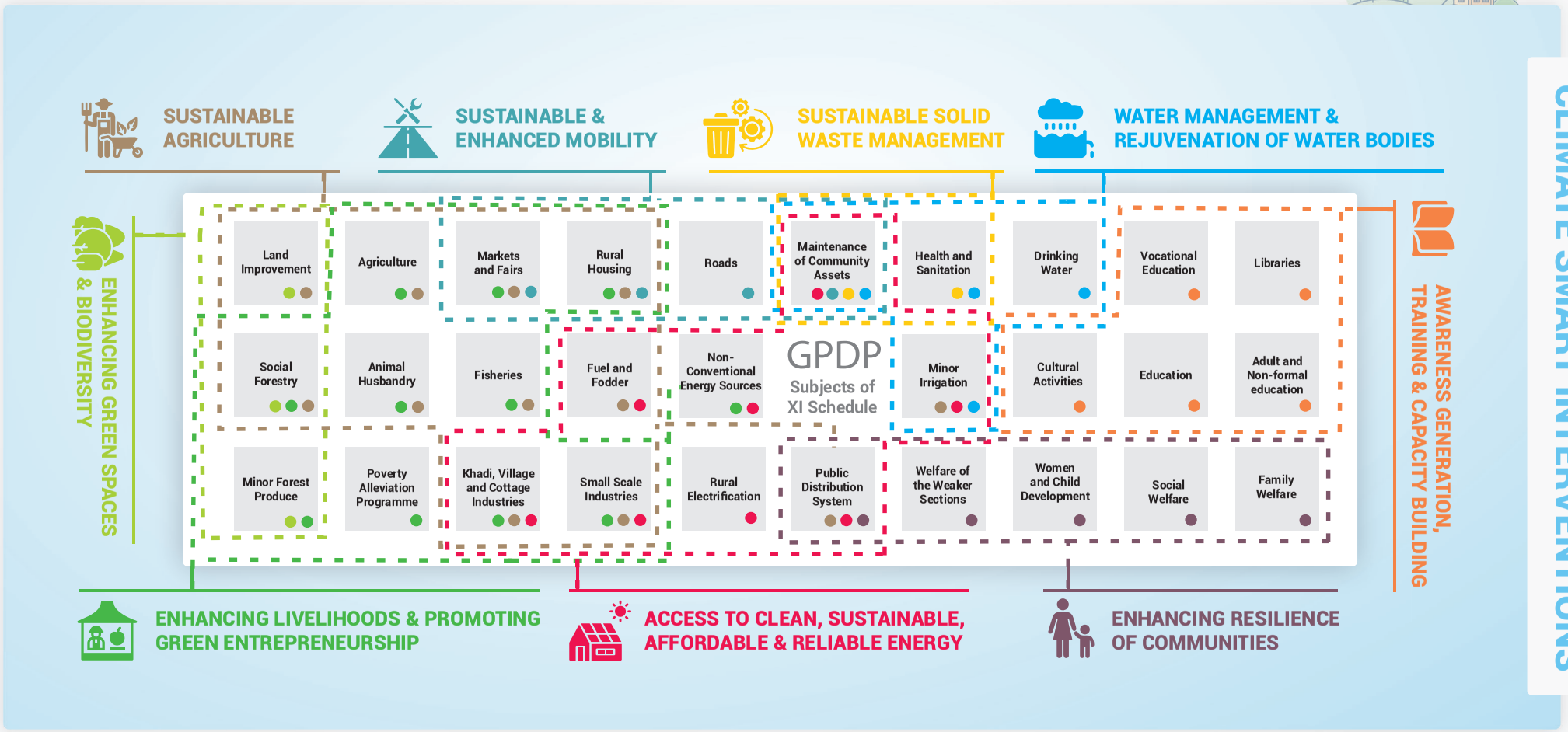
The total emissions avoided/mitigated through the implementation of this plan is estimated to be ~4,929 tCO_2e per annum and sequestration potential goes up to 95,000 tCO_2e over the next 20-25 years. The total cost estimated for the implementation of this plan across the three phases is approximately r ₹49.10 crores (for 11 years), comprising of community investment, public finance, private finance and potential CSR funding. From this, 30-35 percent (approximately ₹16 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 UP has adopted an innovative approach of 'Panchayat-Private-Partnership' to engage CSRs and mobilize private finance.

2 Census 2011 data notes: Total Population- 2,271

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

Climate Smart and Sustainable Gram Panchayats by 2035

Mainstreaming Climate Action with Development



2 Gram Panchayat Profile

Swami Mustakil

Swami Mustakil Gram Panchayat at a Glance†

Location	Bichpuri Block, Agra District
Total Area[4]	286 ha
Composition	1 Revenue Village 4 Hamlets
Total Population[5]	3,832
No. of Males	2,108
No. of Females	1,724
Total Households[6]	638

Panchayat Infrastructure

5 (Gram Panchayat Bhawan, Primary and Upper Primary Schools, Anganwadis and ASHA Centre)

Primary Economic Activity
Agriculture

Land-use[7]

121.6 ha Agriculture Land
62.8 ha Common Land
51 ha Forest Land
50.6 ha Other Land

Water Resources[8]
Yamuna River[9]
9 Wells

Agro-climatic Zone[10]
Western sub tropical

- Climatic conditions: semi-arid to sub-humid with hot summers and cold winters
- Maximum Temperature: 47°C
- Minimum Temperature: 4°C
- Average Annual Rainfall: 662 mm
- Soil type: alluvial
- Suitable Crops: wheat and pulses
- Vulnerability: prone to floods and waterlogging

Composite Vulnerability[11] **of the District**
Very High

Sectoral Vulnerability of District

- Water Vulnerability: Very High
- Forest Vulnerability: High
- Agriculture Vulnerability: Low
- Disaster Management Vulnerability: Low
- Rural Vulnerability: Low
- Health Vulnerability: Low
- Energy Vulnerability: Very Low

† Data from Field Survey conducted for preparation of the Plan (February, 2023)

4 Sourced from Bhuvan Panchayat website (https://bhuvanpanchayat.nrsc.gov.in/index.html)

5 As per survey by DoEFCC, GoUP.
Census 2011 data notes: Total Population- 2,271; Male- 1,224; Female- 1,047

6 608 pucca houses and 30 kaccha houses (field survey); Census 2011 data notes: Total Households - 334

7 Data received from HRVCA report and after multiple rounds of discussion with the GP

8 Data received from HRVCA report and after multiple rounds of discussion with the GP

9 Flowing alongside of Kailash village in GP

10 Agriculture Department, UP

11 UP-SAPCC 2.0

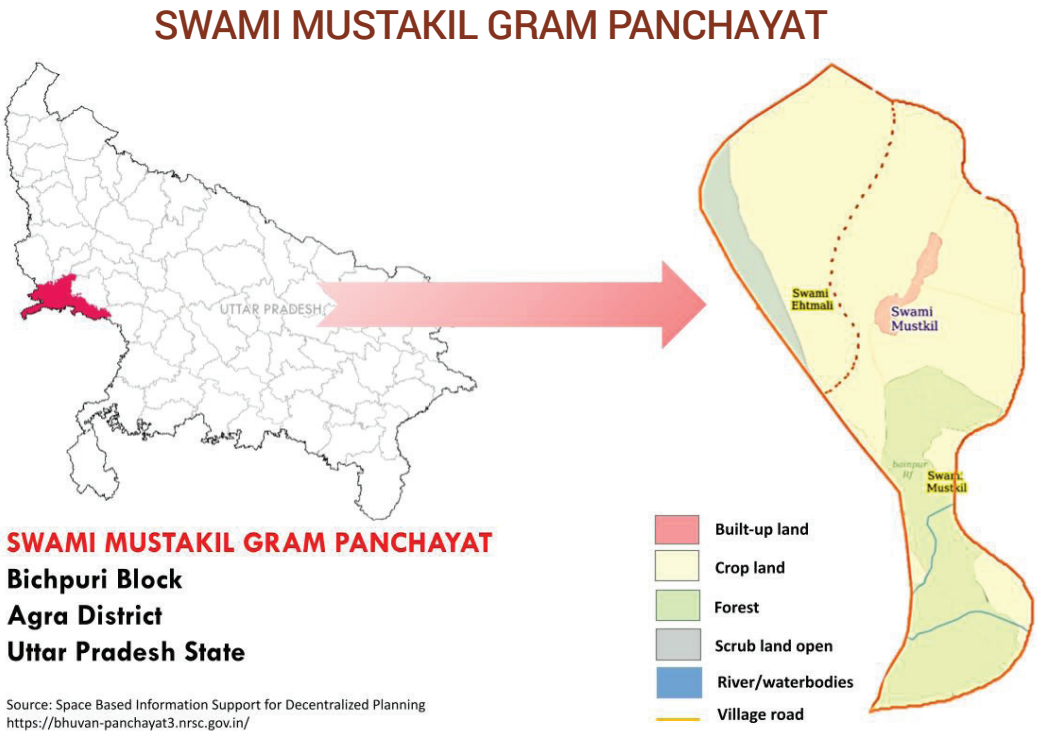


Figure 1: Land-use map of Swami Mustakil Gram Panchayat, Agra District

Climate Variability Profile

The climate variability data (temperature and rainfall) received from the Bhuvan satellite of ISRO[12] indicates that there has been a slight increase in the annual average maximum and minimum temperature in Swami Mustakil between 1986 and 2015 (see Figure 2). During the same time frame, annual rainfall has also increased (see Figure 3).

A recent report by World Meteorological Organization, 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[13]. Similar findings are also

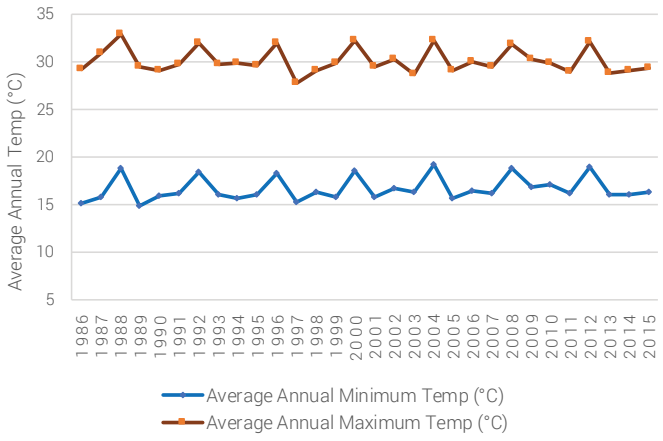


Figure 2: Average annual temperature (°C) in Swami Mustakil,1986-2015

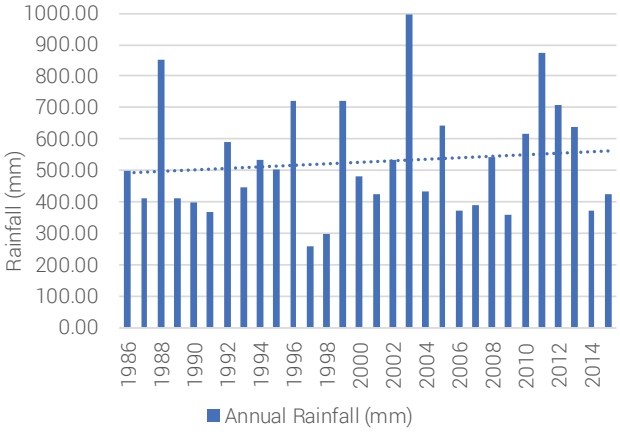


Figure 3: Annual rainfall (mm) in Swami Mustakil, 1986-2015

12 Data from Bhuvan portal, ISRO (Indian Space Research Organization)

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

confirmed by IPCC[14], and Ministry of Earth Sciences (MoES)[15], Government of India.

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 30 days and decrease in the number of winter days by approximately 30 days. Further, they also indicated that the number of rainy days has also decreased by roughly 30 days[16].

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

Key Economic Activities

Agriculture is the primary source of household income in the GP with 72 percent of the households engaged in it as per inputs received in the field survey. This is followed by engagement in non-farm wage-labour and animal husbandry activities. Some households are involved in businesses such as local shops and service sector (teaching, banking, government jobs, etc.) (Figure 4).

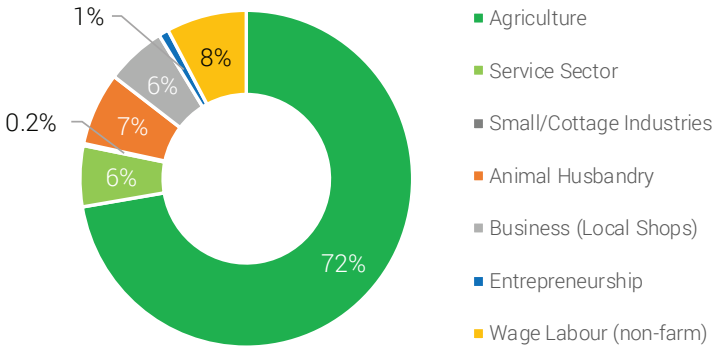


Figure 4: Household level primary source of income in Swami Mustakil

Household level income estimates obtained from the focus-group discussions reveal that 40 percent of the households earn less than Rs. 50,000 per annum and only a small fraction (5 percent) of the households earn more than Rs. 5,00,000 per annum (see Figure 5).

At the time of the survey, 13 households were Below Poverty Line (BPL) i.e. ~ 2 percent of the total households. The ration card data reveals that nearly 57 percent households avail benefits from the public distribution scheme and hold ration cards, of these, 2 percent households hold *Antyodaya*[17] cards as shown in Figure 6.

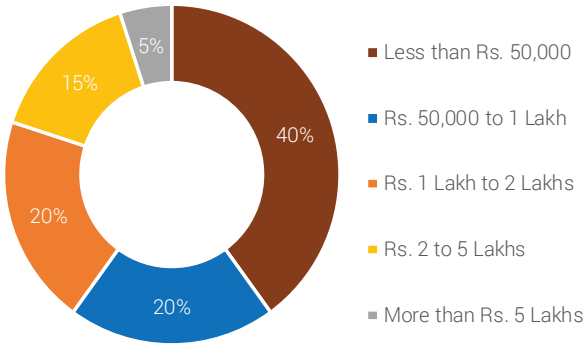


Figure 5: Household level income estimates in Swami Mustakil

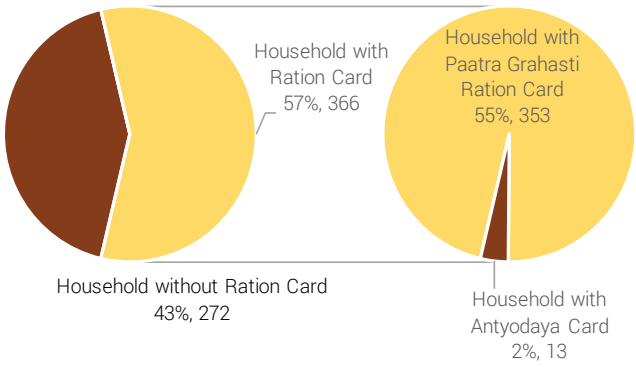


Figure 6: Households with ration cards in Swami Mustakil

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

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

16 Data from Field Survey conducted for preparation of the Plan

17 National Food Security Portal (https://nfsa.gov.in/portal/Ration_Card_State_Portals_AA)

Women's Employment

Majority of working women in the GP are engaged in agricultural activities i.e., own their own land or as wage labourers and businesses (working in local shops), while others are involved in animal husbandry (Figure 7). The GP has 12 women-headed households (1.9 percent) where women are the primary/sole earners of the family. The field survey indicated that there is an active network of Self-Help Groups (SHG) in Swami Mustakil. There are 14 SHGs in the GP involved in activities like running grocery shops (dry food and grocery distribution) and caretakers for community toilets.

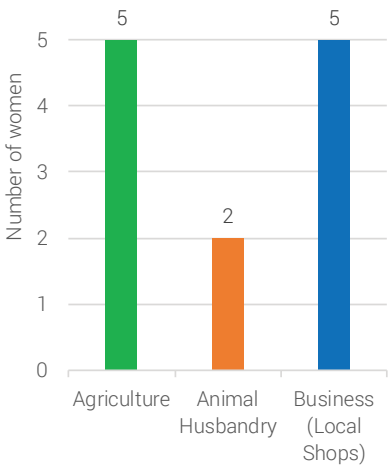


Figure 7: Sector-wise engagement of working women in Swami Mustakil

Agriculture

Majority of the households in Swami Mustakil are dependent on agriculture for their income (72 percent). Households are involved in agriculture in various ways as indicated in Figure 8[18].

The net sown area in the GP is nearly 121.6 ha while gross cropped area is 267 ha[19]. The major crops grown are *bajra*, mustard and wheat. GP also has vegetable cultivation practice as shown in Figures 9 and 10. Ground water is the main source of water in the GP with majority of farmers reliant on diesel pumps[20] (around 68 diesel pumps) for irrigation; while 3 electricity-based pumps are also used.

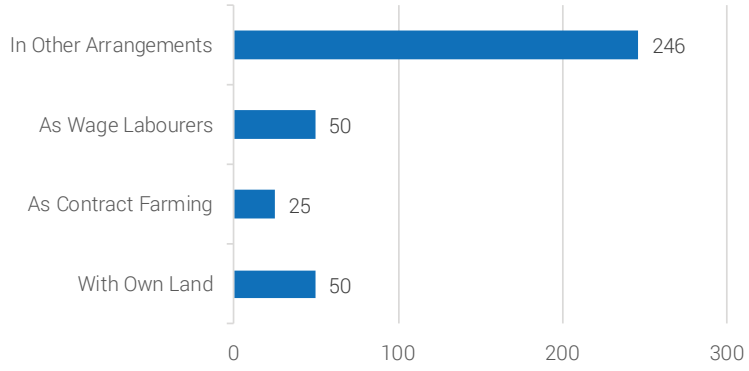


Figure 8: Agriculture (only) dependent households in Swami Mustakil

Dairy and apiculture are also practised in the GP. Only 5 percent of the households are engaged in animal husbandry in the GP. The total livestock population is around 500 (64 cows, 280 buffalos, and 150 goats).

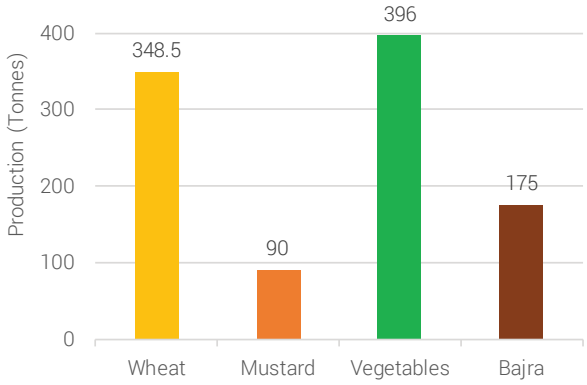


Figure 9: Crop production by crop type in Swami Mustakil

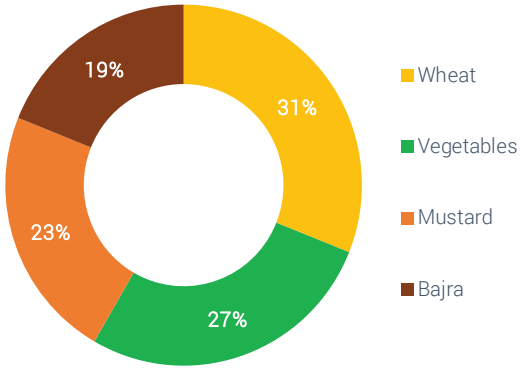


Figure 10: Crop-wise distribution of gross cropped area in Swami Mustakil

18 It may be noted that a number of households may be engaged in agriculture in more than one way. For example, small landowners could also be working as wage-labourers on larger farms. Additionally, large-land owning farmers could also be practicing contract farming.

19 The net sown area and gross cropped area is based on inputs received from multiple rounds of discussions with the GP and from HRVCA

20 As per HRVCA

Natural Resources

The field survey indicated that Swami Mustakil has 51 ha of forest land. The GP has sand mining and other mining activities (mud mining) as well.

Plantation activities in the form of social forestry have been carried out in the GP on around 2.83 ha of land. Social forestry plantation includes mixed species like *neem, kanji,* guava*, jamun and pakar* were implemented through the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).

Amenities in Swami Mustakil

Electricity & LPG

- Electricity access: 84% households
- LPG coverage: 33% households

Water

- Main source of water for household use and GP level supply: Groundwater and Yamuna River

Waste

- Household toilet coverage: 31%

Mobility, key services and market access

- Connectivity to National Highway (NH19): 13 km
- Railway station: 19 km
- Bus station: 8.5 km
- Police station: 5 km
- Fire station: 14 km
- Government ration shop in the GP
- Post office: 8 km
- Two banks: 4 km and 6 km
- Nearest fertilizer, seed & medicine centre: 6 km
- Nearest agriculture market 'Sikandra Mandi': 6 km
- Post office: 8 km
- Disaster Management Office: 12 km

Education

- Two Government Primary Schools
- Two Upper Primary Schools
- Degree College: 4 km

Health

- One ASHA Centre
- Anganwadi
- Primary Health Centre, Bichapuri: 15 km
- District Hospital: 15 km from GP

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, Swami Mustakil GP emitted approximately 1,855.5 tonnes of carbon dioxide equivalent (tCO_2e) from a wide range of activities (see Figure 11).

Activities in energy, agriculture and waste sectors contributed to the carbon footprint of Swami Mustakil. Energy sector emissions are due to electricity consumption[21], combustion of fuelwood and LPG for cooking, use of diesel pumps for irrigation, use of generator for power backup and use of fossil fuels in various means of transport. Agriculture sector emissions include those due to rice cultivation, application of fertiliser on agricultural fields, livestock and manure management and crop residue burning. Emissions due to domestic wastewater are included in the waste sector.

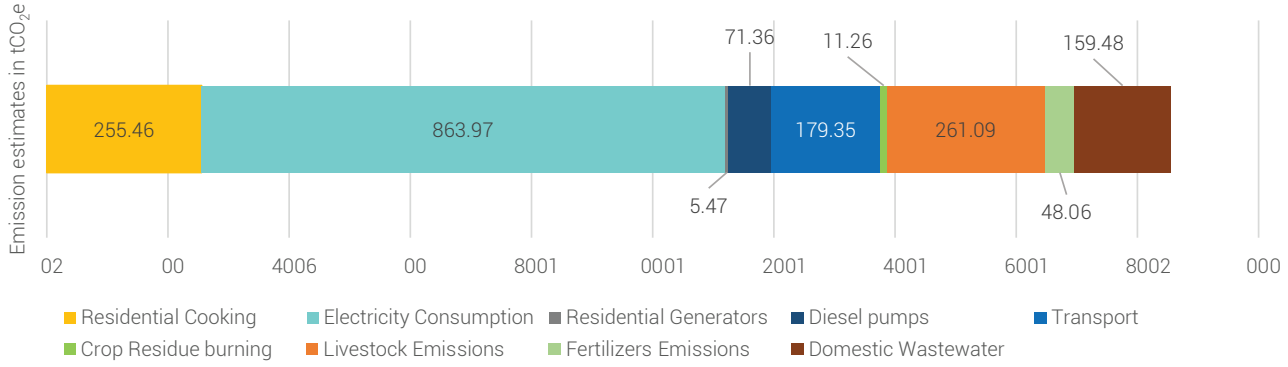


Figure 11: Carbon footprint of various activities in Swami Mustakil in 2022

The energy sector accounted for 74 percent of the total emissions. Within the sector, electricity consumption was the key contributor (863.97 tCO_2e), this was followed by residential cooking (255.46 tCO_2e), transport category (179.35 tCO_2e), diesel pump sets (71.36 tCO_2e) and residential generators (5.47 tCO_2e). Emissions from the agriculture sector accounted for 17 per cent of the total emissions of Swami Mustakil GP, with emissions from livestock (261.09 tCO_2e) and use of fertilizers (48.06 tCO_2e) being the leading causes of GHG emissions. The waste sector accounted for 9 percent of the total emissions.

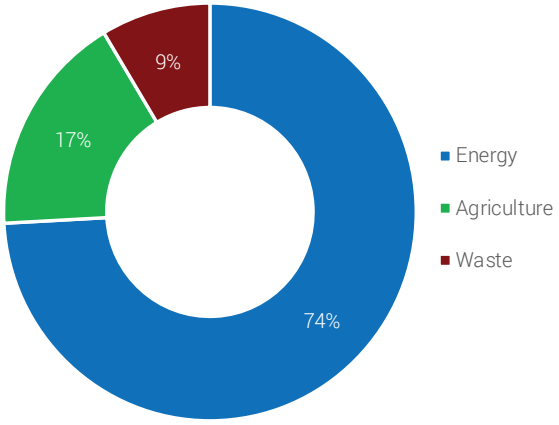


Figure 12: Share of sectors in carbon footprint of Swami Mustakil in 2022

21 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 analyses 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 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 summarized below. Further, the detailed issues are listed in the respective themes of the recommendations section.

Broad Issues:

- Frequent occurrence of floods in August-September
- Severe waterlogging due to lack of adequate and well-maintained drain coverage and release of wastewater from toilets into the open drains/canals and Yamuna River
- Drinking water crisis and inadequate water availability
- Poor maintenance and encroachment of water bodies and lack of adequate green cover
- Changes in seasonal durations and erratic rainfall affecting sowing time, harvesting time and irrigation needs of crops among other impacts in the GP
- Limited and ineffective waste management practices
- Dependence on fossil fuels and traditional fuels for cooking, agricultural and transport needs
- Limited inter and intra village connectivity due to poor road condition and limited para-transit
- 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, described with **phased targets** and **cost estimates**[22] (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 Pradhans, community members or other stakeholders 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. The detailed recommendations are in the following section:

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

1. **Enhancing Green Spaces and Biodiversity**
2. **Management and Rejuvenation of Water Bodies**
3. **Sustainable Agriculture**
4. **Sustainable Solid Waste Management**
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 main recommendations.

22 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. Enhancing Green Spaces and Biodiversity

Context and Issues

- Swami Mustakil has a demarcated forest area of 51 ha[23].
- Plantations in the GP include social forestry on 2.83 ha of land. The prominent species include *neem, kanji*, guava, *jamun and pakar*[24].
- The GP lacks adequate green cover in/around:
  - » built area like along streets, roads and pathways
  - » water bodies like Yamuna River (flowing along Kailash village in GP)

Swami Mustakil gram panchayat has potential to enhance the lung spaces. This will not only improve thermal comfort and provide shade but also help 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. Restoration and conservation of trees in existing forest area 2. Planting saplings[25] through community engagement: a. In forest, along roads/ pathways, around water bodies, etc. b. Green Stewardship Programme[26] for students	1. Additional plantation of saplings: a. Creation of *Bal Van*[27] b. In forest, along roads/ pathways, around water bodies, etc. 2. Establishment of *Arogya Van* and development of production units for natural medicines and supplements	1. Maintenance of GP forest area, *Bal Van*, food forest and other plantations 2. Maintenance of *Arogya Van* and production of natural medicines and supplements 3. Additional plantation activities (in forest, along roads/pathways, around water bodies)

23 As reported during the field surveys

24 As reported during the field surveys

25 Trees species listed in Annexure VI

26 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.

27 New parents can be gifted with saplings of indigenous evergreen trees as a celebration of birth of their children and to be encouraged to nurture the plants through their children's life

Suggested Climate Smart Activities

d. Creation of Food Forest by planting fruit trees 5. Initiating Arogya Van through allocation of land to establish *Arogya Van*[28] 6. Awareness and training sessions for students, youth and local communities on: a. Importance of forest and green cover b. How to plant and nurture trees c. Appropriate tree species for plantation and its vulnerability	Encouragement to farmers to adopt agroforestry; Awareness and capacity building programmes for farmers 4. Maintenance of GP forest area, forest resources, food forest and other plantations 5. Partnership building between panchayat, CIMAP-Lucknow, FPO's, Women groups, youth groups, etc. for production and sale of natural medicines and supplements (explained in detail in "Enhancing livelihoods & Green Entrepreneurship section") 6. Skill development and training by CIMAP-Lucknow to all stakeholders 7. Awareness and training sessions for students, youth and local communities	8. Scaling up agroforestry adoption 9. Scaling up partnership beyond GP to other villages/districts 10. Skill development and training by CIMAP-Lucknow to all stakeholders 11. Awareness and training sessions for students, youth and local communities

28 Suitable species are listed in Annexure VI

Target	1. Restoration and conservation of existing forest area (51 ha) 2. Planting 1500 saplings sequestering 3,400 tCO_2 to 5,400 tCO_2 in 15-20 years (ensuring at least 65% survival rate) 3. Allocation of around 0.1 ha of existing vacant land to establish *Arogya Van*	1. Planting additional 1500 to 2000 saplings sequestering 3,400 tCO_2 to 7,200 tCO_2 in 15-20 years (ensuring at least 65% survival rate) 2. Establishment of 0.1 ha of *Arogya Van* 3. Maintenance of Food Forest and all plantations across GP 4. Partnership and capacity building 5. Agro-forestry adopted in 20 ha[29] land (2000 trees planted) *(sequestration potential of teak = 10,400 tCO_2 to 20,000 tCO_2 in 20 years)*	1. Planting additional 2000 to 2500 saplings sequestering 4,600 tCO_2 to 8,900 tCO_2 in 15-20 years (ensuring at least 65% survival rate) 2. Maintenance of *Arogya Van, Bal Van*, Food Forest and all plantations across GP 3. Production of natural medicines and supplements 4. Scaling up partnership and capacity building 5. Agro-forestry adopted in additional 20 ha (40 ha cumulatively) of land (2000 trees planted) *(sequestration potential of teak = 10,400 tCO_2 to 20,000 tCO_2 in 20 years)*
Estimated Cost	Plantation activities[30]: Rs. 19 Lakhs	1. Plantation activities: Rs. 25 Lakhs 2. Agroforestry: Rs. 8,00,000 *Total cost: Rs. 33,00,000*	1. Plantation activities: Rs. 32 Lakhs 2. Agroforestry: Rs. 8,00,000 *Total: Rs. 40,00,000*

29 Agroforestry adopted in suitable land. Over here we have considered a portion of land which is currently cultivated with vegetables and fruits

30 Plantations mentioned in the water sector recommendations will also be covered through above mentioned action points/ recommendations. Therefore, cost estimated here will cover all plantation activities and double counting must be avoided when totalling up the cost of all the recommendations.

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 amongst community and all stakeholders	1. Update of People's Biodiversity Register 2. Awareness building amongst community and all stakeholders	1. Update of People's Biodiversity Register 2. Awareness building amongst community and all stakeholders
Target	1. Participatory updating of the people's biodiversity register 2. Awareness and capacity building	1. Participatory updating of the people's biodiversity register 2. Awareness and capacity building	1. Participatory updating of the people's biodiversity register 2. Awareness and capacity building
Estimated Cost	Formation, registration and training of Biodiversity Management Committees (BMCs)[31] = Rs. 25,000		

Existing Schemes and Programmes

- For plantation activities, following are the relevant missions/schemes:
  - » 'Trees Outside Forests in India' initiative by MoEFCC
  - » Green India Mission
  - » Jal Jeevan Mission
  - » UP State Plantation Targets
- Annual budgeting[32] 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 Rs. 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

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

32 CAMPA funds utilized for compensating the loss of forest land and ecosystem services by raising of compensatory afforestation and improving quality of forests. (March 2023). PIB

- Skill development and training programme of the Central Institute of Medicinal and Aromatic Plants, Lucknow can be helpful in setting up *Arogya Van* in the GP
- 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.
- CSR support can be utilized for creation of Arogya Van and establishing production unit for herbal products as described in the recommendation on "Enhancing Livelihoods and Promoting Green Entrepreneurship".

Key Departments

- Department of Environment, Forest and Climate Change
- State Biodiversity Board
- Panchayati Raj Department
- Rural Development Department
- Central Institute of Medicinal and Aromatic Plants, Lucknow

2. Management and Rejuvenation of Water Bodies

Context & Issues

- Swami Mustakil GP relies on groundwater and Yamuna River as the primary source of water for both agricultural and domestic needs.
- There have been frequent (five) incidences of floods in the months of August-September between 2018 to 2022[33].
- Additionally, the GP faces severe waterlogging, especially from Panchayat Bhawan to fields along Yamuna due to lack of adequate and proper drain coverage[34]. Therefore, there is a need to enhance watershed management and strengthen drainage infrastructure in Swami Mustakil.
- Adding to the drainage issue, GP lacks effective wastewater treatment system and a major proportion of the wastewater from toilets is released into the open drains/canals and water resources (e.g., Yamuna River).
- Currently, the GP has no ponds due to past encroachment and filling with silt/debris; e.g., encroachment and construction of houses on the pond behind the Upper Primary School in Nagla Chhitar[35].
- Swami Mustakil faces drinking water crisis due to water salinity and frequent contamination/drying up of 9 wells[36]. Adding to the issue, none of the household in the GP have piped water connections[37].

Frequent incidences of floods and waterlogging, encroachment of ponds, groundwater salinity and drying of wells and no piped connections highlight the urgent need for watershed management to conserve surface water and replenish groundwater resources. The following recommendations are proposed to reduce vulnerability, build resilience and improve water security in Swami Mustakil.

33 As reported during the field surveys
34 Referred from HRVCA Report of Swami Mustakil GP
35 Referred from HRVCA Report of Swami Mustakil GP
36 Referred from HRVCA Report of Swami Mustakil GP
37 As reported during the field surveys

Rainwater Harvesting (RwH) Structures

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 RwH structures in all government/PRI buildings 2. (Panchayat Bhavan, 2 Primary Schools, Upper Primary School, Anganwadi[38])	1. Installation of RwH structures in residential buildings above a plot size of 1500 sq. ft. 2. Mandatory construction of RwH structures in all new buildings	1. Installation of RwH structures in residential buildings of plot size around 1000 sq. ft. 2. Mandatory construction of RwH structures in all new buildings
Target	RwH structure in all (100%) government/public buildings	1. RwH structure in 268 Pucca houses with an average storage capacity of 10 m^3 2. 100% new buildings constructed during Phase II having RwH structures *Existing Pucca houses = 608*	1. RwH structure in remaining 243 Pucca houses with an average storage capacity of 10 m^3 2. 100% new buildings constructed during Phase III having RwH structures *Existing Pucca houses = 608*
Estimated Cost	RwH (5 RwH Structures with recharge pit of 10 m^3 capacity) = Rs. 1,75,000	RwH (268 RwH Structures with recharge pit of 10 m^3 capacity) = Rs. 93,80,000	RwH (243 RwH Structures with recharge pit of 10 m^3 capacity) = Rs. 85,05,000

38 Although the GP has Anganwadis, they do not have independent buildings. They are housed inside the Panchayat Bhavan, primary school and other PRI buildings.

Rejuvenation of Water Bodies and Creation of Retention Ponds

	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Med bandi - construction of embankments along Yamuna to prevent flooding 2. Construction of retention ponds (man-made ponds) in low-lying areas 3. Training and orientation sessions to encourage community involvement in restoration of Yamuna River and creation of retention pond/s 4. Capacity building of the Village Water and Sanitation Committee (VWSC)[39] and Construction Work Committee (CWC) to enhance awareness among various key community groups to improve water use efficiency and water conservation	1. Maintenance of all water bodies (river and retention ponds) 2. Construction of additional retention ponds in low-lying areas 3. Scaling up community involvement in maintenance and construction works 4. Regular capacity building of the community and all other stakeholders	1. Maintenance of all water bodies (river and retention ponds) 2. Scaling up community involvement in maintenance and construction works 3. Regular capacity building of the community and all other stakeholders
Target	1. Med bandi (construction of embankments along the Yamuna to prevent flooding) in Nagla Nathu and Nagla Chhatar areas[40] 2. Construction of new ponds/retention ponds in Nagla Nathu location[41]	1. Regular maintenance of ponds 2. Construction of 2 more retention ponds in identified low-lying areas 3. Involvement of community in maintenance and restoration works	1. Regular maintenance of ponds 2. Involvement of community in maintenance and restoration works

39 VWSC Handbook, https://phed.cg.gov.in/sites/default/files/gphandbook-0.pdf
40 From HRVCA – Swami Mustakil GP
41 From HRVCA – Swami Mustakil GP

Estimated Cost	1. Med bandi = Rs. 10 Lakhs 2. Retention ponds = Rs. 10 Lakhs *Total cost = Rs. 20 Lakhs*	1. Maintenance of ponds = Rs. 5,75,000 2. Construction of 2 retention ponds (300 m^3 capacity) = Rs. 14 Lakhs[42] *Total cost = Rs. 19.75 lakhs*	Maintenance of ponds = Rs. 6,75,000 *Total cost = Rs. 6.75 lakhs*

Restoration of Wells & Enhancing Ground Water Recharge

	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Cleaning and restoration of all wells 2. Constructing recharge pits for ground water management	Regular maintenance of all existing wells and recharge pits	Regular maintenance of all existing wells and recharge pits
Target	1. Cleaning, safety and repair work of existing 9 wells[43] 2. 10 recharge pits at strategic locations	1. Maintenance of all 9 wells 2. Maintenance of 10 recharge pits 3. Constructing more recharge pits (as per requirement)	1. Maintenance of all 9 wells 2. Maintenance of 10 recharge pits 3. Constructing more recharge pits (as per requirement)
Estimated Cost	1. Cleaning & restoration of 9 wells = Rs. 28,12,500[44] 2. 10 Recharge pits - Rs. 3.5 Lakhs *Total cost = Rs. 31,62,500*	1. Maintenance cost (as required) 2. Cost for new recharge pits (as required)	1. Maintenance cost (as required) 2. Cost for new recharge pits (as required)

42 https://builderbaron.com/retention-ponds/#google_vignette
43 HRVCA Report – Swami Mustakil GP
44 Referred from HRVCA of Ainchhwara GP

Enhancing Drainage and Sewerage Infrastructure

	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Repair of broken drains and drainage management 2. Construction of canals for ground water recharge and agricultural irrigation 3. Construction of Decentralised Waste Water Treatment System (DEWATS) based on need assessment for sewage treatment	1. Maintenance of existing drains, canals and STP 2. Construction of additional drains & canals (if required)	1. Maintenance of existing drains, canals and STP 2. Construction of additional drains & canals (if required)
Target	1. Construction of 1800 m drains[45] 2. Construction of DEWATS/ Oxidation Pond of capacity 0.70 MLD	Maintenance of existing infrastructure	Maintenance of existing infrastructure
Estimated Cost	1. Construction of drains = Rs. 78 Lakhs 2. DEWATS/Oxidation Pond = Rs. 40 Lakhs *Total cost = Rs. 1,18,00,000*	As per requirement	As per requirement

45 From HRVCA – Swami Mustakil GP

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 Component under PMKSY can be leveraged for watershed development activities.

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

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

3. Sustainable Agriculture

Context & Issues[46]

- The total area under agriculture in Swami Mustakil is 121.6 ha and the gross cropped area is nearly 267 ha.
- Majority (72 percent)[47] of the households in the GP depend on agriculture practices as a source of income.
- The major crops grown are wheat (~83 ha), mustard (~61 ha), *bajra* (~51 ha) and vegetables (~73 ha), across kharif and rabi seasons.
- The sowing time for wheat has shifted by around 15 days from November to December due to late arrival of winters[48].
- From the years 2018 to 2022, crop losses have been caused due to erratic rainfall and increase in river level. The losses amounted to around 4,300 quintals of produce (vegetables, chillies and *bajra*) or around Rs 51 lakhs (corroborated by prevailing MSP of the respective years).
- Farmers use ~32 tonnes of urea and other nitrogenous fertilizers per year, leading to GHG emissions of ~48 tonnes CO_2e per year. The farmers also rely on other chemical inputs such as pesticides and weedicides. Natural farming is currently not practiced in the GP.
- Agricultural water demand has increased as reported in the field surveys, stressing on the need for water conservation and improved irrigation techniques.

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

46 As reported by GP during field surveys
47 As reported by GP during field surveys
48 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. Adoption of micro irrigation practices like drip irrigation and sprinkler irrigation 2. Construction of bunds with trees around agricultural fields 3. Adoption of drought tolerant varieties of wheat	1. Scaling up of micro irrigation practices 2. Construction of additional bunds with trees around agricultural fields 3. Scaling up adoption of drought tolerant variety of wheat 4. Adoption of drought resistance crops such as millets	1. Scaling up of micro irrigation practices 2. Maintenance of bunds and tree plantation 3. Additional tree plantation (as required) 4. Scaling up adoption of drought tolerant variety of wheat 5. Scaling up adoption of drought resistance crops such as millets
Target	1. Micro irrigation on 24 ha (33% of land area under vegetable cultivation) 2. Construction of bunds with trees around 61 ha (50%) of agricultural land *(Existing area under agriculture = 121.6 ha)*	1. Micro irrigation on additional 36 ha (cumulatively 82% of land area under vegetable cultivation) 2. Consruction of bunds with trees around remaining 61 ha (cumulatively 100%) of agricultural land	1. Micro irrigation on remaining 13 ha (cumulatively 100% of land area under vegetable cultivation) 2. Additional tree plantation (as required) 3. 100% cultivation of drought tolerant variety of wheat
Estimated Cost	1. Micro-irrigation = Rs. 24,00,000 2. Bunds with trees = Rs. 1,17,000 *Total cost = Rs. 25,17,000*	1. Micro-irrigation = Rs. 36,00,000 2. Bunds with trees = Rs. 1,17,000 *Total cost = Rs. 37,17,000*	Micro-irrigation = Rs. 13,00,000

Shift 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. Adoption of natural fertilizers, bio-pesticides and bio-weedicides 2. Setting up and adoption of natural produce certification process 3. Exploring and establishment market linkages for natural farm produce 4. Adoption of practices such as mixed cropping, crop rotation, mulching and zero tillage 5. Training sessions and demonstrations for farmers, FPOs and other relevant stakeholder groups on: a. Importance of natural farming and drought tolerant crops b. Techniques to adopt resilient cropping pattern c. Sustainable irrigation methods d. Certification systems e. Market outreach and profitability	1. Scaling up adoption of natural fertilizers, bio-pesticides and bio-weedicides 2. Scaling up adoption of natural produce certification process 3. Expansion of market linkages and consumer market for natural farm produce 4. Scaling up adoption of practices such as mixed cropping, crop rotation, mulching and zero tillage 5. Periodic training sessions and demonstrations for farmers, FPOs and other relevant stakeholder groups	1. Scaling up adoption of natural fertilizers, bio-pesticides and bio-weedicides 2. Creating mandate for adoption of natural produce certification process 3. Expansion of market linkages and consumer market for natural farm produce 4. Scaling up adoption of practices such as mixed cropping, crop rotation, mulching and zero tillage 5. Periodic training sessions and demonstrations for farmers, FPOs and other relevant stakeholder groups
Target	Natural farming on 24 ha (20%) of agricultural land	Natural farming on additional 36 ha (cumulative 50%) of agricultural land	Natural farming on additional 62 ha (100% of agricultural land)

Estimated Cost	Approximate Cost: 1. Training & demonstration = Rs. 20,000 to 30,000 per session 2. Conversion of land to natural farming = Rs. 59,30,400 *Total cost = Rs. 59,60,400*	Approximate Cost: 1. Training & demonstration = Rs. 20,000 to 30,000 per session 2. Conversion of land to natural farming = Rs. 88,95,600 *Total cost = Rs. 89,25,600*	Approximate Cost: 1. Training & demonstration = Rs. 20,000 to 30,000 per session 2. Conversion of land to natural farming = Rs. 1,53,20,200 *Total cost = Rs. 1,53,50,200*

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 health workers/para-vet training for improving access to livestock health services 3. Refer to section "Additional Recommendations" 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
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[49]	1. Additional workshops on disease prevention and sustainable rearing practices organised 2. Continued training and capacity building for livestock	1. Additional workshops on disease prevention and sustainable rearing practices organised 2. Continued training and capacity building for livestock

49 No. of community-based animal health workers trained to be based on requirement of the GP

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.
- Automatic weather stations can be installed under the Weather Information Network and Data Systems (WINDS) program to enhance the crop planning and disaster management
  - » The Uttar Pradesh government has announced the implementation of WINDS program, under which an automatic weather station will be installed at each tehsil headquarter and at least two automatic rain gauges in each block.
- 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.
- Drought proofing activities and creation of nurseries and seed banks can be streamlined through MGNREGA
- Natural 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.
- Krishi Raksha Scheme supports farmers in pest control through different ecological resources and to promote use of bio-chemicals.
- 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
  - » RE powered cattle sheds
- 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 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 fertilizers, 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 Swami Mustakil can be carried out in collaboration with technical experts and institutes in the region, local NGOs, CSOs and corporates.

Key Departments

- Department of Agriculture
- Horticulture Department
- Soil Conservation Department
- Centre for Integrated Pest Management (CIPM)
- Department of Land Resources
- Jal Shakti Department
- Animal Husbandry Department
- Uttar Pradesh New & Renewable Energy Development Agency (UPNEDA)
- Regional Centres for Organic Farming
- Krishi Vigyan Kendra, Agra

4. Sustainable Solid Waste Management

Context & Issues

- The total waste generated[50] from all domestic activities (households, public and semi-public spaces, and commercial areas) in the GP is approximately 306 kg per day. Out of this, 177 kg is biodegradable/organic waste and 129 kg is non-biodegradable waste.
- There is a lack of waste collection, segregation, and effective waste treatment system in Swami Mustakil leading to waste dumping in water bodies, vacant plots and on streets within and outside the GP[51]. This results in waterlogging due to clogged drains during monsoons that further leads to increased risk of health hazards.
- The large quantities of agricultural and animal waste also adds to the waste management issues in the GP. The total livestock population in the GP is 500 (including cows, buffaloes and goats) and the estimated dung output is roughly 4.8 tonnes per day[52] which can be managed sustainably through interventions such as composting, vermicomposting, natural fertilizer production and biogas generation in Swami Mustakil.

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

Establishing a Waste Management System

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
	1. Setting up a system for at-source (household, commercial, etc.) waste segregation into wet and dry waste 2. Provision of electric garbage vans for:	1. Additional electric garbage vans for waste collection as per population and household growth 2. Maintenance of segregation and storage space	1. Maintenance of: a. Electric garbage vans b. Segregation and storage space

50 See annexure IV for estimation methodology

51 As reported during the field surveys

52 Assuming cows produce 10 kg dung/day, buffaloes produced 15kg dung/day and goats produce 150 g dung/day

Suggested Climate Smart Activities	a. Door-to-door collection of segregated waste (biodegradable and non-biodegradable waste from households, public/semi-public facilities and commercial set ups) b. Transportation of plastic waste to nearest plastic recycling facility 3. Provision of segregation & storage space (for further segregation) 4. Installation of waste collection bins at strategic locations (markets, schools, shops, tea stalls etc.) 5. Provision of *safai karmis* for collection/ transportation of waste 6. Setting up partnerships between relevant stakeholders	3. Setting up GP-level recycling and plastic shredder facility 4. Maintenance of existing waste bins and electric garbage vans 5. Additional installation of bins at new strategic locations 6. Additional *safai karmis* for collection/ transportation of waste as per requirement 7. Scaling up partnership beyond GP to other villages/districts	c. GP-level recycling and plastic shredder facility d. Waste bins installed 2. Additional *safai karmis* for collection/ transportation of waste as per requirement 3. Scaling up partnership beyond GP to other villages/districts
Target	1. Coverage of 638 households (100%) under GP's door-to-door waste collection system 2. Provision for 1 electric garbage vans/e-rickshaw garbage loaders (capacity 310 kg)[53] to collect 306 kg of waste generated per day 3. Installation of 25 waste bins[54] in all hamlets : a. Kailash-5 b. Nagla Nathu-10 c. Nagla Chittar-5 d. Nagla Sitaram-5	1. 1 GP-level recycling and plastic shredder unit 2. Installation of additional 10 waste bins 3. Maintenance of existing facilities/infrastructure 4. Additional *safai karmis* as per requirement 5. Scaling up partnership	1. Maintenance of existing facilities/infrastructure 2. Additional *safai karmis* as per requirement 3. Scaling up partnership

53 https://www.indiamart.com/proddetail/electric-garbage-van-25434344497.html

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Target	4. Provision of 3 saniation workers *(safai karmis)*[55] for collection/ transportation of waste in areas: a. Nagla Nathu-1 b. Nagla Chittar-1 c. Nagla Sitaram-1 5. Building partnership for collection/transportation of waste and operation of waste management park between Panchayat and local businesses, and MSMEs, SHGs, informal ragpickers and local scrap dealers *(Average per day waste generation from domestic sources (residential, commercial, etc.) = total 306 kg; 177 kg of biodegradable waste and 129 kg of Sukha/ dry and plastic waste)*		
Estimated Cost	1. Electric Garbage Van = Rs. 1,00,000 2. 25 waste bins/containers = Rs. 3,75,000 3. 3 *safai karmis* = Rs. 3,60,000 *Total cost: Rs. 8,35,000*	1. Plastic shredder unit = Rs. 50,000[56] 2. 10 waste bins/ containers = Rs. 1,50,000 *Total cost: Rs. 2,00,000*	As per requirement

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56 https://www.indiamart.com/proddetail/plastic-shredder-15602791097.html

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 compost & vermi-compost pits through community involvement 2. Promoting above community initiative by providing incentives like concessions on utility services such as water tariffs, waste collection fees, etc., or subsidies on the purchase of biogas 3. Partnership building between Panchayat and relevant stakeholders for setting up compost value chain in GP	1. Regular maintenance of compost pits 2. Increasing capacity/ setting up new compost pits for treatment of biodegradable/organic waste (based on increasing population & household growth) 3. Scaling up partnership beyond GP to other villages/districts	1. Regular maintenance of existing compost pits 2. Increasing capacity/ setting up new compost pits for treatment of biodegradable/organic waste (based on increasing population & household growth) 3. Scaling up partnership beyond GP to other villages/districts
Target	1. Setting up of composting and vermicomposting pits: a. Compost/manure generated from composting of around 177 kg per day of biodegradable waste (organic) is: approx. 89 kg per day; 2670 kg per month[57]	1. Increasing capacity/ setting up new compost pits for treatment of all (100%) biodegradable/ organic waste from households, public/ semi-public facilities, commercial set ups and agriculture 2. Maintenance of compost pits	1. Increasing capacity/ setting up new compost pits for treatment of all (100%) biodegradable/ organic waste from households, public/ semi-public facilities, commercial set ups and agriculture 2. Maintenance of compost pits

57 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

Target	b. periodic composting of agricultural waste (to enhance compost quantity) 3. Partnership model between panchayat, community members, SHGs and farmer groups for: a. Production & sale of compost b. Sale of agricultural waste (explained in detail in "Enhancing Livelihoods & Green Entrepreneurship section")	3. Scaling up partnership	3. Scaling up partnership
Estimated Cost	Solid waste management yard (organic waste composting) = Rs. 35 Lakhs	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. Enforcement of the existing ban on the use of Single Use Plastics (SUPs) 2. Awareness, training, and capacity-building programs for: a. Village Water and Sanitation Committee (VWSC) b. Students & youth groups c. Community members	1. Awareness, training, and capacity-building programs 2. Scaling up partnership beyond GP to other villages/districts	1. Awareness, training, and capacity-building programs 2. Scaling up partnership beyond GP to other villages/districts

Suggested Climate Smart Activities	3. Orientation sessions for commercial establishments on plastic waste management and promote the use of alternatives 4. Leveraging RACE Campaign and LiFE Mission to organize awareness campaigns and training sessions 5. Partnership model between panchayat, women and SHGs for manufacturing products from plastic-alternative materials e.g.: bags, home décor, cutlery, stationery items, furniture, etc. (explained in detail in "Enhancing livelihoods & Green Entrepreneurship section")		
Target	1. Complete ban on single use plastics 2. Engagement of 100 women in manufacturing	1. Ban on single use plastics 2. Increased engagement from this GP & nearby villages of: a. Additional 200 women b. SHGs, MSMEs & individual entrepreneurs	1. Ban on single use plastics 2. Increased engagement from this GP & nearby villages of: a. Additional 300 women b. Additional SHGs, MSMEs & individual entrepreneurs

Existing Schemes and Programmes

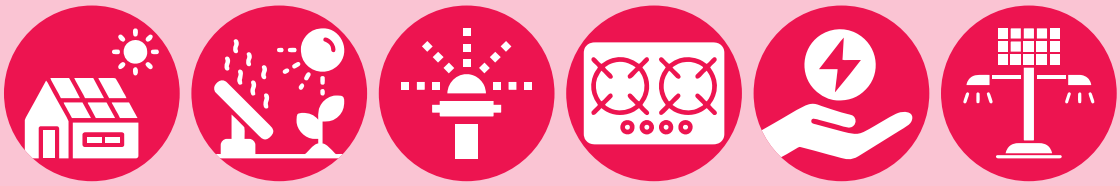
- MGNREGA can be tapped into for the construction of community-based composting facilities, waste collection and segregation pits, segregation and storage shed.
- The development of infrastructure and training and capacity building can be supported by initiatives under the Swachh Bharat (Gramin) Mission.

Other Sources of Finance

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

Key Departments

- Panchayati Raj Department
- Public Health Department
- Rural Development Department
- Agriculture Department
- Uttar Pradesh Khadi and Village Industries Board



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

Context & Issues

- Swami Mustakil GP consumed approximately 10,53,617 units of electricity in 2022-23. While the 84 percent households in the GP has electricity connection, the power supply, as understood from the community members is not 24*7. On an average the GP experiences ~4 hours of power cuts every day[58].
- Due to the power cuts, there are 2 diesel generators[59] operating in the GP for power back-up and they consume about ~2 kL of fuel annually.
- There are 68 diesel pumps[60] used for irrigation which consume 26.5 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 installing solar street lights (50 streetlights)[61].
- Cowdung and fuelwood is used for cooking in 428 households[62]. There is a need to transition to cleaner cooking solutions that will not only lead to reduction in emissions but also co-benefits like improved indoor air quality.
- With increasing temperature , thermal comfort levels in homes are reducing and there is need for sustainable space cooling.

Based on the energy related concerns 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 Swami Mustakil. The intent of the suggested activities is to ensure access to clean, sustainable, affordable and reliable energy for communities in the GP. This would not only enhance their quality of life but also help to supplement incomes through productive use of energy.

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

Solar Rooftop Installations

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	Installation of solar rooftop panels on PRI/government buildings in Swami Mustakil: a. Government Buildings (Panchayat Bhavan, Electricity Department) b. Education (Primary Schools, Upper Primary School) Anganwadi/s	1. Installation of solar rooftop panels on pucca houses 2. Installation of solar rooftop panels on all new buildings (constructed during Phase II) 3. Regular maintenance of solar rooftops	1. Scaling up installation of solar rooftop panels on pucca houses 2. Installation of solar rooftop panels on all new buildings (constructed during Phase III) 3. Regular maintenance of solar rooftops
Target	**1. Government Buildings** a. Panchayat Bhawan = 80 sq.m. rooftop area; 3 kWp b. Electricity Department = 19 sq.m. rooftop area; 3 kWp **2. Education**[63] a. Primary School Nathu= 185 sq. m rooftop area; 10 kWp b. Primary School Kailash = 111 sq. m rooftop area; 10 kWp c. Upper Primary School, Nagla chitar = 167 sq. m. rooftop area;10 kWp d. Upper Primary School Kailash = 167 sq. m. rooftop area ;10 kWp	1. Installation of solar panels on rooftops of 243 (40%) pucca houses Solar rooftop capacity per pucca house = 100 sq. m. rooftop area.; 3 kWp[64] Solar rooftop capacity for 243 (40%) pucca houses = 24,300 sq. m.; 729 kWp Electricity generation potential = approximately 9,76,276 kWh per year (2674 units per day) GHG emissions avoided: approximately 800 tCO_2e per year 2. Maintenance of solar rooftops *(Total Pucca houses = 608)*	1. Installation of additional solar panels on rooftops of 365 (60%) pucca houses Solar rooftop capacity for 365 (60%) pucca houses = 36,500 sq. m. rooftop area.; 1095 kWp Electricity generation potential = approx. 1,466,424 kWh per year[65] GHG emissions avoided: approx. 1,202 tCO_2e per year[66] 2. Maintenance of solar rooftops

63 Solar installation in PRI buildings capped at 10 kWp

64 Average area of households considered to be 100 sq.m; 3 kWp rooftop installation estimated per household

65 Clean energy generation is likely to be ~28% more than the current electricity consumption in the GP.

66 The emissions avoided will help move the GP towards carbon neutrality.

	Total solar rooftop capacity installed in this phase = 46 kWp Electricity generation potential = 61,600 kWh per year (169 units per day) GHG emissions avoided: 50.5 tCO_2e per year *In light of much needed and ambitious targets of the recently launched PM Surya Ghar Yojana, households can also be part of this phase for solar PV installation on rooftops.*		
Estimated Cost	*Total cost : Rs. 23,00,000*	*Total cost : Rs. 3,64,50,000* Indicative Subsidy[67]: ~40% (State + CFA) *Estimated Cost: Rs. 2,18,70,000*	*Total cost : Rs. 6,01,00,000* Indicative Subsidy: ~40% (State + CFA) *Estimated Cost: Rs. 3,60,60,000*

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, etc.	Installation of agro-photovoltaic on area under horticulture vegetables	Scaling up installation of agro-photovoltaic on area under horticulture vegetables

67 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

Target	Organizing awareness campaigns and orientation sessions to encourage uptake of agro-photovoltaic initiatives amongst farmers	Installation of agro-photovoltaic on 4 ha of horticulture Capacity installed: 1,000 kWp (250 kWp per Ha) Electricity generated: 13,40,000 kWh per year[68] GHG emissions avoided: 1,098 tCO_2e per year *(Total area under vegetables = 73 ha)*	Installation of additional agro-photovoltaic on 6 ha horticulture Capacity installed: 1,500 kWp (250 kWp per Ha) Electricity generated: 20,10,000 kWh per year (47,698 units per day) GHG emissions avoided: 1,647 tCO_2e per year
Estimated Cost[69]		*Total cost : Rs. 10, 00,00,000 (Rs. 1 lakh/kWp)*	*Total cost : Rs. 15,00,00,000 (Rs. 1 lakh/kWp)*

Solar Pumps

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
	Replacing existing diesel pump sets in the GP with solar pumps (If solar pumps are not feasible then, energy efficient pumps (Kisan Urja Daksk Pumps by EESL) can be considered)	1. Replacing more diesel pump sets in the GP with solar pumps 2. Encouraging purchase/ use of all new pump sets to be solar-powered	1. Replacing more diesel pump sets in the GP with solar pumps 2. Encouraging purchase/ use of all new pump sets to be solar-powered

68 This generation is around ~22% more than the current electricity consumption in the GP

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

Target	Replacing 14 (20%) existing diesel pump sets with solar pumps Capacity installed: 5.5*14 = 77 kW Electricity generation potential = 1,03,118 kWh per year Diesel consumption avoided: 5,460 litres/year GHG Emissions avoided: 14.7 tCO_2e per year	Replacing 20 more diesel pumps with solar pumps (i.e. 50% of the existing diesel pumps replaced in Phase I and II) Capacity installed: 5.5*20 = 110 kW Electricity generation potential = 1,47,312 kWh per year Diesel consumption avoided: 7,800 litres/year GHG Emissions avoided: 21 tCO_2e per year	Replacing remaining 34 diesel pumps with solar pumps (i.e. 100% of the existing diesel pumps replaced in Phase I, II and III) Capacity installed: 5.5*34 = 187 kW Electricity generation potential = 2,50,430 kWh per year Diesel consumption avoided: 13,260 litres/year GHG Emissions avoided: 35.7 tCO_2e per year
Estimated Cost	Rs. 42,00,000 to 70,00,000 (Rs. 3 to 5 lakhs per pump) Indicative Subsidy: 60% (State + CFA) *Estimated cost: Rs. 16,80,000 to Rs. 28,00,000*	Rs. 60,00,000 to 1,00,00,000 Indicative Subsidy: 60% (State + CFA) *Estimated cost: Rs. 24,00,000 to Rs. 40,00,000*	Rs. 1,02,00,000 to 1,70,00,000 Indicative Subsidy: 60% (State + CFA) *Estimated cost: Rs. 40,80,000 to Rs. 68,00,000*

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*: Households Biogas + LPG *Scenario 2*: Solar powered induction cook stoves + LPG *Scenario 3*: Solar powered induction cook stoves + Improved *Chulhas* + LPG	*Scenario 1*: Households Biogas + LPG *Scenario 2*: Solar powered induction cook stoves + LPG *Scenario 3*: Solar powered induction cook stoves + Improved *Chulhas* + LPG	*Scenario 1*: Households Biogas + LPG *Scenario 2*: Solar powered induction cook stoves + LPG *Scenario 3*: Solar powered induction cook stoves + Improved *Chulhas* + LPG

Target	*Scenario 1*: 9 Households use Biogas plants (25% of Households having 2 to 4 cattle) + 629 Households use LPG *Scenario 2*: 32 Households use Solar powered induction cookstoves (25% of Households in the top income groups) + 606 Households use LPG *Scenario 3*: 32 Households use Solar powered induction cookstoves (25% of Households in the top income groups) + 214 Households use improved Chulha (50% of Households that currently use biomass) + 392 Households use LPG *(Total Households in GP = 638 5% Households (36 Households) engaged in dairy & poultry farming* *On average, each Households has 2-4 livestock* *Households in top income groups = 128* *a. 2 lakh to 5 lakh - 15% Households* *b. More than 5 lakh - 5% Households)*	*Scenario 1*: 9 more Households use Biogas plants (Additional 25% Households having 2 to 4 cattle) i.e. total 18 Households use Biogas plants + 620 Households use LPG Scenario 2: 32 more Households use Solar powered induction cookstoves (Additional 25% Households in the top income groups) i.e. total 64 Households use Solar powered induction cookstoves + 574 Households use LPG *Scenario 3*: 32 more Households use Solar powered induction cookstoves (Additional 25% Households in the top income groups) i.e. total 64 Households use Solar powered induction cookstoves + 214 more Households use improved Chulha (remaining 50% of Households that currently use biomass) + 360 Households use LPG	*Scenario 1*: 18 more Households use Biogas plants (Additional 50% Households having 2 to 4 cattle) i.e. total 36 Households use Biogas plants + 584 Households use LPG *Scenario 2*: 64 more Households use Solar powered induction cookstoves (Additional 50% Households in the top income groups) i.e. total 128 Households use Solar powered induction cookstoves + 510 Households use LPG *Scenario 3*: 64 more Households use Solar powered induction cookstoves (Additional 50% Households in the top income groups) i.e. total 128 Households use Solar powered induction cookstoves + 214 Households already using improved *Chulhas* (as in Phase II) + 296 Households use LPG
Estimated Cost	*Scenario 1*: Rs. 4,50,000 for biogas plants (Rs. 50,000 for 2 to 3 m^3 biogas plant) *Scenario 2*: Rs. 14,40,000 for solar induction cookstove (Rs. 45,000 for 1 double burner solar cookstove without battery) *Scenario 3*: Rs. 14,40,000 for solar induction cookstove + Rs. 6,42,000 (1 Improved *Chulhas* @ Rs. 3,000) *Average cost = Rs..13,24,000*	*Scenario 1*: Rs. 4,50,000 for biogas plants *Scenario 2*: Rs. 14,40,000 for solar induction cookstove *Scenario 3*: Rs. 14,40,000 for solar induction cookstove + Rs. 6,42,000 (1 Improved *Chulhas* @ Rs. 3,000) *Average cost = Rs. 13,24,000*	*Scenario 1*: Rs. 9,00,000 for biogas plants *Scenario 2*: Rs. 28,80,000 for solar induction cookstove *Scenario 3*: Rs. 28,80,000 for solar induction cookstove *Average cost = Rs. 22,20,000*

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. Replacing all light fixtures and fans with energy efficient fixtures in government/PRI buildings 2. Replacing existing tube lights with LED tube light in each house of GP 3. Installing only LED bulbs and tube lights in all new construction	1. Scaling up replacement of existing tube lights in houses with LED tube lights 2. Replacing conventional fan/s in houses with energy efficient fan/s 3. Installing only LED bulbs and tube lights and energy efficient fans in all new construction	1. Scaling up replacement of existing tube lights in houses with LED tube lights 2. Replacing conventional fan/s in houses with energy efficient fan/s 3. Installing only LED bulbs and tube lights and energy efficient fans in all new construction
Target	1. 100% replacement of existing fixtures with LED tube lights and energy efficient fans in all PRI/government buildings 2. Replacing existing tube lights with LED tube lights[70] under following categories: a. Less than 50 sq. m. = replacing 2 lights b. Households between 50 to 100 sq. m. = 2 lights c. 100 to 200 sq. m. = 3 lights d. More than 200 sq. m. = 5 lights	Replacing additional existing tube lights with LED tube lights and installing energy efficient fans under following categories: a. Less than 50 sq. m. = 1 light & 1 fan b. Households between 50 to 100 sq. m. = 2 lights & 1 fan c. 100 to 200 sq. m. = 2 lights & 1 fan d. More than 200 sq. m. = 5 lights & 2 fans	Replacing additional existing tube lights with LED tube lights and installing energy efficient fans under following categories: a. Less than 50 sq. m. = 1 fan b. Households between 50 to 100 sq. m. = 1 fan c. 100 to 200 sq. m. = 2 fans d. More than 200 sq. m. = 4 fans

70 Based on inputs received from Gram Pradhan

Estimated Cost	1. Less than 50 sq. m. (96 Households) = 192 lights 2. Households between 50 to 100 sq. m. (255 Households) = 510 lights 3. 100 to 200 sq. m. (280 Households) = 840 lights 4. More than 200 sq. m. (7 Households) = 35 lights 1577 LED Tube lights in houses = Rs. 3,46,940	1. Less than 50 sq. m. (96 Households) = 96 lights, 96 fans 2. Households between 50 to 100 sq. m. (255 Households) = 510 lights, 255 fans 3. 100 to 200 sq. m. (280 Households) = 560 lights, 280 fans 4. More than 200 sq. m. (7 Households) = 35 lights, 14 fans 1201 LED Tube lights in houses = Rs. 2,64,220 900 energy efficient fans = Rs. 9,99,000 *Total cost = Rs. 12,63,220*	1. Less than 50 sq. m. (96 Households) = 96 fans 2. Households between 50 to 100 sq. m. (255 Households) = 255 fans 3. 100 to 200 sq. m. (280 Households) = 560 fans 4. More than 200 sq. m. (7 Households) = 28 fans 939 energy efficient fans = Rs. 10,42,290

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	1. Installation of solar LED streetlights 2. Installation of high-mast solar LED streetlights along roads, footpaths, government buildings, at public spaces, around water bodies and other key locations 3. Maintenance and repair of existing streetlights (wherever required)	1. Installation of additional solar LED streetlights 2. Installation of high-mast solar LED streetlights along roads, footpaths, government buildings, at public spaces, around water bodies and other key locations 3. Maintenance and repair of existing streetlights (wherever required)	1. Installation of new solar LED streetlights 2. Installation of high-mast solar LED streetlights along roads, footpaths, government buildings, at public spaces, around water bodies and other key locations 3. Maintenance and repair of existing streetlights (wherever required)

Target	1. Installing 10 solar LED streetlights 2. Installing 5 high-mast solar LED streetlights around government buildings, at public spaces, around water bodies and other key locations[71] 3. Installing additional solar LED streetlights along roads, footpaths, internal streets (as per requirement)	1. Installing 20 more of solar LED streetlights 2. Installing additional 5 high-mast solar LED streetlights around government buildings, at public spaces, around water bodies and other key locations 3. Installing additional solar LED streetlights along roads, footpaths, internal streets (as per requirement)	1. Installing 20 more solar LED streetlights 2. Installing additional 5 high-mast solar LED streetlights around government buildings, at public spaces, around water bodies and other key locations 3. Installing additional solar LED streetlights along roads, footpaths, internal streets (as per requirement)
Estimated Cost	1. Installation of 10 Solar LED streetlights = Rs. 1 Lakh 2. 5 high-mast solar LED streetlights = Rs. 2,50,000 *Total cost = Rs. 3,50,000*	1. Installing 20 Solar LED streetlights = Rs. 2 Lakhs 2. 5 high-mast solar LED streetlights = Rs. 2,50,000 *Total cost = Rs. 4,50,000*	1. Installing 20 Solar LED streetlights = Rs. 2 Lakhs 2. 5 high-mast solar LED streetlights = Rs. 2,50,000 *Total cost = Rs. 4,50,000*

Existing Schemes and Programmes

- The Uttar Pradesh Solar Energy Policy, 2022[72] provides:
  a. Subsidy on solar installations in residential sector: from Rs. 15,000/kW to a maximum limit of Rs. 30,000/- per consumer over and above the Central Financial Assistance by MNRE
  b. Provision for solar installations in institutions in RESCO[73] 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
  a. 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.
  b. 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
  c. Solar rooftop installations for poor households can be undertaken through the PM-Surya Ghar: Muft Bijli Yojana[74]. 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

71 Based on inputs received from the GP during field surveys and further discussions with the Gram Pradhan
72 https://invest.up.gov.in/wp-content/uploads/2023/02/Uttar_Pradesh_Solar_Energy_Policy_2022.pdf
73 Third party (RESCO mode) {Renewable Energy Supply Company}
74 https://pmsuryaghar.gov.in/

at 3 kW. At current benchmark prices, this will mean Rs 30,000 subsidy for 1 kW system, Rs 60,000 for 2 kW systems and Rs 78,000 for 3 kW systems or higher.

- PM KUSUM Yojana provides:
  a. Component A of PM KUSUM Yojana, promotes setting up of 500 kW and larger solar power plants on agriculture land.
  b. 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 rest can be paid to the bank in instalments.
- Contribution of UP government to PM KUSUM Yojana:
  a. Under Component C-1: Solarization 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
  b. Under Component C-2: Solarization of Segregated Agriculture feeders by state government providing Viability Gap Funding (VGF) of Rs. 50 lakh per megawatt in addition to subsidy being provided by Central government through MNRE'S PM KUSUM Scheme
- LED Street lighting projects in Gram Panchayats[75]:
  a. 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.
  b. 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[76]:
  a. LED bulbs available at an affordable price of Rs. 10 per bulb
  b. 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
  a. 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/Modernization of Cold Storages and Storages for Horticulture Products
  b. 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[77] 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

75 Street Lighting National Programme by EESL.

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

77 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

Organic Bio-Agro Resources Dhan) scheme under Swachh Bharat Mission - Gramin (SBM-G).

a. The GOBARDHAN scheme under SBM-G provides financial assistance up to Rs..50.00 lakh per district for the period of 2020-21 to 2024-25 for setting up of cluster/community level biogas plants[78].

- UP Bio-Energy Policy 2022[79] provides incentives for setting up CBG plants in addition to incentives available from Govt. of India under the GOBARDHAN scheme:
  a. The incentive of Rs. 75 lakh/tonne to the maximum of Rs. 20 Crore on setting up Compressed Biogas (CBG) Production Plant
  b. Exemption on development charges levied by development authorities
  c. 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:
  a. The programme supports the setting up of plants for the generation of Biogas from urban, industrial, and agricultural waste
  b. Financial assistance available for Biogas generation is Rs. 0.25 Crore per 12000 m^3/day80

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 utilized:
  - » 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
  - » Organize awareness campaigns on existing government schemes/ programmes that promote solar rooftop (UP Solar Policy, 2022) and solar irrigation (PM-KUSUM, UP Solar Irrigation Scheme)

Key Departments

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

78 https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1883926
79 https://invest.up.gov.in/bio-energy-enterprises-promotion-programme-2022/
80 https://pib.gov.in/PressReleasePage.aspx?PRID=1896067

6. Sustainable and Enhanced Mobility

Context and Issues

- Swami Mustakil has a total of 197 internal combustion engine (ICE) vehicles; 150 two-wheelers, 10 cars, 3 jeeps, 14 tractors and 20 auto rickshaws. Additionally, there are around 6 e-rickshaws in the GP[81].
- For the transportation of agricultural produce/goods, tractors are used by farmers. Those farmers who do not own such vehicles rent them from neighbouring farmers[82].
- The total fuel consumption by the ICE vehicles is 41.87 kilo Litre (kL) of diesel and 27.6 kL of petrol per annum. Overall, the fuel consumed in the transport sector has led to over 179.35 tCO_2e[83] emissions.
- The GP road connecting to the nearest highway (NH 19) is in poor condition[84] and affects connectivity to nearby villages/towns. Similarly, some major roads face severe waterlogging and interrupted connectivity during monsoons.

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

Enhancing 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	1. Construction and repair works for existing roads that have potholes or any other damages 2. Construction of all existing Kuchha roads in GP as Pucca roads to prevent waterlogging 3. Installation of streetlights in strategic GP areas	1. Repair and maintenance of all roads in GP 2. Installation of additional streetlights in new strategic areas (as required)	1. Repair and maintenance of all roads in GP 2. Installation of additional streetlights in new strategic areas (as required)

81 As per inputs received during field surveys
82 Based on inputs from community during field surveys and discussions with Gram Pradhan
83 Based inputs from community during field surveys
84 Referred from HRVCA Report of Swami Mustakil

Target[85]	1. Construction of roads to prevent waterlogging: 580 m RCC construction in Nagla Sitaram & Nagla Nathu 2. 1.7 km construction of link roads 3. Installation of 50 streetlights	Repair and maintenance of all roads in GP	Repair and maintenance of all roads in GP
Estimated Cost[86]	1. Construction of roads = Rs. 56 Lakhs 2. Construction of Link roads = Rs. 1.4 crore 3. 50 streetlights = Rs. 2 Lakhs Total Cost = Rs. 1.98 crores	As per requirement	As per requirement

Promoting Intermediate Public Transport (E-autorickshaws) for Last Mile Connectivity

Phase	I 2024-25 to 2026-27	II 2027-28 to 2029-30	III 2030-31 to 2034-35
Suggested Climate Smart Activities	1. Replacing existing auto-rickshaws in the GP with e-autorickshaws 2. Partnership building and setting up a business model/ system for commercial hiring (on rental basis) of e-autorickshaws between: a. Businesses/ owners giving e-autorickshaws on rent (Green Entrepreneurship) b. Working class/ youth hiring e-autorickshaws on rent (Green livelihood)	1. Provision of additional e-autorickshaws 2. Scaling up partnership within and beyond GP to increase the number of: a. Businesses/ owners giving e-autorickshaws on rent b. Local people (working class/ youth) hiring e-autorickshaws on rent 3. Maintenance and repair work for existing e-autorickshaws	1. Provision of additional e-autorickshaws (as per demand) 2. Scaling up partnership within and beyond GP 3. Maintenance and repair work for existing e-autorickshaws 4. Increasing awareness amongst local people on benefits of opting for IPTs and e-mobility

85 HRVCA Report – Swami Mustakil GP
86 HRVCA Report – Swami Mustakil GP

Suggested Climate Smart Activities	5. Maintenance and repair work for existing e-autorickshaws (if required) 6. Increasing awareness amongst local people on benefits of opting for IPTs and e-mobility	7. Increasing awareness amongst local people on benefits of opting for IPTs and e-mobility	
Target	1. IPT fleet to replace 20 diesel autos 2. Partnership building and setting up of a e-autorickshaws hiring system 3. Maintenance & repair of existing e-autorickshaws 4. Developing 2-3 e-autorickshaws transit stop/pick-up points 5. Awareness Building	1. Additional 10 e-autorickshaws provision 2. Scaling up Partnership 3. Maintenance & repair of existing e-autorickshaws 4. Developing new 5-6 e-autorickshaws transit stop/pick-up points 5. Awareness Building	1. Scaling up Partnership 2. Maintenance & repair of existing e-autorickshaws 3. Awareness Building
Estimated Cost	Cost of one e-autorickshaw[87] : around Rs. 3,00,000 Available subsidy: up to Rs. 12,000 per vehicle *Total cost of 20 e-autorikshaws (with subsidy): Rs. 57,60,000* GHG emissions avoided (for replacing 20 diesel autos): 60.03 tCO_2e[88]	*Total cost (with subsidy) = Rs. 28,80,000*	As per requirement

87 The cost of e-autorickshaws ranges from a band of Rs. 1,50,000 - Rs. 4,00,000 and more, depending on the configurations, battery type, amongst others. Price of e-autorickshaws 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.

88 GHG emissions avoided per auto estimated to be 3 tCO_2e per auto based on inputs from the community. Replacing diesel autorickshaws with e-autorickshaws will reduce this emission and contribute towards the GP becoming carbon neutral or even carbon positive.

E-goods Carriers 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. Provision of e-goods carriers & e-tractors 2. Partnership building and setting up a business model/system for commercial hiring (on rental basis) of e-goods carriers & e-tractors (detail in section on enhancing green livelihoods and entrepreneurship) a. Businesses/owners giving e-goods carriers & e-tractors on rent (Green Entrepreneurship) b. Farmers/working class/youth hiring e-goods carriers & e-tractors on rent (Green livelihood) 3. Incentive system (subsidy on rent charges, etc.) to encourage farmers/ transporters choose e-tractors/carriers over conventional diesel-based vehicles 4. Sensitizing user groups (farmers/logistic owners) towards use of e-tractors & e-goods carriers	1. Provision of additional e-goods carriers & e-tractors 2. Scaling up partnership within and beyond GP to increase the number of: a. Businesses/owners giving e-goods carriers & e-tractors on rent b. Farmers/working class/youth hiring e-goods carriers & e-tractors on rent 3. Maintenance and repair work for existing e-goods carriers & e-tractors 4. Sensitizing user groups (farmers/logistic owners) towards use of e-tractors & e-goods carriers	1. Provision of e-goods carriers & e-tractors (as per demand) 2. Scaling up partnership within and beyond GP 3. Maintenance and repair work for existing e-goods carriers & e-tractors 4. Sensitizing user groups (farmers/logistic owners) towards use of e-tractors & e-goods carriers
Target	1. Provision of 2 to 3 e-tractors 2. Provision of 2 to 3 e-goods carriers (Mini goods transport trucks)	1. Provision of additional 2 to 3 e-tractors 2. Provision of additional 2 to 3 e-goods carriers (Mini goods transport trucks)	1. Scaling up Partnership 2. Maintenance & repair of existing e-goods carriers & e-tractors 3. Sensitization & Awareness Building

	4. Partnership building and setting up of a e-goods carriers & e-tractors hiring system 5. Sensitization & Awareness Building	6. Scaling up Partnership 7. Maintenance & repair of existing e-goods carriers & e-tractors 8. Sensitization & Awareness Building	
Estimated Cost	1. 2 to 3 e-tractors = Rs. 12 to 18 Lakhs (Rs. 6 lakhs per e-tractor) 2. 2 to 3 EV mini goods transport trucks = Rs. 18 to 30 Lakhs (Rs. 9 to 10 lakhs per vehicle) *Total cost = Rs. 40 Lakhs approximately*	1. 2 to 3 e-tractors = Rs. 12 to 18 Lakhs (Rs. 6 lakhs per e-tractor) 2. 2 to 3 EV mini goods transport trucks = Rs. 18 to 30 Lakhs (Rs. 9 to 10 lakhs per vehicle) *Total cost = Rs. 40 Lakhs approximately*	

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 provide:
  - » 100 percent registration fee and Road Tax exemption to buyers (during the Policy period)
  - » Purchase Subsidy as early bird incentives to buyers (one time) through dealers over a period of 1 year – e-goods Carriers: @10 percent of ex-factory cost up to Rs. 1,00,000 per vehicle; 2-Wheeler EV: @15 percent of ex-factory cost up to Rs. 5000 per vehicle; 3-Wheeler EV: @15 percent of ex-factory cost up to Rs. 12000 per vehicle[89]
- 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
- Rural Development Department

89 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 is the mainstay of the economy of the GP and 459 households (72%) rely on farming for income, engaged in various forms such as land-owners, renting agricultural land or as farm workers. The agriculture sector is fraught with livelihood insecurities, particularly due to the changing climate and the current unsustainable agricultural practices. Thus, the livelihoods of a large fraction of the population are uncertain. Other sources of income in the GP are non-farm wage-labour and animal husbandry activities. 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:

Manufacturing & Selling Plastic-alternative Products

Suggested Climate Smart Activities

1. Engaging women, SHGs and local small-scale entrepreneurs for manufacturing products from plastic-alternative materials (bags, home decor, cutlery, stationery items, furniture, etc.)
2. Developing Partnership model between panchayat, women, SHGs and local small-scale entrepreneurs
3. Capacity building sessions to:
   a. Diversify product range
   b. Enhance marketing/selling of the products within & outside the GP

Target

1. At initial stage:
   - » Partnership building and business set-up
   - » Engagement of 100 women in manufacturing
   - » Capacity Building activities

1. Long-term engagement from this GP & nearby villages:
   - » Scaling up partnership within and beyond GP
   - » Increased engagement from this GP & nearby villages of:
     a. Additional 200-300 women
     b. Additional SHGs, MSMEs & individual entrepreneurs
   - » Regular capacity building activities

Composting and Selling Organic Waste as Fertilizer/Manure

Suggested Climate Smart Activities

1. Developing business and partnership models between panchayat, community members and farmer groups for:
   a. Composting and selling agricultural waste as manure/organic fertilizer by farmers
   b. Selling agricultural waste to Panchayat
   c. Encouraging household level composting of food waste in the form of incentives to sell to Panchayat
2. Capacity building of community members and farmer groups to:
   a. Understand composting & vermi-composting techniques
   b. Market/sell compost within & outside the GP

Target

At initial stage:

1. Partnership building and setting up business and incentive models
   a. Composting agricultural waste and sell to Panchayat or directly to market
   b. Engagement of households to compost food waste and utilise for household-level use or sell to Panchayat
2. Capacity Building activities

Long-term target:

Scaling up partnership, compost quantity and capacity building activities

Commercial Hiring of E-autorickshaws to Promote Green Entrepreneurship and Jobs

Suggested Climate Smart Activities

1. Partnership building and setting up a business model/system for commercial hiring (on rental basis) of e-autorickshaws between:
   a. Businesses/owners giving e-autorickshaws on rent (Green Entrepreneurship)
   b. Working class/youth hiring e-autorickshaws on rent (Green livelihood)
2. Increasing awareness amongst local people on benefits of opting for IPTs and e-mobility

Target

At initial stage:

1. Partnership building and setting up of a e-autorickshaws commercial hiring system
2. Initiating the hiring business with 5 e-autorickshaws
3. Awareness Building activities

Long-term target:

1. Scaling up partnership
2. Enhancing the hiring business with additional 10 e-autorickshaws into the market

Hiring E-goods Carriers and E-tractors

Suggested Climate Smart Activities

1. Partnership building and setting up a business model/system for commercial hiring (on rental basis) of e-goods carriers & e-tractors between:
   a. Businesses/owners giving e-goods carriers & e-tractors on rent (Green Entrepreneurship)
   b. Farmers/working class/youth hiring e-goods carriers & e-tractors on rent (Green livelihood)
3. Establishing an incentive system (subsidy on rent charges, etc.) to encourage farmers/ transporters choose e-tractors/carriers over conventional diesel-based vehicles
4. Sensitizing user groups (farmers/logistic owners) towards use of e-tractors & e-goods carriers

Target

At initial stage:

1. Partnership building and setting up of a e-goods carriers & e-tractors commercial hiring system
2. Establishing and piloting the incentive model Initiating the hiring business with 2 to 3 e-tractors and 2 to 3 e-goods carriers (Mini goods transport trucks)
3. Awareness Building activities

Long-term target:

1. Scaling up partnership
2. Enhancing the hiring business with additional 2 to 3 e-tractors and 2 to 3 e-goods carriers (Mini goods transport trucks) into the market

Construction & Renting Out of Solar-powered Cold Storage

Suggested Climate Smart Activities

1. Partnership building and setting up a business model/system for renting out of solar-powered cold storages between:
   a. Businesses/owners giving solar-powered cold storages on rent (Green Entrepreneurship)
   b. small and medium farmers (within the GP & nearby villages) renting cold storages to minimise post-harvest losses
   c. Cooperatives (like PARAS) and other institutional buyers

Target

1. Setting up of cold storage with 48 MT to 96 MT capacity (~73 ha under vegetables cultivation in the GP)

Production & Sale of Natural Medicines and Supplements

Suggested Climate Smart Activities

1. Partnership building between panchayat, CIMAP-Lucknow, FPO's, Women groups, youth groups, etc. for:
   a. Production and sale of natural medicines and supplements by FPO's, Women groups, youth groups in *Arogya Van*
   b. Skill development & training by Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow

Target

1. Establishment and functioning of 0.1 ha of *Arogya Van*
2. Partnership and capacity building activities

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

1. 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
2. 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[90, 91, 92]:

- 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

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

Case Example/Best Practice:

The Rajkumari Ratnavati Girl's School[93], 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[94]

- 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[95]

- 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 adaptive 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 be fed into the

93 https://www.avontuura.com/rajkumari-ratnavati-girls-school-diana-kellogg-architects/
94 https://peda.gov.in/solar-passive-complex
95 https://yraindia.org/wp-content/uploads/2019/12/RO-plant-Success-story-in-Village-Hiwara-HDB-project.pdf

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[96,97]

- 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[98]

- 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)[99]" 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[100]

- 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."

96 https://pscst.punjab.gov.in/en/climate-resilient-livestock-production-system
97 https://moef.gov.in/wp-content/uploads/2017/08/Punjab.pdf
98 https://jayshaktiengg.com/gujarat-government-launches-solar-scheme-for-farmers/
99 https://www.myscheme.gov.in/schemes/csssscspscc
100 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%[101] 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[102]

- 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.

101 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)

102 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[103]

- 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)[104]

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.

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

104 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)[105]

- 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[106]

- 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

105 https://alliancebioversityciat.org/stories/community-seed-banks-empower-farmers-address-climate-risk-india

106 https://www.apmas.org/pdf/csv/casestudy-1.pdf

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

Enhancing Green Spaces and Biodiversity

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed[107]
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		

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

Management and Rejuvenation of Water Bodies

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed
a) Rainwater harvesting (RWH) structures 	▪ 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 to 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) Rejuvenation of water bodies and creation of retention ponds 		
c) Restoration of wells & enhancing ground water recharge 		
d) Enhancing drainage and sewerage infrastructure 		

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[108] approach to increase resilience of crops from droughts, heat impacts, pests etc ▪ Increased agricultural productivity and profit ▪ Improved soil healthwater quality due to reduced use of chemical inputs ▪ 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 13: Climate Action** ▪ Target 13.2 ▪ Target 13.3 
b. Shift to natural farming 		
c. Sustainable livestock management 		

108 Eco-Disaster Risk Reduction

Sustainable Solid Waste Management

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed[109]
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% 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 		

109 Detail list of relevant SDG and respective targets in Annexure III

Access to Clean, Sustainable, Affordable and Reliable Energy

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed[110]
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 Installations 		
c. Solar pumps 		
d. Clean cooking 		
e. Energy Efficient Fixtures 		
f. Solar street lights 		

110 Detail list of relevant SDG and respective targets in Annexure III

Sustainable and Enhanced Mobility

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed[111]
a. Enhancing 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. Promoting Intermediate Public Transport (E-autorickshaws) for last mile connectivity 		
c. E-goods carriers and E-tractors 		

111 Detail list of relevant SDG and respective targets in Annexure III

Enhancing Livelihoods & Green Entrepreneurship

Suggested Climate Smart Activities	Adaptation Potential and Co-benefits	SDGs and Respective Targets Addressed[112]
a. Manufacturing & selling plastic-alternative products	▪ 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 ▪ Additional revenue generation ▪ Enhanced livelihood options ▪ 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 fertilizer/manure		
c. Commercial hiring of E-autorickshaws to promote green entrepreneurship and jobs		
d. Hiring E-goods carriers and E-tractors		
e. Construction & renting out of solar-powered cold storage		
f. Production & sale of natural medicines and supplements		
g. O&M of various RE installations (solar and biogas)		

112 Detail list of relevant SDG and respective targets in Annexure III

8 Way Forward

The proposed recommendations on implementation will help to not only reduce Greenhouse Gas (GHG) emissions of Swami Mustakil but also to achieve energy, food and water security, thereby, making the Gram Panchayat climate smart, resilient and sustainable. This 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 co-existence with nature. This Climate Smart Action Plan for Swami Mustakil 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, Swami Mustakil 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 in to ongoing activities as envisaged in the Gram Panchayat development Plan supported under Central and State Schemes and mobilizing 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 Swami Mustakil 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[113] 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[114] for Swami Mustakil 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 a 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.

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

113 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

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

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 organized 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 Swami Mustakil 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 finalized and presented to the GP for endorsement.

Annexure II: Questionnaire

उत्तर प्रदेश क्लाइमेट स्मार्ट ग्राम पंचायत की सर्वे प्रश्नावली

ग्रामपंचायत : स्वामी मुस्तकिल **विकासखण्ड : बिचपुरी** **जनपद : आगरा**

I. गाँव की रुपरेखा

		विवरण	संख्या (सूचना का स्रोत–समुदाय के सदस्य)
1		राजस्व गाँव की संख्या	1
2		टोलों की संख्या	4
3	a	कुल जनसंख्या	3832
	b	कुल पुरुषों की जनसंख्या	2108
	c	कुल महिलाओं की जनसंख्या	1724
	d	विकलांगजन की जनसंख्या	18
	e	कुल बच्चों की जनसंख्या	958
	f	वरिष्ठ नागरिक (60 वर्ष से अधिकआयु वर्ग)	298
4		कुल परिवार की संख्या	638
	a	गरीबी रेखा से नीचे जीवनयापन करने वाले परिवार की संख्या	13 (अन्त्योदय कार्ड धारक)
5		कुल भोगौलिक क्षेत्रफल	2.5 वर्ग कि0मी0
6	a	साक्षरता दर	67.3
7	a	पक्का घरों की संख्या	608
	b	कच्चा घरों की संख्या (मुख्य रूप से उपयोग की गई सामग्री का उल्लेख करें)	30 मिट्टी, फूस, टीनशेड

II. सामाजिकआर्थिक

8	ग्राम पंचायत में केवल कृषि (प्रकार) पर आश्रित परिवार	कुल परिवारों की संख्या
	निजी भूमि/स्वयं की भूमि	371
	किराए की भूमि (हुण्डा)	50
	अनुबंध खेती	0
	दिहाड़ी मजदूर	25
	अन्य व्यवस्था (रेहन, अधिया आदि)	50
	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, सरकारीनौकरी आदि)	30
	कुटीर उद्योग	1 तेलमिल (स्पेलर)
	कृषि	0
	कला/हस्तकला	0
	पशुपालन	36
	व्यवसाय (स्थानीय दुकान)	30
	व्यवसाय/उद्यम	5 आटा चक्की
	दैनिक/दिहाड़ी मजदूर (अकृषिगत)	40
	अन्य	–

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 वाल परिवार/ व्यक्तिगत की संख्या		पलायन के मुख्य कारण
		अन्य गांव			
		निकट के शहर			
		राज्य के प्रमुख शहर			
		देश के प्रमुख महानगर			
	c	क्या पिछले पांच वर्षों में आप के ग्राम पंचायत में परिवार/व्यक्ति ने प्रवास किए है?		हां ☐ √	नहीं ☐

	d	पिछले पांच वर्षों में आपके ग्राम पंचायत में कितने परिवार प्रवास किए हैं? मुख्य कारण स्पष्ट करें।	25 परिवार– शहर से नजदीक होने एवं मन्दिर पर्यटन के कारण

11		महिलाओं की स्थिति	
	a	महिला प्रमुख परिवारों की संख्या (आय का मुख्य स्रोत– महिला)	12
	b	खेती में कार्यरत महिला	कुल संख्या
		निजीभूमि/स्वयं की भूमि	4
		किराए की भूमि/हुण्डा	-
		अनुबंध खेती	-
		दिहाड़ी मजदूर	1
		अन्य व्यवस्था	-
		अन्य सूचनाएं/जानकारी (एक से अधिक कृषि गतिविधि में संलग्न महिलाएं, उल्लेख करें)	-
	c	नौकरी/अन्य क्षेत्र में कार्यरत महिलाएं	कुल संख्या
		सेवा क्षेत्र (उदाहरणः अध्यापन, बैंक, सरकारी नौकरी आदि)	-
		कुटीर उद्योग	-
		कृषि	-
		कला/हस्तकला	-
		पशुपालन	2
		व्यवसाय (स्थानीय दुकान)	5
		दैनिक/दिहाड़ीमजदूर (अकृषिगत)	-
		अन्य	-

12	स्वयंसहायतासमूहों				
	स्वयं सहायता समूह का नाम	सदस्यों की संख्या	अपनायी गई गतिविधियाँ	वार्षिक बचत (रु0)	बैंकों से जुड़ाव/अजुड़ाव
1	भोले बाबा SHG	11	–	5720	कैनरा बैंक
2	भूरा महादेव SHG	10	–	5200	कैनरा बैंक
3	कैलाश SHG	10	–	5200	कैनरा बैंक
4	लक्ष्मी SHG	15	–	7800	कैनरा बैंक
5	महालक्ष्मी SHG	10	–	12000	कैनरा बैंक
6	भैरों बाबा SHG	12	केयर टेकर सामुदायिक शौचालय	2880	कैनरा बैंक
7	भोले बाबा–2 SHG	11	–	2640	कैनरा बैंक
8	भुमिया बाबा SHG	11	–	2640	कैनरा बैंक
9	कृष्णा SHG	10	–	2400	कैनरा बैंक
10	राधे–राधे SHG	12	राशन की दुकान एवं ड्राई फूड राशन वितरण	2880	कैनरा बैंक
11	जय भवानी SHG	10	–	2400	कैनरा बैंक
12	लक्ष्मी मैया SHG	10	–	2400	कैनरा बैंक
13	शेरावाली SHG	10	–	2400	कैनरा बैंक
14	जयगुरूदेव SHG	10	–	2400	कैनरा बैंक

13	कृषक उत्पादक संगठन (एफ0पी0ओ0)					
	एफ0पी0ओ0 का नाम	क्या इस संगठन की प्रमुख महिलाहैं?	प्रत्येक एफ0पी0ओ0 में सदस्यों की संख्या	एफ0पी0ओ0 से प्राप्त वार्षिक राजस्व/ बचत	कृषि उत्पाद	पोस्ट हार्वेस्ट की गतिविधियां/ गतिविधियों का क्षेत्र
	N.A	☐				

		☐				
		☐				

14	अन्य समुदाय आधारित संगठन/					
	सामाजिक संगठन/समितियों के नाम	क्या महिला प्रमुख संगठन/समितिहैं ?	सदस्यों की संख्या	प्राप्त वार्षिक राजस्व/बचत	उत्पाद/सेवा	विपणन/लक्षित उपभोगकर्ता
	N.A.	☐				
		☐				
		☐				
		☐				
		☐				
		☐				
		☐				
		☐				

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 गईगतिविधियाँ/कार्य
		मनरेगा	55	55	10,00000/– वर्ष 2022–23	–	चकरोड, नाला खुदाई खेल मैदान वृक्षारोपण
		प्रधानमंत्री गरीब कल्याण अन्न योजना/एन.एफ.एस.ए.	367	367	खाद्यान आता है।	–	
		प्रधानमंत्री उज्जवला योजना	120	50	गैस कनेक्शन	–	
		प्रधानमंत्री कृषिसिंचाई योजना	–				
		प्रधानमंत्री कुसुम योजना	–				
	b	**अन्य योजनाएं**					
		ग्राम उज्जवला योजना	–	–			

		ऊर्जा दक्षता योजना	–	–			
		प्रधानमंत्री रोजगार सृजन कार्यक्रम	–	–			
		प्रधानमंत्री आवास योजना	6	1	40,000 / –		आंशिक भुगतान
		सार्वजनिक वितरण प्रणाली (पी0डी0एस0)	367	367	खाद्यान आता है।	–	राशन डीलर द्वारा खाद्यान वितरण
		कम्प्यूटर प्रशिक्षण कार्यक्रम					
		उत्तर प्रदेश कौशल विकास मिशन					
		राष्ट्रीय कौशलविकास योजना (RKVY)					
		मौसम आधारित फसल बीमा					
		प्रधानमंत्री फसल बीमा योजना (PMFBY)					
		मृदा स्वास्थ्य कार्ड					
		किसान क्रेडिट कार्ड	150	150			बैंक द्वारा
		स्वच्छ भारत मिशन	32	11	6000 / प्रति		शौचालय निर्माण (वर्ष 2022–23)
		सौर सिंचाई पम्प योजना	–				
		नई / नवीन भारतीय बायोगैस व कार्बनिक खादकार्यक्रम	–				
		विकेन्द्रित अनाज क्रय केन्द्र योजना	–				
		गोवर्धन योजना	–				
		जल पुनर्भरण योजना	–				
		रेनवाटर हार्वेस्टिंग	4	4			
		समन्वित वाटर शेड विकास कार्यक्रम	–				
		अन्य वाटर शेड विकास योजनाएं	–				
		अन्य (एक जिला–एक उत्पाद, मेक इन इण्डिया, अन्य)	–				

		उद्यमितता सहायतित योजनाएं आदि	–				

16	सक्रिय बैंक खाता धारकों कीसंख्या	600
17	ई–बैंकिंग/डिजीटल भुगतान एप/यू.पी.आई आदि से भुगतान करने वाले खाता धारकों की संख्या	200

18	निकट कृषि बाजार/क्रय केन्द्र/सरकारी केंद्र	क्या ग्राम पंचायत द्वारा बाजार/कय केन्द्र का उपयोग होता है		यदि नही, तो बाजार/केन्द्र का उपयोग क्यों नही कियाजाता	उत्पादित फसल (कु0)	बिक्री हुई फसल (कु0)	ग्राम पंचायत से दूरी (यदि ग्राम पंचायत से दूर है) (कि0मी0)
		हां	नहीं				
	सिकन्दरा मण्डी (सब्जी एवं फल)				सब्जी 4000 (कु0)	2500 (कु0)	6 कि0मी0
	सिकन्दरा मण्डी (सब्जी एवं फल)	□	□		फल 800 (कु0)	600 (कु0)	6 कि0मी0
	ट्रान्स यमुना मण्डी समिति (अनाज मण्डी)	□	□		गेंहू 3500 (कु0)	1500 (कु0)	18 कि0मी0
	ट्रान्स यमुना मण्डी समिति (अनाज मण्डी)	□	□		सरसों 900 (कु0)	600 (कु0)	18 कि0मी0
	ट्रान्स यमुना मण्डी समिति (अनाज मण्डी)	□	□		बाजरा 1800 (कु0)	1500 (कु0)	18 कि0मी0

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**				
	1	न0 नाथू	2000 वर्ग फुट	223	–	
	2	कैलाश	1200 वर्ग फुट	102	–	
	b	**जू0 हाईस्कूल**				
	1	नगला छीतर	1800 वर्ग फुट	103	–	
	2	कैलाश	1800 वर्ग फुट	40	–	
	c	**हाईस्कूल**				
		Nil				
	d	**अन्य संस्थान**				
		Nil				

20	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
	N.A.				

21	राज्य/राष्ट्रीय राजमार्ग की उपलब्धता			
	राजमार्ग का नाम	राज्यमार्ग 1, राष्ट्रीय राजमार्ग 2	ग्राम पंचायत से दूरी	सम्पर्क मार्ग की स्थिति अच्छा (1), खराब (2), घटिया (3), सबसे घटिया (4)
	राष्ट्रीय राजमार्ग सं0– 19 (पूर्ववर्ती N.H-2)	2	5 कि0मी0	4

III. भूमिसंसाधनोंसंबंधितसूचनाएं/जानकारी

22		वनभूमि का विवरण	
	a	वन का क्षेत्र	51 हेक्टेयर
	b	वन विभाग द्वारा अधिसूचित क्षेत्र	-
	c	सार्वजनिक उपयोग हेतु उपलब्ध वन क्षेत्र	-
	d	कितने क्षेत्र पर अतिक्रमण है?	-
	e	विगत पांच वर्षो में कोई वन उन्मूलन/वनकटाई की गतिविधियां	-
	f	अनुमानित वन उन्मूलन/वन कटाई का क्षेत्रफल (एकड़)	-

23		अन्य भूमि का वर्गीकरण			
	a	ग्राम पंचायत के पास ग्राम सभा की कितनी भूमि उपलब्ध है?	ग्रामसभा के पास कोई भूमि उपलब्ध नहीं है।		
	b	कितनी भूमि पर अतिक्रमण है? (एकड़)	Nill		
	c	ग्राम पंचायत में खनन गतिविधियां	हां □ √	नहीं □	आच्छादित क्षेत्रफल
		खनन के प्रकार	अवैध वालू एवं मिट्टी खनन		

		बालू खनन 1, खनिज खनन–(उल्लेख करें) 2, अन्य (उल्लेख करें) 3	
		अतिरिक्त सूचनाएं	

24		जल निकाय क्षेत्र		
		विवरण	**हां**	**नहीं**
	a	क्या आप के ग्राम पंचायत में जल निकाय क्षेत्र है?	□ √	□ √
	b	ग्राम पंचायत मेंकुल जल निकाय क्षेत्रों की संख्या	1	
	c	क्या जल निकाय क्षेत्र मे अतिक्रमण है?	□ √	□
	d	जल निकाय क्षेत्र में अतिक्रमण कब से है?	35–40 वर्ष	
	e	क्या जल निकाय क्षेत्र के आस–पास के भूमि पर अतिक्रमण किया गया है?	हॉ	

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 (भूमिगत जल)
	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 मे सामान्य संग्रह केन्द्र (2) पानी टंकी (3) महिलाओं/बच्चों द्वारा दूर से लाया गया (4) हैण्डपम्प (5) ऊँचासत ही जलाशय (6)	(4) (5) नगला सीताराम में पानी खराब होने से 1.5 कि0मी0 दूर से लाते है। (8) ग्राम पंचायत में लगभग 150 निजी सबमर्सिबल पम्प है।

		कूंआ (7) अन्य (8), उल्लेखित करें। अगर 4 है, तो कितनी दूर से लाया जा रहा है?	
	d	कितने घरों मे जलापूर्ति पाइप से है?	No
	e	क्या पानी का बहाव/प्रवाह दर कम, अधिक या संतोषजनक है?	
	f	पाइप जलापूर्ति की नियमितता 24×7 घण्टे(1) काफी नियमित (2) अनियमित (3)	
	g	**ग्राम पंचायत मे कृषि सिंचाई हेतु जल आपूर्ति का मुख्य स्रोत क्या है?** नहर (1) वर्षा जल (2) भूमिगत जल – (नलकूप (3A), कूआ (3B) तालाब/झील (4) पानीटैंक (5) नदी (6) अन्य (7)	3A
	h	**क्या उपरोक्त जल आपूर्ति स्रोत मौसमी या बारहमासीहै?**	बाहरमासी
	i	क्या जलापूर्ति का बहाव/प्रवाहदर कम/अधिक या संतोषजनकहै?	संतोषजनक
	j	अतिरिक्त जानकारी (उदाहरण : क्या घरेलू, कृषि व संबंधित गतिविधियों, उद्योगों आदिके लिए जल आपूति 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 जाताहै?	पर्याप्त है। नदी जल की उपलब्धता घटी है।

IV. जलवायु की धारणा

तापमान व वर्षामेंप्रमुख परिवर्तन/बदलाव					
26					
	A	गर्मी के माह में देखा गया			
	B	गर्मी के तापमानमें 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	30		
	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 पांचवर्षों में)	ठण्ड दिनों मे वृद्धि	ठण्ड दिनोंमें कमी	ठण्ड दिनों में कोई परिवर्तन नहीं
			☐	☐ √	☐
	C	दिनों की संख्या		30	
	D	अन्य सूचनाएं (सर्दी माह मेंकोई परिवर्तन)			
28					
	A	मानसून माह मे महसूस किया गया			
	B	मानसून ऋतु की वर्षा मे कोई परिवर्तन देखा गया (विगत पांच वर्षों में)	वर्षा के दिनों में वृद्धि	वर्षा के दिनों में कमी	वर्षा के दिनो मे कोई परिवर्तन नहीं
			☐	☐ √	☐
	C	दिनों की संख्या		30	
	D	अन्य सूचनाएं (मानसून माह में कोई परिवर्तन)	वर्षा अन्तराल बढ गया है।		
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 वर्षामें देख गये परिवर्तन	वर्षा दिनों में वृद्धि	वर्षा दिनों में कमी	वर्षा के दिनों में कोई परिवर्तन नहीं
			☐	☐ √	☐
	C	दिनों की संख्या		15	
	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		8	
	F	अन्य सूचनाए / जानकारी			

चरममौसम 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				
	c	सूखे का प्रबन्धन कैसे किया गया (सरकारी सहायता, निजी सहायता, कुएं खोदा आदि)	घरेलू स्तर पर प्रबन्धन (ग्रामीणों द्वारा हैण्डपम्प लगवाए गए)			कृषि स्तर पर प्रबन्धन (ग्रामीणों द्वारा नलकूप लगवाए गए)	
	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	विगत पॉच वर्षों में ग्राम पंचायत में सूखे की कोई बडी आपदा नही आई।				
31		**बाढ़**					
		बाढ़ की घटना	प्रथमवर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थ वर्ष (2019)	पंचम वर्ष (2018)
			☐ √	☐ √	☐ √	☐ √	☐ √
	b	किस माह में बाढ़ देखा गया	अगस्त सितम्बर				
	c	बाढ़ का प्रबन्धन कैसे किया गया (सरकारी सहायता, निजी सहायता आदि)	घरेलू स्तर पर प्रबन्धन			कृषि स्तर पर प्रबन्धन (कृषकों द्वारा स्वयं खेतों में मेडबन्दी)	
	d	बाढ़ की आवृत्ति : बाढ़ की घटना (पिछले पांच वर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			☐	☐	☐		
		प्रत्येक वर्ष यमुना नदी का जलस्तर बढने से नदी के नजदीक की खेती डूब जाती है, जिसका असर रिहायशी इलाकों पर नहीं पडता है।					

	e	अतिरिक्त सूचना कोई पुरानी प्रमुख घटना–1, स्वास्थ्य पर प्रभाव–2	वर्ष 2013 के बाद कोई बड़ी बाढ़ आपदा नहीं आयी पिछले 50 वर्षों में 1978 में सबसे बड़ी बाढ़ आयी थी।				
32		**भूस्खलन**					
	a	भूस्खलन की घटना	प्रथमवर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थवर्ष (2019)	पंचमवर्ष (2018)
			☐	☐	☐	☐	☐
	b	किस माह में भूस्खलन देखी गई					
	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 पांचवर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			☐	☐	☐		
	e	अतिरिक्त सूचना कोई पुरानी प्रमुख घटना–1, स्वास्थ्य पर प्रभाव–2					
33		**ओलावृष्टि**					
	a	ओलावृष्टि की घटना	प्रथमवर्ष (2022)	द्वितीय वर्ष (2021)	तृतीय वर्ष (2020)	चतुर्थवर्ष (2019)	पंचमवर्ष (2018)
			☐	☐	☐	☐	☐ √
	b	किस माह में ओलावृष्टि हुई	फरवरी –मार्च				
	c	ओलावृष्टि का प्रबन्धन कैसे कियागया (सरकारी सहायता, निजीसहायता आदि)	घरेलू स्तर पर प्रबन्धन			कृषि स्तर पर प्रबन्धन	
	d	ओलावृष्टि की आवृत्ति : ओलावृष्टि की घटना (पिछले पांचवर्षों 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?	फरवरी–मार्च, सितम्बर				
	c	किस प्रकार के टिड्डी कीट/बीमारी को देखा गया?	सफेद एवं काली मकड़ी (मिर्च की फसल) चेंपा (सरसों)				

	D	कीट/बीमारी का प्रबन्धन कैसे किया गया? (सरकारी सहायता, निजी सहायता आदि)	किसानों द्वारा बाजार से दवा लाकर छिडकाव किया गया				
	e	कीट/बीमारी की आवृत्ति : कीट बीमारी का घटनाक्रम (पिछले पांच वर्षों में)	वृद्धि	कमी	कोई परिवर्तन नहीं		
			☐ √	☐	☐		
		अतिरिक्त जानकारी/सूचनाएं					

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	नहीं	हां	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)	Nill-
		तेल	-
		चीनी	-
		अन्य खाद्य पदार्थ–उल्लेख करें	-
	b	क्या ग्राम पंचायत में शीतगृह है, अगर है तो उसकी क्षमता क्या है?	-

37	ग्राम पंचायत में मौसम की चेतावनी, पूर्व चेतावनी प्रणाली, कृषि आधारित चेतावनी के लिए उपलब्ध जानकारी के स्रोत	
	स्थानीय कृषि अधिकारी	किसानों के रजिस्टर्ड नम्बरों पर मैसेज द्वारा सूचना
	समाचारपत्र/समाचार/रेडियो	-

	मोबाईलफोन/एप	-
	मौखिक	-
	कृषि विज्ञान केन्द्र/कृषि ज्ञान केन्द्र	-
	पशुपालन विभाग	-
	उद्यान विभाग	-
	अन्य	-

		कृषि एवं संबंधित गतिविधियों पर प्रभाव (विगत पांचवर्षों में)					
38		फसल हानि					
	a	घटना का वर्ष	हानि की ऋतु/मौसम खरीफ (1) रबी (2) जायद/अन्य ऋतु (3)	फसल का नाम	हानि के कारण रोग, चरम, घटनाक्रम–गर्मी, ठण्ड, वर्षा, ओलावृष्टि, मिट्टी आदि	अनुमानित हानि की मात्रा (कुन्तल)	परिणामस्वरुप आय में हानि (औसत रु0)
		प्रथम वर्ष (2022)	खरीफ (1)	सब्जी, मिर्च, बाजरा	वर्षा एवं नदी जलस्तर बढ़ना	1000 कुन्तल	12 लाख
		द्वितीय वर्ष (2021)	खरीफ (1)	सब्जी, मिर्च, बाजरा	वर्षा एवं नदी जलस्तर बढ़ना	800 कुन्तल	10 लाख
		तृतीय वर्ष (2020)	खरीफ (1)	सब्जी, मिर्च, बाजरा	वर्षा एवं नदी जलस्तर बढ़ना	700 कुन्तल	09 लाख
		चतुर्थ वर्ष (2019)	खरीफ (1)	सब्जी, मिर्च, बाजरा	वर्षा एवं नदी जलस्तर बढ़ना	1200 कुन्तल	13 लाख
		पंचवां वर्ष (2018)	खरीफ (1)	सब्जी, मिर्च, बाजरा	वर्षा एवं नदी जलस्तर बढ़ना	600 कुन्तल	07 लाख
	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?					

39		फसल पद्धति में बदलाव				
	a	सामान्य फसल	खरीफ, सरसों	रवी √	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
		गेहूँ	नवम्बर,	बोवाई के समय में 15 दिन विलम्ब हो रहा है।	दिसम्बर	शीतकाल देर से प्रारम्भ होगा
	c	अन्य सूचना / जानकारी (विलुप्त फसल / प्रजाति आदि उल्लेख करें)	मोटे अनाज			

40		सिंचाईप्रणाली / पद्धतिमेंपरिवर्तन				
	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)
		गेंहू की फसल	पारम्परिक(5)	1600 / –	पारम्परिक(5)	600 / – (डीजल मंहगा एवं पानी का अधिक उपयोग)

	b	ग्राम पंचायत में सिंचाई हेतु पम्पों की संख्या 71	डीजल आधारित	विद्युत आधारित	सौर पम्प	पारम्परिक सिंचाई विधियां	
			68	3	-		
	c	अन्य सूचनाएं / जानकारी अगर कोई है					
41		**पशुपालन / पशुधन**					
	a	ग्राम पंचायत में प्रचलित पशुधन और पशुपालन सम्बन्धित गतिविधियां श्रेणी : डेयरी (1) √ मुर्गीपालन (2) मत्स्य पालन (3) सूअरपालन (4) मधुमक्खीपालन (5) √ अन्य–स्पष्टकरें (6)					
	b	डेयरी पर प्रभाव	पशुहानि गाय (1) भैंस (2) अन्य (3)	पशुहानि 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)	1,2 एवं 3	1 भैंस, 20 गाय 6 बकरी	रोग(लम्पी)	बारिश	(3)
		द्वितीय वर्ष (2021)	2 एवं 3	2 गाय 3 बकरी	रोग एवं ठंड	बारिश एवं शीतलहर	(3)
		तृतीय वर्ष (2020)	1 एवं 3	2 भैंस, 1 बकरी	रोग, आयु	बारिश	(3)
		चतुथ वर्ष (2019)	1, 2 एवं 3	1 भैंस, 03 गाय 05 बकरी	रोग, दुर्घटना	बारिश	(3)
		पंचम वर्ष (2018)	1	2 भैंस	रोग	ग्रीष्म,	(3)
		अन्य जानकारी / सूचनाएं	वर्ष 2022 में गायों की मृत्यु लम्पी वायरस से हुई थी।				

	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)					
		द्वितीय वर्ष (2021)					
		तृतीय वर्ष (2020)					
		चतुर्थ वर्ष (2019)					
		पंचम वर्ष (2018))					
		अन्य जानकारी / सूचनाएं					
	d	अन्य पशुओं पर प्रभाव	पशु हानि (कृपया निर्दिष्ट करे कि कौन से है)	पशुहानि की संख्या (प्रत्येक पशु का उल्लेख करें)	हानि के कारण	हानि की ऋतु	उत्पादकता में कोई परिवर्तन पाया गया है? वृद्धि (1) कमी (2) परिवर्तननहीं (3)
		प्रथमवष (2022)					
		द्वितीय वर्ष (2021)					
		तृतीय वर्ष (2020)					
		चतुर्थवर्ष (2019)					
		पंचमवर्ष (2018)					
		अन्य जानकारी / सूचनाए					

V. कृषि व पशुपालन

42	a	प्रमुख उगाई जाने वाले फसलें व सम्बन्धित सूचनाएं/जानकारी											
					उर्वरकउपयोग			कीटनाशकउपयोग			खरपतवारनाशी		
		फसल (अनाज, तिलहन, दलहन, उद्यान एव 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 वर्षो में उपयोग किये गये खरपतवार की मात्रा में वृद्धि (1) कमी (2) परिवर्तन नही है (3)
		1. गेंहू 2. सरसों 3. बाजरां	शीत वर्षा	17 06 14	डाईयूरिया	45 कि0ग्रा0	1	साफ लान्सर गोल्ड	6 लीटर	1	मीरा 71	1 कि0ग्रा0	1
		मिर्च, सब्जी .	वारहमासी	22	डाईयूरिया, जिंक	60 कि0ग्रा0	1						
	b	क्या ग्राम पंचायत में फसल अवशेष जलाये 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?					
								मेड़ पर इक्ट्ठी कर देते है जो गल जाती है।					

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

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

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
	सामाजिक वानिकी पौधरोपड़	7 एकड	कैलाश मन्दिर, रामलाल आश्रम, मोटा महादेव रोड साइड	मनरेगा (4)	2	नीम, कंजी, अमरूद, जामुन, पाकर	जुलाई, अगस्त	20%	रोजगार	3	

46	अपनाये गये स्थायी पशुधन प्रबन्धन तकनीक			
	पशुधन के प्रकार	ग्राम पंचायत में कुल संख्या (लगभग)	अपनाई गई गतिविधियां (चारा में परिवर्तन, पोषणपूरक अर्थात् पशुआहार, खुल में चराई आदि)	प्राप्त/उत्पादित आय प्रति पशुधन
	गाय (देशी नस्ल)	56	चारा, भूसा पशुआहार	5000 प्रतिमाह
	गाय (संकर नस्ल)	8	चारा, भूसा पशुआहार	8000 प्रतिमाह
	भैंस (देशी नस्ल)	280	चारा, भूसा पशुआहार	18000 प्रतिमाह
	भैंस (संकर नस्ल)	–	–	–
	बकरी	150	घास, भूंसी	1700 प्रतिमाह
	सुअर	–	–	–
	मुर्गी	–	–	–
	मत्स्य	–	–	–
	अन्य	–	–	–

VI. स्वच्छता एवंस्वास्थ्य

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	नमकीन	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	उबालकर	जल शोधक	आयोडीन/फिटकरी मिलाकर	सौर शुद्धीकरण	क्ले वेसल	अन्य, (कृपया उल्लेख करें)

		विधि का प्रयोग करते हैं?					फिल्ट्रेशन	
			□	□	□	□	□	□

48		ठोस अपशिष्ट उत्पादन/अपशिष्ट प्रबन्धन						
	a	अपने घर में प्रतिदिन उत्पन्न होन वाला अपशिष्ट पदार्थ/कचरा	**सब्जी एवं फलों के छिलके, बचा हुआ खाना, प्लासिटक , धूल मिटटी**					
	b	आपके ग्राम पंचायत में अपशिष्ट पदार्थ/कचरा कैसे इकट्ठा किया जाता है?	स्वयं द्वारा कूड़ा डालने के लिये उपलब्ध स्थान पर डाल देते है।					
	c	कचरा संग्रह कितनी बार होता है?	□प्रतिदिन	□साप्ताहिक	√ □वैकल्पिक दिन		कैलाश के अतिरिक्त अन्य तीनों मजरों में कचरा संग्रह नहीं होता है।	
			हां	नहीं				
	d	क्या आपके क्षेत्र में कोई स्थानहै, जहा 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		कूड़ा संग्रह के लिए कोई निर्धारित स्थान नहीं है ग्रामीण अपनी सुविधा अनुसार डालते है।	
	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 गृहस्तर पर कचरे का उपचार कैसे करते हैं?	पुनःचक्रमण	कम्पोटिंग	वर्मीकम्पोस्ट	अपशिष्ट	जलाना	अन्य (उल्लेखित करें)
			□	□	□		□	कूड़े में फेंक देते है।

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	□ √	□	197 परिवार
	c	सामुदायिक शौचालय/इज्जत घर की संख्या	□ √	□ 1+386	प्रमुख स्थान 1 पंचायत भवन
	d	क्या शौचालय का उपयोग किया जा रहा है?	√		

	e	अगर शौचालय का उपयोग नही किया जा रहा है तों क्यों? (साफ–सफाई का अभाव, रख–रखाव का अभाव, बहुत दूर आदि)	

50		अपशिष्ट जल	घरेलू	व्यवसायिक	औद्योगिक	कृषि गतिविधियां	गंदानाला
	a	अपशिष्ट जल का क्या स्रोतहै?	□ √	□	□	□	□
	b	उत्पन्न अपशिष्ट जल की मात्रा (अनुमानित लीटर प्रतिदिन)	20000 लीटर पूरा गांव				
	c	गांव मे किया गया अपशिष्ट जल उपचार, यदि कोई है तो–	--				
	d	अपशिष्ट जल पुनःचक्रण या पुनः उपयोग की गतिविधि, यदि कोई है तो–	...				

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	उप स्वास्थ्य केन्द्र	□	□ √	
	d	आंगनवाड़ी	□ √	□	आंगनवाड़ी कार्यकत्री है, किन्तु भवन नहीं है।
	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 जानेवाला	अन्य (उल्लेख करें)
	a	वेक्टर–जनितरोग (मलेरिया, डेंगू, चिकेनगुनिया आदि)	60	45	10	5	-	□	□	व्यक्तिगत इलाज कराया

	b	जल–जनितरोग (हैजा/डायरिया/टाईफाईड/ हैपेटाइटिस आदि)	6	6	-	-	-	□	□	व्यक्तिगत इलाज कराया
	c	श्वास सम्बन्धी रोग जो वायु प्रदूषण से होते हैं (इनडोर एण्ड आउटडोर)	No					□	□	
	d	कुपोषण						□	□	

VII. उर्जा

53			
	a	आपके ग्राम पंचायत में कुल कितने घर विद्युतकृत हैं	538
	b	ग्राम पंचायत में निम्नलिखित अनुमानित विद्युत उपकरणों की संख्या	
		ए0सी0	35
		एयर कुलर	150
		रेफ्रिजेटर/फ्रीज	150

54		विद्युत कटौती की आवृत्ति	
	a	दिन में कुछबार	□ √ (2 से 3 बार)
		दिन में एक बार	□
		विद्युत कटौती नही	□
	b	प्रतिदिन कितने घण्टे गुल रहती है?	4
		यदि प्रतिदिन नही तो सप्ताह में कितने घण्टे बिजली गुल होती है?	

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

56	पावर बैकअप का मतलब विद्युत कटौती के दौरान उपयोग	संख्या

	डीजल चलित जेनरेटर	2
	सौर उर्जा	1 विद्यालय पर (नगला नाथू)
	इमरजेंसी लाईट	350
	इन्टवटर्स	150
	अन्य साधन (उल्लेख करें)	

57		नवीकरणीय/अक्षय ऊर्जा के स्रोत		
	a	क्या गांव में निम्नलिखितमें से कोई स्थापना है?	इंस्टालेशन (स्थापना) की संख्या	कुल स्थापित क्षमता (किलोवाट)
		घर की छतों पर सौर उर्जा स्थापना	NO	
		विद्यालय की छत पर सौर उर्जा स्थापना	1	1 किलोवाट
		चिकित्सालय की छत पर सौर उर्जा स्थापना	NO	
		ग्राम पंचायत भवन पर सौर उर्जा स्थापना	NO	
		अन्य सौर उर्जा स्थापना	NO	
		सौर स्ट्रीट लाईट	NO	
		बायोगैस	NO	
		विकेन्द्रित नवीनीकरण उर्जा/मिनी ग्रीड	NO	
	b	क्या आप सौर उर्जा स्थापना के लिए उपलब्ध अनुदान के बारे मे जानते हैं (कुछ योजनाओं/कार्यक्रमों का उल्लेख करें)	NO	

58	भोजन बनाने हेतु प्रयुक्त ईधन	परिवारों की संख्या	प्रति परिवार प्रयुक्त औसत मात्रा (किग्रा/महीना)
	पारम्परिक जलौनी (उपले/जलौनी लकड़ी)	428	250 किलोग्राम
	बायोगैस	–	–
	एलपीजीगैस	210	1 सिलेण्डर
	विद्युत	–	–
	सौर उर्जा	–	–

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

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	3	डीजल	20 किलोमीटर
	b	कार	10	पैट्रोल+ डीजल	20 किलोमीटर
	c	दोपहियावाहन	150	पैट्रोल	15 किलोमीटर
	d	विद्युतचालितवाहन	–		–
	e	आटो	20 (सवारी+माल वाहन)	पैट्रोल	100 किलोमीटर
	f	ई–रिक्शा	6	विद्युत	70 किलोमीटर
	g	अन्य			

60		कृषि यंत्र	ग्राम पंचायत में कृषि यंत्रों/मशीनों की सख्या	प्रयुक्त ईधन के प्रकार	तय की गई औसत दूरी(किमी प्रतिदिन)
	a	टैक्ट्रर	14	डीजल	20 किलोमीटर
	b	कम्बाईन हारवेस्टर	NO		
	c	अन्य (कृपया उल्लेख करें)			

61		ग्राम पंचायत में अवस्थित पेट्रोल पम्प (अगर कोई है) N.A.									
		ईधन के प्रकार	प्रतिदिन की बिक्री	पम्प से आपूर्ति वाले गांव की संख्या	कितने प्रकार के वाहनएक दिन/महीना में पेट्रोल पम्प से ईधन लेतेहैं? (समय/ अवधि का उल्लेख करें)							
					टैक्ट्रर	कृषि यंत्र	जीप	कार	दोपहिया वाहन	आटो	ई–रिक्शा	अन्य
	a		नहीं है।									
	b											

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

Annexure III: HRVCA Report

क्लाइमेट स्मार्ट ग्राम पंचायत विकास योजना
ग्राम पंचायत–स्वामी मुस्तकिल

विकास खण्ड–बिचपुरी

जनपद–आगरा (उ0प्र0)

प्रस्तुतिकरण–राष्ट्रीय मूक बधिर विद्यालय समिति, फिरोजाबाद

टीम सदस्य–संजीव कुलश्रेष्ठ, आकांक्षा कुलश्रेष्ठ, आस्था कुलश्रेष्ठ

ग्राम पंचायत स्वामी मुस्तकिल – परिचय

ग्राम पंचायत स्वामी मुस्तकिल उत्तर प्रदेश के आगरा जनपद के बिचपुरी ब्लॉक में स्थित है। ग्राम पंचायत स्वामी मुस्तकिल में 04 मजरे (टोले) कैलाश, नगला नाथू, नगला छीतर एवं नगला सीताराम हैं। ग्राम कैलाश में ऐतिहासिक कैलाश मन्दिर में भगवान परशुराम एवं उनके पिता ऋषि जम्दाग्नी द्वारा कैलाश पर्वत से लायी गयी शिवलिंग स्थापित है, जिसमें एक ही जलधारा में दो शिवलिंग हैं जनश्रुति के अनुसार मन्दिर की स्थापना त्रेता युग में की गयी है। प्रसिद्ध मन्दिर होने के कारण ग्राम कैलाश में अधिकांश परिवार गिरी(गोस्वामी) समुदाय से हैं जिनका मुख्य जीवन यापन का साधन मन्दिर की पूजा–पाठ, देख–भाल, प्रसाद की दुकान एवं कृषि, प्राईवेट तथा सरकारी नौकरियां हैं। ग्राम कैलाश में एक राजकीय प्राथमिक विद्यालय (अंग्रेजी माध्यम) एवं एक उच्च प्राथमिक विद्यालय है। कैलाश में यमुना नदी भी प्रवाहित हो रही है। दूसरा मजरा नगला नाथू है जोकि कैलाश से पूर्व की ओर दो किलो मीटर की दूरी पर बसा है। इसकी बसाहट यमुना के नजदीक है, यहां अधिकांश परिवार निषाद (मल्लाह/केवट) समुदाय से हैं, जिनकी आजीविका मुख्य रूप से कृषि आधारित है एवं ये पशुपालन भी करते हैं इनका कृषि क्षेत्र यमुना से सटा है, तथा कुछ ग्रामीण नदी किनारे सब्जी का उत्पादन यमुना के तट पर (बालू) पर करते हैं, जिस कारण प्रत्येक वर्ष (वर्षा काल) में नदी का जल स्तर बढ़ने से फसल डूबने का खतरा रहता है। नगला नाथू में ही ग्राम पंचायत कार्यालय, प्राथमिक विद्यालय, सामुदायिक शौचालय, सरकारी सस्ते गल्ले (राशन की दुकान) एवं आंगनवाड़ी, आशा आदि की सुविधायें उपलब्ध हैं। स्वामी मुस्तकिल का तीसरा गांव नगला छीतर है जोकि नगला नाथू से सटा हुआ है जिसमें अनुसूचित वर्ग (धोबी) एवं अन्य समुदाय जैसे यादव, ठाकुर ,दर्जी, बढ़ई समुदाय से हैं इनका मुख्य व्यवसाय कृषि, मजदूरी, दुकानें आदि हैं साथ ही लोगों के अनुसार पूर्व में यहॉ एक पोखर/तालाब भी था जिस पर लोगों ने कब्जा कर लिया एवं कुछ पक्के निर्माण भी कर लिए हैं। यहां की भी अधिकाशं खेती यमुना किनारे होने से प्रत्येक वर्षाकाल में प्रभावित होती है। यहां एक जूनियर हाईस्कूल एवं एक आशा कार्यकत्री है। यह मजरा ग्राम पंचायत के चारों मजरो में सबसे निचले स्थान पर होने से प्राकृतिक आपदा होने पर सबसे नाजुक स्थान है, यहां से गढ़ी बाईंपुर मार्ग पर डेढ़ किलोमीटर दूरी पर ग्राम पंचायत स्वामी मुस्तकिल का चौथा मजरा नगला सीताराम है जोकि निषाद बाहुल्य ग्राम है। यह मजरा अन्य तीनों मजरों से ऊंचे स्थान पर स्थित है, जिसके कारण यह बाढ़ प्रभावित क्षेत्र नहीं है। बाढ़ आने पर इस स्थान का प्रयोग किया जा सकता है। परन्तु नगला सीताराम में खारा पानी होने से ग्रामीणों के सामने पेयजल की समस्या वर्षभर रहती है। यहां के लोग पेयजल के लिए डेढ़ किलोमीटर की दूरी से पानी लाते हैं। इनका भी मुख्य व्यवसाय कृषि, पशुपालन एवं मजदूरी आदि है। इसके अतिरिक्त ग्राम पंचायत स्वामी मुस्तकिल में कैलाश से नगला नाथू वाले मार्ग में एक वृद्ध आश्रम एवं गौशाला है उक्त वृद्ध आश्रम में 350 वृद्ध निवास कर रहे हैं। साथ ही गौशाला में 500 गौवंश (गाय एवं नंदी) रह रहे हैं।

2

ट्रान्जेक्ट भ्रमण

टीम के सदस्यों द्वारा पंचायत भवन पर स्थानीय सामुदायिक सदस्यों के साथ स्थानीय मुद्दों पर चर्चा के उपरान्त समुदाय के सदस्यों के साथ गांव का भ्रमण आपदा, जोखिम, नाजुकता एवं क्षमता आंकलन की पहचान को मद्दे नजर रखते हुए किया गया। जिसमें पंचायत भवन से वॉक शुरू होकर ग्राम नगला नाथू, नगला छीतर, नगला सीताराम एवं कैलाश से होते हुये पुनः पंचायत भवन पर समाप्त की गई। जिसके अवलोकन पर यह पाया गया कि गांव में अधिकांश गलियॉ पक्की हैं, जबकि कुछ गली कच्ची हैं, पंचायत भवन के नजदीक तक गलियों एवं नालियों का निर्माण हुआ है पंचायत भवन से यमुना की ओर नीचा स्थान है जिस पर अधिकांश खेती है उक्त खेती के लिए जाने हेतु पंचायत भवन के सामने से चकरोड है जिस पर जल निकासी की कोई व्यवस्था न होने से उक्त चकरोड पर गांव की नालियों का पानी एकत्रित होकर फैलता है। जिससे दलदल जैसी स्थिति हो जाती है। उपरोक्त चकरोड से ही कृषि कार्य हेतु ट्रैक्टर आदि निकलते है और वहीं से ही स्थानीय नागरिक भी कृषि कार्य हेतु आते–जाते है। दलदल होने से उसमें गिरकर चोट लगने आदि की घटनायें हो जाती है एवं खेतों पर पहुंचना मुश्किल हो जाता है अधिक जल जमा होने से मच्छर आदि भी पनपते हैं, जिससे मच्छर जनित बीमारियां (मलेरिया, चिकिन गुनियां, डेंगू, हैजा, टाइफाइड आदि) होने का खतरा काफी बढ़ जाता है। जल जमाव से पैदा होने वाले मच्छरों एवं कीट पतंगों से फसलों को काफी नुकसान पहुंचता है।

गांव में 09 कुंऐ हैं जो सूखे हैं या लोगों द्वारा लकडी से ढक दिये गए हैं और कुछ कूडा डालने हेतु प्रयोग में लाए जा रहे हैं। गॉव नगला नाथू में 01 पानी की बडी टंकी है जो सुचारू नहीं है, पानी की सुविधा के लिए चारों मजरों में कुल 27 सरकारी हैण्डपम्प एवं 23 व्यक्तिगत हैण्डपम्प हैं। कृषि कार्य हेतु 71 ट्यूबवेल (68 डीजल, 03 बिजली) हैं। जल निकासी हेतु नगला नाथू एवं कैलाश में 02 नाले हैं। ग्राम पंचायत के नगला छीतर एवं नगला नाथू में 8 फलों के बाग हैं जिनमें मुख्य रूप से कीनू के वृक्ष हैं साथ ही कुछ वृक्ष जामुन ,कटहल, आम, शहतूत, अमरूद, नींबू , बेर, केला एवं बेल के हैं। जिसमें बाबूलाल के बाग में 200 वृक्ष, सुनहरी सिंह के बाग में 200 वृक्ष रूस्तम सिंह के बाग में 100 वृक्ष, प्रताप के बाग में 100 वृक्ष, महावीर के बाग में 50 वृक्ष, सत्यप्रकाश के बाग में 200 वृक्ष , लाखन के बाग में 100 वृक्ष एवं चन्द्रभान के बाग में लगभग 100 वृक्ष हैं।

चारों मजरों में नगला सीताराम तुलनात्मक रूप से ऊंचे स्थान पर है एवं यमुना से दूरी होने से बाढ़ आपदा के समय में उपयोगी स्थान है। नगला सीताराम में पानी खारा (नमकीन) होने से ग्रामीणों के सामने पेयजल की भारी किल्लत है एवं उन्हें लगभग 1.5 कि0मी0 दूर से पेयजल लाना पड़ता है। साथ ही गॉव में नालियों की सफाई न होने से सडकों पर जलजमाव है, जिससे खेत की तरफ जाने वाले रास्ते पर निकलना मुश्किल है।

ग्राम पंचायत में कूड़ा निस्तारण की कोई व्यवस्था न होने से ग्रामीण अपनी सुविधा से कूड़े को इधर–उधर फेंक रहे है। कुछ लोग खेतों की मेड़ पर कूड़ा डालते हैं तथा कुछ लोग निष्प्रयोज्य कुओं में भी कूड़ा डालते हैं। कैलाश में मन्दिर परिसर के पास कुछ डस्टबिनों का उपयोग हो रहे हैं, जहां से कूड़ा उठान भी होता है। गांव में कहीं भी स्ट्रीट लाइट या सोलर लाइट की व्यवस्था नहीं है। ग्राम पंचायत में आगंनवाडी भवन नहीं है। गॉव में एक सामुदायिक शौचालय, 386 इज्जतघर (सरकारी मदद से बने शौचालय) एवं 197 व्यक्तिगत शौचालय हैं ।

कैलाश मन्दिर से नगला नाथू को जोड़ने वाला मार्ग वन क्षेत्र से होकर गुजरता है उक्त मार्ग कच्चा, धूलभरा एवं ऊवड़–खावड है जिससे वर्षाकाल में मजरों का आपस में सम्पर्क मुश्किल हो जाता है, मरीज, गर्भवती महिलाओं आदि को स्वास्थ्य केन्द्र पर पहुंचाने में समस्या का सामना करना पड़ता है। नगला नाथू प्राथमिक विघालय से बाईंपुर गढी संपर्क मार्ग (मुर्गी फार्म तक) जो एनगलाएच0 19 को जोडता है। वह टूटा–फूटा है जिससे आवागमन प्रभावित होता है।

गांव में कोई भी तालाब/पोखर नहीं है जिससे ग्रीष्मकाल में पशुओं को पीने के पानी आदि परेशानी का सामना करना पड़ता है साथ ही सूखे की स्थिति में परेशानी का सामना करना पड़ता है।

(गतिविधि एवं सारणी अवलोकन हेतु संलग्नंक संख्या–01, 02 देखें)

सामाजिक मानचित्रण

ग्राम पंचायत स्वामी मुस्तकिल दिल्ली कलकत्ता राष्ट्रीय राज्य मार्ग सं019 (पूर्ववर्ती राष्ट्रीय राजमार्ग सं 02) पर आगरा से 8 किलोमीटर पहले उत्तर दिशा में स्थित है जोकि राजमार्ग से लगभग 5 किमी. उत्तर की ओर स्थित है। जिसका सामाजिक विवरण गांव भ्रमण एवं सामाजिक मानचित्रण तैयार करने के उपरान्त किया गया है, जो निम्नवत है–

विवरण	संख्या	गुणात्मक विवरण
ग्राम पंचायत का कुल क्षेत्रफल	184.374 हे0	चार मजरे (आबादी क्षेत्र), बाग बगीचा, खेती एवं खुले मैदान मिलाकर
वन क्षेत्र	51 हे0	ग्राम पंचायत वन क्षेत्र

कुल मजरे (टोले)सं0	4	कैलाश, नगला नाथू, नगला छीतर नगला सीताराम
कुल घरों की संख्या	638	सभी मजरों को मिलाकर
कुल पक्के घर	608	सभी मजरों को मिलाकर
कुल कच्चे घर	30	सभी मजरों को मिलाकर
आर्थिक रूप से कमजोर परिवार	13	अन्त्योदय कार्ड धारक
विकलांगजन	18	सभी मजरों को मिलाकर
महिला मुखिया परिवार	12	सभी मजरों को मिलाकर
हैण्डपम्प इण्डियामार्का (सरकारी)	27	सभी मजरों को मिलाकर
सबमर्सिबल पम्प	159	सभी मजरों को मिलाकर
हैण्डपम्प निजी	23	सभी मजरों को मिलाकर

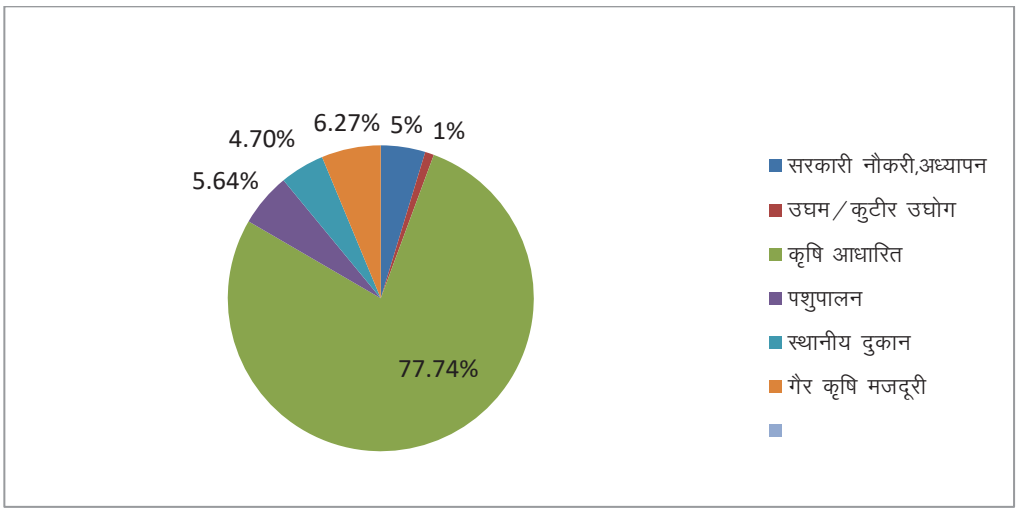
जातिगत/श्रेणीगत विवरण

सामान्य जाति के घरों की संख्या	24
पिछडी जाति के घरों की संख्या	560
अनूसूचित जाति के घरों की संख्या	54
कुल घरों की संख्या	638

ग्राम पंचायत स्वामी मुस्तकिल में चार बसाहट हैं। कैलाश, नगला छीतर, नगला नाथू एवं नगला सीताराम यहॉ सभी जाति वर्ग मिश्रित रूप से निवास कर रहे हैं जैसे निषाद, जाटव, बघेल, गोस्वामी, नाई, ब्राहमण, धोबी, यादव, दर्जी, वाल्मीकि आदि जातियॉ हैं कुल 13 परिवार आर्थिक रूप से कमजोर वर्ग की श्रेणी में आते हैं, गॉव में 18 विकलांगजन है, 12 महिला मुखिया परिवार हैं जिनमें आय का स्त्रोत मुख्य रूप से महिलाएं है। अर्थात पूरे परिवार के भरण पोषण की जिम्मेदारी महिलाओं की है। यहॉ के परिवार मुख्य रूप से खेती (कृषि), दुकानें, पशुपालन, मजदूरी, अध्यापन एवं सरकारी नौकरी आदि पर निर्भर हैं। गॉव में पक्के मकानों की सं0 608 है जबकि कच्चे मकानों की संख्या 30 है।

आजीविका के साधन–

आजीविका के साधन	परिवारों की संख्या
सरकारी नौकरी (अध्यापन, बैंक)	30
उघम / कुटरी उघोग	06
कृषि आधारित	496
पशुपालन	36
स्थानीय दुकान	30
गैर कृषि मजदूर	40
योग	638



(सामाजिक मानचित्रण गतिविधि हेतु संलग्नक संख्या–03, 04 देखें)

6

खतरा, जोखिम, नाजुकता एवं क्षमता आंकलन

जलवायु परिर्वतनशीलता– प्रवृत्ति/परिवर्तन, मुख्य चुनौतियां/झटके एवं तनाव :–

ग्राम पंचायत स्वामी मुस्तकिल में पिछले 30 वर्षों में सभी मौसमों (गर्मी, सर्दी एवं बरसात) में परिवर्तन महसूस किया जा रहा है, जहां पूर्व में गर्मी अप्रैल से सितम्बर तक रहती थी वहीं अब मार्च से अक्टूबर तक गर्मी रहती है। गर्मी के दिन अधिक होने के साथ ही तापमान में भी वृद्धि हुई है। विगत वर्षों में सर्दी के मौसम में भी कमी महसूस की गयी है, जहां पूर्व में सर्दी अक्टूबर से प्रारम्भ होकर मार्च तक रहती थी वहीं अब मात्र नवम्बर से फरवरी तक ही रहती है, जहां सर्दी के मौसम में कमी हुई है, वहीं कड़कड़ाती सर्दी के दिनों में भी कमी हुई है। बरसात के दिनों में भी कमी हुई है। जहां पूर्व में मई के अन्तिम सप्ताह से रूक–रूक कर बारिश होने लगती थी एवं बारिश सितम्बर तक होती थी वहीं अब मात्र जुलाई एवं अगस्त में बारिश होती है, जहां बारिश की आवृत्ति में कमी हुई है वहीं बारिश की मात्रा भी कम हो गयी है, जहां पूर्व में लगातार दो–तीन दिनों तक बारिश होती थी वहीं अब मात्र कुछ ही घण्टों की बारिश होती है। गर्मी अधिक एवं देर तक पड़ने से फसल चक्र में भी बदलाव देखा जा सकता है गेहूं की फसल अब देर से बोई जाती है एवं सिंचाई अधिक लगाना पड़ता है अर्थात सिंचाई की संख्या में वृद्धि हुई है। जिससे फसल का लागत बढ़ जाता है। गैर मानसून ऋतु में होने वाली बारिश में भी परिवर्तन हुआ है। अचानक मौसम में बदलाव हो जाता है एवं कभी भी बारिश, ओलावृष्टि हो जाती है जिससे फसलें नष्ट हो जाती है परिणामतः किसानों को नुकसान उठाना पड़ता है।

ग्रामीण सहभागी आंकलन की विभिन्न विधियों का प्रयोग करते हुए जलवायुगत आपदा, खतरा, जोखिम, नाजुकता एवं क्षमता आंकलन हेतु अपेक्षित सूचनाओं का संकलन किया गया जो निम्नवत् है–

गांव को प्रभावित करने वाली आपदाओं की पहचान एवं इनका प्राथमिकीकरण –

सामुदायिक सदस्यों के साथ स्थानीय आपदाओं के बारे में विस्तृत चर्चा की गयी जिससे उनकी आजीविका स्वास्थ्य, शिक्षा, पेयजल एवं साफ–सफाई प्रभावित होते हैं चर्चा के उपरान्त आपदाओं की सूची बनाई गयी सूची में अंकित आपदाओं एवं उनसे उत्पन्न समस्याओं को देखते हुए उनका प्राथमिकीकरण किया गया। स्वामी मुस्तकिल ग्राम पंचायत की मुख्य आपदा जल भराव, बाढ़, सूखा आदि हैं जिससे आजीविका, खेती, स्वास्थ्य, पेयजल एवं साफ–सफाई आदि प्रभावित होती है।

आपदा का इतिहास एवं क्षति–

सामुदाय के साथ आपदाओं के बारे में विस्तृत चर्चा होने पर यह निकलकर आया कि गांव में अब तक की सबसे बड़ी आपदा 1978 में आयी भीषण बाढ़ की घटना थी। जिससे पूरा जन जीवन अस्त व्यस्त हो गया था एवं गांव की पूरी खेती डूब गयी थी पूरे गांव में बाढ़ का पानी भर गया था सभी लोग ऊंचे स्थानों पर रहने को मजबूर थे। शासन–प्रशासन द्वारा हेलीकाप्टरों एवं स्टीमरों की मदद से लोगों तक भोजन पेकेट, राहत सामग्री आदि भिजवायी जा रही थी, उसके बाद 2010 में भी बाढ़ आयी थी, उसके उपरान्त जून 2013 में भी अत्यधिक वर्षा एवं उत्तराखण्ड में हुई भीषण जल प्रलय के कारण यमुना का जल स्तर बढ़ने से ग्राम स्वामी मुस्तकिल में जन जीवन एवं खेती पर असर पड़ा। साथ ही साथ प्रत्येक वर्ष भी यमुना किनारे की कृषि भूमि उससे प्रभावित होती है। इसके अतिरिक्त जलजमाव, सूखा ओलावृष्टि, लू , शीतलहर एवं आंधी तूफान आदि प्रमुख आपदाएं हैं।

(विस्तृत रिपोर्ट हेतु संलग्नक 05, 06, 07 देखें)

आपदा की पहचान एवं प्राथमिकीकरण के उपरान्त समुदाय द्वारा तैयार कराया गया आपदा मौसमी चित्रण

आपदा का मौसमी चित्रण

आपदा	जनगलT	फर0	मार्च	अप्रैल	मई	जून	जुलाई	अग0	सित0	अक्टू0	नव0	दिस0
जलजमाव												
बाढ												
सूखा												
लू												
ओलावृष्टि												
शीतलहर												
आंधी/तूफान												

(मौसमी चित्रण की गतिविधि हेतु संलग्नक संख्या– 08 देखें)

जलजमाव भी गॉव की प्रमुख समस्या है वर्ष भर जल जमाव रहता है लेकिन वर्षाकाल में यह स्थिति और अधिक बढ़ जाती है। जलनिकासी की उचित व्यवस्था न होने से गॉव की

नालियों का पानी गलियों एवं चकरोड पर बहता है जिससे चकरोड पक्का न होने से उस पर दलदल जैसी स्थिति रहती है जिससे ही ट्रैक्टर एवं कृषकों का आवागमन रहता है मार्ग पर जलजमाव रहने से किसानों को खेतों तक पहुॅचने मे कठिनाइयों का सामना करना पडता है साथ ही फिसल कर गिरने से चोट आदि लगने का खतरा भी रहता है । चकरोड से होकर यह पानी खेतों में फैल जाता है जिससे कृषि उपज प्रभावित होती है । उक्त गन्दे पानी से मच्छर,मक्खी, कीट–पतंगे पैदा होते हैं जो मानवीय बीमारियों को बढावा देनें के साथ ही फसलों को भी काफी नुकसान पहुॅचाते हैं साथ ही जलजमाव से नजदीक के जलश्रोतों (हैण्डपम्प) का पानी भी दूषित होता है जिसको पीकर बीमारियों का खतरा बढ जाता है।

2 .जलवायु परिवर्तन जनित आपदा के जोखिम/खतरों का आकलन

उपरोक्त आपदाओं से संभावित जोखिम/नुंकसान, समुदाय एवं संसाधनों पर पडने वाले प्रभाव की विस्तृत जानकारी प्राप्त की गई ।

ग्राम पंचायत स्वामी मुस्तकिल पर आपदाओं से पर्यावरणीय, बुनियादी एवं आधारभूत संरचना के साथ ही मानव जीवन, आजीविका एवं स्वास्थय पर नकारात्मक प्रभाव पड़ रहा है ।

बाढ, जलजमाव, सूखा ,ओलावृष्टि, लू, शीतलहर एवं आंधी–तूफान आदि आपदाओं का स्वामी मुस्तकिल ग्राम पंचायत के संदर्भ में विभिन्न क्षेत्रों पर इनके प्रभाव से जोखिम/खतरा की संभावना बन जाती है ।

समुदाय के लोगों के अनुसार आपदाओं से उन्हें प्रतिवर्ष तरह–तरह के नुकसान सहने पडते हैं जो इस प्रकार हैं –

खतरा एवं जोखिम विश्लेषण से प्राप्त सूचनाएं –

क्रम	आपदा/खतरे	संभावित जोखिम का क्षेत्र ,	संभावित जोखिम प्रभावित क्षेत्र			
			जोखिम	आबादी	प्रभावित घर/व्यक्ति	संसाधन
1	जलजमाव	स्वास्थय	जलजनित बीमारियॉ जैसे हैजा, टाइफाइड, डेंगू	नगलानाथू, नगला सीताराम, नगला छीतर	55 घर	स्वास्थय केन्द्र
		शिक्षा	बच्चों में अनुपस्थिति (Absentism)	नगला नाथू, नगला सीताराम, नगला छीतर	30 घर	विद्याालय,सडक, नाली
		पेयजल	गन्दा पानी जलश्रोत में जाने से पेयजल दूषित एवं बीमारी का जोखिम	नगला नाथू, नगला सीताराम, नगला छीतर	265 घर	हैण्डपम्प का पानी दूषित
		कृषि	हानिकारक कीटों के प्रकोप से	कृषक वर्ग	125 घर	खेतों में जलजमाव

			फसल का नुकसान			
		आजीविका	कृषि मजदूरों को मजदूरी न मिलना	कृषक वर्ग	45 घर	खेत
		जलनिकाय	नाली में गन्दा पानी भरे रहना	नगला नाथू, नगला सीताराम, नगला छीतर	पूरा गॉव	नालियों में जलभराव
		स्वच्छता	अपशिष्ट बहकर आबादी में फैलना	नगला नाथू, नगला सीताराम, नगला छीतर	पूरा गॉव	सडक, नालिंया
		पशुपालन	पशुओं में बीमारी जैसे खुरपका, मुंहपका चोट लगना आदि	पशु गाय भैंस बकरी आदि	275 जानवर	
		सामाजिक सुरक्षा	महिलाओं, बच्चों एवं विकलागों पर फिसलकर गिरने का जोखिम	नगला नाथू, नगला सीताराम, नगला छीतर	पूरा गॉव	सडक, नालियां
2	बाढ़	कृषि	खरीफ की फसल का नुकसान	यमुना किनारे के पूरे खेत	250 परिवार	150 एकड़ खेत में बाढ का पानी
		उद्यान/सब्जी	सब्जी की फसल का खराब होना	आबादी यमुना किनारे की फसल	80 परिवार	यमुना किनारे का बालू वाला क्षेत्र डूब जाना लगभग 60 एकड़ सब्जी की फसल
		पशुपालन	जलभराव के कारण पशुओं में बीमारियॉ	गॉव के चारो मजरे के पशु	पूरा गॉव	पशुचारा एवं पशु, गौशाला
		आजीविका	खेती डूबने से कृषक मजदूरों में आजीविका संकट	कृषक मजदूर परिवार	25 परिवार	संसाधन खेतों में पानी न होने से काम न मिलना
		पेयजल	पेयजल दूषित होना	नगला नाथू, नगला सीताराम, नगला छीतर	पूरा गॉव	हैण्डपम्प का पानी टयूबेल आदि
3	सूखा	कृषि	सूखे से फसल प्रभावित, सिचाई से फसल लागत बढ़ने का जोखिम	पूरा गॉव	638 परिवार	90 हैक्टेयर खेती
		पेयजल	जलस्तर नीचे होने से पेयजल संकट	पूरा गॉव	638 परिवार	प्राइवेट एवं सरकारी हैण्डपम्प का जलस्तर नीचा हो जाना
		पशुपालन	गर्मी से बीमारियां, चारे	300 पशु	300 पशु	चारागाह गौशाला

			का संकट, दुग्ध उत्पादन में कमी			
4	लू	स्वास्थय	मानव एवं पशु को लू लगना हैजा,डायरिया एवं टाइफाइड का जोखिम	पूरा गॉव	638 परिवार	
		शिक्षा	बच्चों का स्वास्थय प्रभावित होने से अनुपस्थिति	450 बच्चे		शिक्षा बाधित
5	ओलावृष्टि	मानव एवं पशु पर जोखिम	ग्रामीणी एवं जानवरो पर घायल होने का खतरा	पूरा गॉव	638 परिवार	कच्चे घरों का क्षतिग्रस्त होना , फसलों का नष्ट होना

आजीविका के साधनों पर आपदा का प्रभाव–

ग्राम पंचायत स्वामी मुस्तकिल में ग्रामीणों के आजीविका का मुख्य साधन कृषि, कृषिगत मजदूरी, दुकाने, दिहाडी एवं मजदूरी पशुपालन आदि हैं, आजीविका के साधन जब आपदा से प्रभावित होते हैं जिससे ग्रामीणों की आजीविका प्रभावित होती है। जिसकी सम्बन्धित सूचनांए विस्तृत रूप से संकलित कर संलग्न की गई है।

(संलग्नक संख्या 09 देखें)

3.नाजुकता विश्लेषण

जलवायु परिवर्तन से बढ़ रहे आपदाओं जैसे बाढ़, सूखा, लू, शीतलहर आदि से प्रभावित गॉव और उसमें निवास कर रहे व्यक्तियों का जनजीवन एवं जीवनयापन पर प्रतिकूल प्रभाव पड़ता है। जिससे नाजुकवर्ग जैसे कि वृद्ध महिलाएं, बच्चे, बुजुर्ग पुरूष आदि भिन्न भिन्न रूप से प्रभावित होते हैं, इसलिए गॉव का नाजुकता विश्लेषण अति आवश्यक है

1– जलजमाव

ग्राम पंचायत स्वामी मुस्तकिल में जलजमाव मुख्य समस्या है पंचायत के दो मजरे नगला नाथू एवं नगला सीताराम में जल निकासी की उचित व्यवस्था न होने का कारण यहॉ जलजमाव वर्ष भर रहता है नगला नाथू में पंचायत भवन से यमुना की ओर सटे खेतों की ओर जा रही 500 मी0 की कच्ची सड़क एवं पक्का रोड के साथ नाली न होने के कारण पानी चकरोड पर जमा हो जाता है। जिससे आवागमन बाधित होता है । लोगों के अनुसार चकरोड की चौडाई 16 फीट की है परन्तु मौके पर केवल 8 फीट ही शेष है क्यूकि दोनों

ओर से ग्रामीणों ने अतिक्रमण कर रखा है। जिससे वर्षाकाल में आवागमन की चुनौती और बढ़ जाती है ।

● नगला सीताराम में भी खेतों की तरफ जा रही गलियों में भी अत्यधिक जलजमाव देखने को मिला एवं जलनिकासी हेतु कोई प्रबन्ध नहीं है, साथ ही गॉव में सफाई कर्मचारियों की अनुपस्थिति से स्थिति और भयावह है।

● पूर्व में नगला छीतर में ग्रामीणों के अनुसार उच्च प्राथमिक विद्यालय के पीछे एक पोखर था, जिसमें नगला नाथू एवं नगला छीतर का वर्षा एवं नालियों का पानी संचित होता था वर्तमान में उक्त पोखर को पाटकर ग्रामीणों ने अतिक्रमण कर लिया है एवं उस पर कुछ पक्के घरों का निर्माण भी कर लिया है, जिससे गॉव में जलजमाव की स्थिति बनी रहती है।

जलजमाव से प्रभावित समुदाय

- मानसून के दिनों में किसान जो खेतों की ओर जाने के लिए चकरोड का प्रयोग करते हैं उन पर गिरकर या (फिसल कर) गिरने और चोटिल होने का खतरा रहता है।
- जलजमाव से बढ़ रही गन्दगी से पनप रहे कीट, मच्छर, बैक्टीरिया आदि से बच्चों में डेंगू, मलेरिया, चिकिनपॉक्स, टाइफाइड आदि बीमारियों का खतरा बढ़ जाता है साथ ही स्कूल जाने वाले बच्चों का मार्ग भी जलजमाव से अवरूद्ध होता है ।
- जलजमाव से पशुओं का भी फिसलकर गिरने और दूषित जल के पीने से बीमार होने का खतरा भी बना रहता है।
- गॉव का गन्दा (नाली का पानी) आगे चलकर खेतों में जमा हो जाता है जिससे फसल पर प्रतिकूल प्रभाव पडता है और फसल कीट–पतंगे, रोग आदि से प्रभावित होती है और फसल की गुणवत्ता नष्ट हो जाती है ।
- जलजमाव के कारण गॉव के समस्त निवासियों के दैनिक जीवनचर्या व कार्य में बाधा उत्पन्न होती है

2– बाढ़

ग्राम पंचायत स्वामी मुस्तकिल यमुना के किनारे बसा हुआ है ग्रामीणों के अनुसार यहॉ वर्ष 2023 तक ग्रामीणों को 3 बार बाढ़ का प्रकोप झेलना पडा है। पहली बार सन 1978 मे बाढ़ की विभीषिका ने पूरे ग्राम पंचायत में बसें लोगों एवं पशुओं का जीवन अस्तव्यस्त कर दिया था, जिसमें जनहानि का सामना भी करना पडा था, बचाव के लिएं प्रशासन द्वारा नगला सीताराम

के उंचे इलाकों में शिविर स्थापित किया गया था और स्टीमर एवं हैलीकाप्टर द्वारा भोजन, दवाईयां एवं अन्य आवश्यक सामग्री उपलब्ध कराई गईं थी ।
2010 में भी ग्रामीणों के अनुसार कैलाश नगला नाथू एवं नगला छीतर का जो सबसे निचला क्षेत्र है में निरन्तर वर्षा एवं यमुना का जलस्तर बढ जाने से बाढ का सामना करना पड़ा था जिससे फसलें नष्ट हो गईं थी। इसके बाद 2013 में अत्यधिक वर्षा एवं उत्तराखण्ड में आयी भीषण जल प्रलय त्रासदी के कारण यमुना का जल स्तर बढ़ने से जनजीवन एवं खेती पर इसका प्रभाव पड़ा था प्रत्येक वर्ष वर्षाकाल में यमुना का जलस्तर बढने से यहॉ के आबादी क्षेत्र में बाढ़ आने का खतरा हमेशा बना रहता है ।

प्रभावित समुदाय

- ग्राम छीतर एवं ग्राम नाथू के खेतों से सटे रिहायशी इलाकों में बसी आबादी का डूबने का सबसे ज्यादा खतरा रहता है।
- प्रत्येक वर्ष यमुना किनारे बाजरा एवं सब्जी की फसलें नष्ट हो जाती हैं जिसका किसानों की आय पर प्रतिकूल प्रभाव पडता है।
- बाढ़ से पशुचारा भी नष्ट हो जाता है जिससे कि पशुओं के लिए भोजन का संकट उत्पन्न होता है ।

3– सूखा–

ग्रामीणों के अनुसार विगत वर्षो में ग्रीष्मकाल की समयावधि बढ़ गई है जिस कारण वर्षा देरी से हो रही है और कई बार वर्षा न होने से या कम वर्षा होने से खरीफ की फसलें (जिसमें ज्यादा पानी की ज्यादा आवश्यकता होती हैं) पर सूखे का अत्यधिक प्रभाव पड़ता है यद्यपि गॉव में 9 कुएं भी है परन्तु वे निष्प्रयोज्य हैं या सूखे हैं तथा गन्दगी, कूडा, पालीथिन, मिट्टी निस्तारण हेतु प्रयोग में लाए जा रहे हैं जिससे गॉव में पेयजल की समस्या होती है ।

प्रभावित समुदाय

- सूखे के प्रभाव से किसान प्रभावित होता हैं क्योंकि फसलों में जल आपूर्ति न होने से फसल सूख जाती है ।
- फसल में अधिक सिंचाई की अधिक आवश्यकता से फसल का लागत मूल्य बढ़ जाता है, ग्रामीणों के अनुसार ट्यूबवेल स्वामी 100 रूपये प्रति घण्टा से पानी उपलब्ध कराते हैं।

- सूखा से जलस्तर घटने से पेयजल की दिक्कत रहती है जिस कारण महिलाओं को दूर से पानी भरकर लाना पड़ता है जिससे उनका दैनिक कार्य प्रभावित होता है ।
- सूखे से पशुओं हेतु हरे चारे की कमी हो जाती है जिससे पशुओं के स्वास्थय पर असर पड़ता है और दुग्ध उत्पादन में भी कमी आ जाती है ।

4. लू –

लू भी स्थानीय समुदाय को प्रभावित करने वाली एक मुख्य चुनौती है, प्रत्येक वर्ष मई से जून माह में हॉट वेव्स भी ग्रामीणों के लिए एक बडी चुनौती होती है क्यूकिं इससे धरती पर वाष्पीकरण बढ़ जाता है और मृदा शुष्क हो जाती है जिससे फसल में अत्यधिक और बार–बार पानी लगाने की आवश्यकयता होती है जिस कारण फसल की लागत बढ़ जाती है और गर्म हवाओं से मानव एवं पशुओं पर भी लू लगने और स्वास्थय सबंधी बिमारियॉ जैसे हैजा, बुखार आदि की समस्या आदि आती है

5.ओला वृष्टि–

विगत वर्षो में अचानक और बेमौसम ओलावृष्टि से फसलें बर्बाद हो जाती हैं या फसलों की उत्पादन में और गुणवत्ता में भी कमी आ जाती है जिससे कि किसानों को आर्थिक नुकसान उठाना पड़ता है। इसके अतिरिक्त ओलावृष्टि व आकाशीय बिजली गिरने से मैदान में बंधे पशुओं को भी चोटिल होने व जीवन का खतरा होता है ।

समुदाय की व्यवहारगत एवं ढॉचागत कमिंयॉ–

1. गॉव में आंगनबाडी भवन नहीं हैं साथ ही गॉव में 3 आंगनबाडी कार्यकत्रियों के पद सृजित हैं एवं तीनों ही रिक्त हैं जिससे गर्भवती, धात्री महिलाओं एव 0 से 6 वर्ष के बच्चों की देखभाल प्रभावित हो रही है ।
2. लोगों में योजनाओं से सम्बन्धित जानकारी एवं जागरूकता का अभाव है जैसे– फसल बीमा योजना, मृदा स्वास्थय कार्ड, पशु बीमा, आदि। जिससे समुदाय की नाजुकता अत्यधिक बढ जाती है ।
3. गॉव में 14 स्वयं सहायता समूह हैं जिनमें सिर्फ 2 ही सक्रिय हैं अतिरिक्त सभी निष्क्रिय हैं जो किसी भी आयजनक कार्यक्रम से नहीं जुडे हैं।

4. गॉव में समुदाय आधारित संस्थाओं/संगठनों की कमी है जैसे किसान संगठन, अनाज बैंक, युवा मण्डल दल, महिला मंडल आदि । जिस कारण आपदा के समय समुदाय को सरकारी एवं अन्य सहायता पर निर्भर रहना पडता है।
5. ग्राम पंचायत में प्रशासनिक समिति, निर्माण कार्य समिति ,स्वास्थय एवं कल्याण समिति पेयजल स्वच्छता एवं जल प्रंबधन समिति, नियोजन एवं विकास समिति एवं शिक्षा समिति होने या न होने एवं उनके कार्यो की जानकारी समुदाय में नही पाई गई। अर्थात समुदाय पंचायत में गठित समितियों के प्रति जागरूक नहीं है।
6. गॉव में सूखा एवं गीला कचरा एक साथ ही इकटठा होकर गलियों सडकों एवं खडंजें आदि के किनारे पडा रहता है जिससे यह कचरा बहकर जल निकास को बाधित करता है फलस्वरूप नालियां चौक हो जाती हैं और पानी बहकर सडकों पर जलजमाव की समस्या को बढाता है, जिससे स्पष्ट है कि लोगों में कचरा प्रबंधन की जागरूकता का अभाव है।
7. गॉव में कृषिगत गतिविधियों में उर्वरक कीटनाशक खरपतवार नाशक का प्रयोग किसानों द्वारा अत्यधिक मात्रा में किया जाता है जिससे मृदा पर प्रतिकूल प्रभाव पड रहा है।
8. गॉव में स्वास्थय केन्द्र न होने से लोगों को स्वास्थय सम्बन्धी परेशानी हेतु 15 किमी दूर बिचपूरी स्थित प्राथमिक स्वास्थय केन्द्र पर जाना पडता है ।
9. ग्राम स्तर पर लघु, सूक्ष्म, कुटीर एवं पारंपरिक उद्योग आदि न होने से गॉवं की अधिकतर आबादी कृषि कार्य एवं मजदूरी पर निर्भर है।
10. गॉव में जनसुविधा केन्द्र न होने से विभिन्न प्रकार की कल्याणकारी योजनाओं एवं सरकारी कार्यक्रमों की जानकारी से लोग वंचित हैं जिससे उनकी आर्थिक स्थिति में सुधार नही हो पा रहा है।
11. कैलाश गॉव को छोडकर अन्य तीनों मजरों में सफाईकर्मी नहीं हैं जिससे ग्राम नाथू में स्थित सामुदायिक शौचालय उपयोग में नहीं लाया जा पा रहा है साथ ही साथ नालियों एवं सडकों की सफाई न होने से जलजमाव की स्थिति बनी हुई है।
12. कृषि परामर्श एवं मौसम पूर्वानुमान के चेतावनी तंत्र के अभाव से ग्रामीणों को अचानक हो रहे मौसमी बदलाव की जानकारी प्राप्त नहीं हो पाती, जिससे कृषि आधारित ग्रामीणों की नाजुकता और बढ जाती है।

4–क्षमता आंकलन

क्लाईमेट स्मार्ट ग्राम पंचायत बनाने की दृष्टि से गांव की क्षमता आंकलन आपदाओं के सन्दर्भ में किया गया। क्योंकि आपदा एवं जोखिम से जनजीवन अस्त व्यस्त होता है जिससे आस–पास के उपलब्ध संसाधन भी प्रभावित होते है। संसाधन भौतिक, पर्यावरणीय एवं मानव

संसाधन के रूप में उपलब्ध होते हैं। इनकी पहंचान से खतरों से निपटने में आसानी होती है एवं आपदा के समय मदद मिलना आसान हो जाता है।

ग्राम पंचायत स्वामी मुस्तकिल जिला मुख्यालय आगरा शहर से ही लगे होने से ग्राम पंचायत में विकास कार्य हुये है, ग्रामीणों की सुविधाओं के लिए सामुदायिक शौचालय, बच्चों की शिक्षा हेतु प्राथमिक (इग्लिंश मीडियम) एवं जूनियर स्कूल है। साथ ही साथ गांव से लगा एक डिग्री कालेज भी है। गांव में राशन वितरण हेतु राशन की दुकान (सरकारी सस्ते गल्ले की दुकान) है। आपदा से निपटने हेतु गांव से 15 कि0मी0 दूरी पर आपदा विभाग स्थित है। चिकित्सा हेतु एम्बुलेन्स व्यवस्था एवं बिचपुरी ब्लाक पर पी0एच0सी0 स्थित है। साथ ही साथ एक फायर स्टेशन, 02 शमसान घाट उपलब्ध है। गांव में 14 स्वयं सहायता समूह हैं जिनके खाते बैंक से लिंक है। ग्राम पंचायत का मजरा नगला सीताराम ऊंचे स्थान पर स्थित होने से आपदा प्रबंधन हेतु मददगार साबित हो सकता है।

संसाधन मानचित्र – क्षमता आंकलन को 4 बिन्दु भौतिक संसाधन, प्राकृतिक संसाधन, मानव संसाधन एवं वित्तीय संसाधन के रूप में वर्णित किया है, जो समुदाय के साथ चर्चा के उपरान्त उपलब्ध है।

1.भौतिक संसाधन

भौतिक संसाधन	संख्या	स्थान	गांव से दूरी कि0मी0
प्राथमिक विद्यालय	02	कैलाश एवं नगला नाथू	ग्राम पंचायत में स्थित
पूर्व माध्यमिक विद्यालय	02	कैलाश एवं नगला छीतर	ग्राम पंचायत में स्थित
पंचायत भवन	01	नगला नाथू	ग्राम पंचायत में स्थित
सरकारी राशन की दुकान	01	नगला नाथू	ग्राम पंचायत में स्थित
थाना	01	सिकन्दरा	05
कचहरी	01	आगरा	11
जिला चिकित्सालय (एम्बुलेंस व्यवस्था)	01	आगरा	15
विकस खण्ड कार्या0	01	विचपुरी	15
तहसील	01	आगरा	13
आपदा विभाग	01	आगरा	12
पोस्ट ऑफिस	01	सिकन्दरा	8
बिजली विभाग	01	सिकन्दरा	6
डिग्री कालेज	01	बाईपुर, सिकन्दरा	4
फायर स्टेशन	01	आगरा	14

बस स्टेशन	01	आगरा	8.5
रेलवे स्टेशन	01	आगरा कैंट	19
खाद बीज दवा केन्द्र	01	सब्जी मण्डी सिकन्दरा	6
बाजार	01	सिकन्दरा	6
बैंक	02	बाईपुर सब्जी मण्डी कैनरा बैंक	4 6
शमसान घाट	02	नगला नाथू और कैलाश	ग्राम पंचायत में स्थित

2. प्राकृतिक संसाधन

प्राकृतिक संसाधन	संख्या	स्थित
नाला	02	कैलाश, नगला नाथू
नदी	01	कैलाश, नगला नाथू, नगला छीतर
बाग	08	नगला छीतर, नगला नाथू
कुंआ	09	कैलाश, नगला छीतर, नगला नाथू, नगला सीताराम
तालाब	00	–
सरकारी हेण्डपम्प	27	कैलाश, नगला छीतर, नगला नाथू, नगला सीताराम
टूयव बैल	71	कैलाश, नगला छीतर, नगला नाथू, नगला सीताराम
कृषिगत क्षेत्र	121.591 हे0	कैलाश, नगला छीतर, नगला नाथू, नगला सीताराम
खुला क्षेत्र/सामुदायिक भूमि/आबादी	62.783 हे0	कैलाश, नगला छीतर, नगला नाथू, नगला सीताराम
पानी की टंकी	01	नगला नाथू (उपयोग नहीं हो रहा है)

3. मानव संसाधन– आपदा की स्थिति में मानव संसाधन का सबसे महत्वपूर्ण योगदान होता है, मानव संसाधन आपदा के न्यूनीकरण में अहम भूमिका निभाती है, जिसका विवरण निम्न है।

मानव संसाधन	संख्या	नाम	नम्बर
ग्राम प्रधान	01	भारतेन्दु गिरी–	9219579222
पंचायत सचिव	01	सुभाष झा	7830020966
पंचायत सहायक	01	हरिचरन	8859845724

लेखपाल	01	सतवन्त सिंह	9455200842
शिक्षक / शिक्षिका	25	प्रभा धाकरे–	9368752235
आंगनबाड़ी	03	पद रिक्त	–
आशा बहू	03	किरन	7505673351
एस0एस0जी0	14	अंजू देवी	9027086836
तैराक	25	मिश्रीलाल	9675730513
डाक्टर (झोला झाप)	01	वीरपाल	–
भू0पू0 सैनिक	00		
स्वयं सेवी संस्थायें	00		

4. वित्तीय संसाधन – ग्राम पंचायत के पास वित्तीय वर्ष में उपलब्ध होने वाले संभावित वित्तीय संसाधन का विवरण निम्नवत् है–

मद	**धनराशि**	**वर्ष**	**अन्य**
राज्य एवं केन्द्रीय वित्त आयोग	12 लाख	2022–23	–
मनरेगा	12 लाख	2022–23	–
स्वयं के राजस्व का स्त्रोत	–	–	–

क्लाईमेट स्मार्ट ग्राम पंचायत (स्वामी मुस्तकिल) कार्य योजना

ग्राम पंचायत स्वामी मुस्तकिल में समुदाय के साथ समूह चर्चा एवं ग्राम प्रधान ,पंचायत सचिव एवं अन्य के साथ बैठकर विषय वार बिन्दुओ ंपर गांव की आपदा के परिपेक्ष्य में वर्तमान स्थिति, समस्याओं के निराकरण हेतु विशिष्ट कार्ययोजना के बारे मे ंजानकारी प्राप्त की, विचार विमर्श के उपरान्त जलवायु परिर्वतन, आपदा न्यूनीकरण के तहत क्लाईमेट स्मार्ट ग्राम पंचायत कार्ययोजना तैयार की गयी। जिसमे ंजोखिम के कारण एवं समाधान आदि का व्यौरा तैयार किया गया जो कार्य योजना निम्नवत् है।

क्र. सं.	कार्य का क्षेत्र	कार्य का नाम	कार्य का विवरण	परिसम्पत्ति का स्थान	काअनुमानित ध0रा0	अवधि	योजना का परिव्यय
1	2	3	4	5	6	7	8
1	सैक्टर–1 मानव विकास एवं सामाजिक सुरक्षा, साफ–सफाई एवं स्वच्छता	पानी की टंकी का निर्माण	पानी की टंकी का निर्माण एवं हर घर पानी का कनैक्शन	नगला सीताराम	20 लाख	3 माह	केन्द्र वित्त/राज्य वित
2		शौचालय निर्माण,	सभी मजरों में 50 शौचालय निर्माण, विकलांगजन हेतु शतप्रतिशत शौचालय निर्माण।	कैलाश–13 नगला नाथू–15 नगला छीतर–12 नगला सीताराम में 10	06 लाख	2 माह	राज्य वित
3		कूड़ेदान रखवाना	सभी मजरों में 25 कूड़ा पात्र रखवाना	कैलाश– 5 नगला नाथू–10 नगला छीतर– 5 एवं नगला सीताराम–5 कुल 25 कूड़ापात्र,	50 हजार	1 माह	राज्य वित
4		सफाईकर्मियों की नियुक्ति	3 सफाई कर्मचारियों की नियुक्ति	नगला नाथू–1 नगला छीतर– 1 एवं नगला सीताराम–1	3 लाख 60 हजार प्रतिवर्ष	1माह	केन्द्र/राज्य वित्त
5		नालियों का निर्माण	जलनिकासी हेतु टूटी–फूटी नालियों का निर्माण एवं जलनिकास प्रबंधन	1–नगला नाथू में प्रताप के घर से निहाल सिंह की दुकान तक 300 मी0 नाली निर्माण	5 लाख	2 माह	केन्द्र/राज्य वित्त
6		नालियों का निर्माण	जलनिकासी हेतु टूटी–फूटी नालियों का निर्माण एवं जलनिकास प्रबंधन	2– नगला सीताराम में विनोद के घर से गांव के निकास तक (खेतों की ओर) 200 मी0 नाली निर्माण	3 लाख	2 माह	केन्द्र/राज्य वित

7		फेमिली हैल्थ सेन्टर निर्माण	ग्राम स्वामी में एक फेमिली हैल्थ सेन्टर का निर्माण	नगला नाथू	5 लाख	4 माह	केन्द्र/राज्य वित
8		माध्यमिक विद्यालय का निर्माण	माध्यमिक विद्यालय का निर्माण	नगला छीतर जू0 हा0 स्कूल उच्चीकृत कर माध्यमिक करना	10 लाख	4 माह	केन्द्र/राज्य वित्त
9	सैक्टर–2 बुनियादी/ आधारभूत संरचना एवं पर्यावरण	आंगनबाड़ी के भवन निर्माण	3 आंगनबाड़ी के भवन निर्माण	नगला नाथू, कैलाश एवं नगला सीताराम में आंगनबाड़ी केन्द्र भवन निर्माण	15 लाख	4 माह	केन्द्र/राज्य वित
10		मार्ग प्रकाश हेतु स्ट्रीट लाइट	50 स्ट्रीटलाइट लगवाना	18 नगलानाथू, 10 नगला छीतर, 10 नगला सीताराम एवं 12 कैलाश	2 लाख	2 माह 15 दिन	केन्द्र/राज्य वित
11		विद्यालय एवं पंचायत भवन पर सोलर लाइट	3 विद्यालय एवं 1 पंचायत भवन पर कुल 4 सोलर पैनल इन्स्टालेशन की आवश्यकता है।	2 कैलाश, 1 नगलानाथू एवं 1 नगलाछीतर	8 लाख		केन्द्र/राज्य वित
12		मेड बंदी	यमुना किनारे के खेतों मे ऊंची–ऊची मेड बंदी	नगला नाथू, नगला छीतर	10 लाख	3 माह	मनरेगा
13		वृक्षारोपण व ट्री गार्ड	मिट्टी कटान रोकने हेतु मेड़ो एवं सम्पर्क मार्गों पर वृक्षारोपण (800) व ट्री गार्ड	नगला नाथू, नगला छीतर, कैलाश, नगला सीताराम	10 लाख	3 माह	मनरेगा/ केन्द्र/राज्य वित
14		नाला निर्माण	4 नालों का निर्माण	1– नगला छीतर 300 मीटर नाला निर्माण (भूरे सिंह के घर से पप्पू यादव के घर तक)	15 लाख	4 माह	केन्द्र/राज्य वित्त
15				2– नगला नाथू 500 मीटर का नाला निर्माण (शिव मन्दिर से भूरी के खेत तक)	20 लाख	4 माह	केन्द्र/राज्य वित्त
16				3– नगला नाथू 500 मीटर का नाला निर्माण (पंचायत घर से डालचन्द्र के खेत तक)	20 लाख	4 माह	केन्द्र/राज्य वित

17				4–कैलाश 300 मीटर नाला निर्माण (कैलाश मन्दिर गेट से यमुना तक)	15 लाख	4 माह	केन्द्र/राज्य वित्त
18	सैक्टर–2 बुनियादी/ आधारभूत संरचना एवं पर्यावरण	गली/ रास्ता निर्माण	जल जमाव रोकने हेतु रास्तों का निर्माण	1– नगला सीताराम (नाहर सिंह के घर से विजय के घर तक) 80 मी0 आर0सी0सी0 निर्माण	6 लाख	1 माह	केन्द्र/राज्य वित्त
19				2– नगला नाथू (पंचायत घर स डालचन्द्र के खेत तक) 500 मी0 आर0सी0सी0 निर्माण	50 लाख	4 माह	केन्द्र/राज्य वित्त
20		सम्पर्क मार्ग का निर्माण	कैलाश मन्दिरसे नगला नाथू सम्पर्क मार्ग का निर्माण	रामलाल वृद्ध आश्रम से शिवमन्दिर नगला नाथू सड़क निर्माण 01 कि0मी0	90 लाख	6 माह	केन्द्र/राज्य वित्त
21			वाईंपुर सम्पर्क मार्ग से नगला नाथू सम्पर्क मार्ग	मुर्गी फार्म से प्राथमिक विद्यालय स्वामी तक सड़क निर्माण 700 मी0	50 लाख	6 माह	केन्द्र/राज्य वित्त
22		तालाब/पोखर निर्माण	ग्राम पंचायत में तालाब/पोखर	नगला नाथू	10 लाख	3 माह	मनरेगा

ट्रांजेक्ट भ्रमण

सलंग्नक संख्या–02

ट्रांजेक्ट भ्रमण में अवलोकित की गई स्थितियां सारणी में निम्नवत हैं–

1	बसाहट	चार मजरे(गॉव) ❖ ग्राम पंचायत स्वामी मुस्तकिल में 4 मजरे कैलाश, नगला नाथू, नगला छीतर एवं नगला सीताराम हैं। ❖ कैलाश में 208 परिवार जिनमें 7 सामान्य 197 अन्य पिछडे एवं 4 अनसूचित जाती से हैं , सबके घर पक्के बने हैं। ❖ नगला नाथू में 230 परिवार जिनमें 2 सामान्य 220 अन्य पिछडे एवं 8 अनूसूचित जाति के परिवार हैं जिनके अधिकांश घर पक्के हैं एवं 15 घर मिटटी फूॅस आदि से निर्मित कच्चे घर हैं। ❖ नगला छीतर में 115 परिवार जिनमें 15 सामान्य 62 ओबीसी एवं 38 अनूसूचित परिवार हैं यहॉ अधिकांश घर पक्के जबकि 8 घर कच्चे हैं। ❖ नगला सीताराम में 85 परिवार निवास कर रहे हैं जिनमें 81 अन्य पिछडे एवं 4 अनूसूचित परिवार हैं यहां भी 78 पक्के और 7 घर कच्चे हैं।
2	बाग–बगीचा	❖ नगला नाथू एवं नगला छीतर में मिलाकर 8 फलों के बाग हैं जिनमें लगभग 1050 फलों के वृक्ष हैं जिनमें मुख्य रूप से कीनू , जामुन , कटहल, आम ,शहतूत , अमरूद, नींबू, बेर, केला, एवं बेल हैं।
3	हरित क्षेत्र	❖ गॉव में 300.45 एकड कृषि भूमि है जिसमें मुख्य रूप से गेहूं सरसों बाजरा एवं सब्जी की फसल उगाई जाती है।
4	भौतिक संसाधन	❖ गॉवं में एक पंचायत भवन , 2 जूनियर हाईस्कूल, 2 प्राथमिक विघालय हैं। ❖ एक बडीं पानी की टंकी है जो उपयोग में नहीं है। ❖ 27 सरकारी हैण्डपंप, 23 व्यक्तिगत हैण्डपंप एवं खेती हेतु 71 टयूबवेल हैं। ❖ गॉव में एक सामुदायिक शौचालय एवं 386 इज्जतघर(अनुदानित) एवं 197 व्यक्तिगत शौचालय हैं । ❖ गॉव में 9 कुऍ हैं जो सूखे एवं निष्प्रयोज्य हैं। ❖ एक सरकारी राशन की दुकान है। ❖ गॉव में एक वृद्धाश्रम एवं एक गौशाला है।
5	नाला/नाली	❖ गॉव में 2 बडे कच्चे नाले हैं। ❖ गॉव में पक्की नालियॉ हैं जो जलभराव के कारण टूटी–फूटी हैं।
6	तालाब	❖ वर्तमान में गॉव में कोई तालाब नहीं है ग्रामीणों के अनुसार पूर्व में एक तालाब था जिस पर अतिक्रमण है।
7	नदी	❖ गॉव में यमुना नदी प्रवाहित हो रही है।

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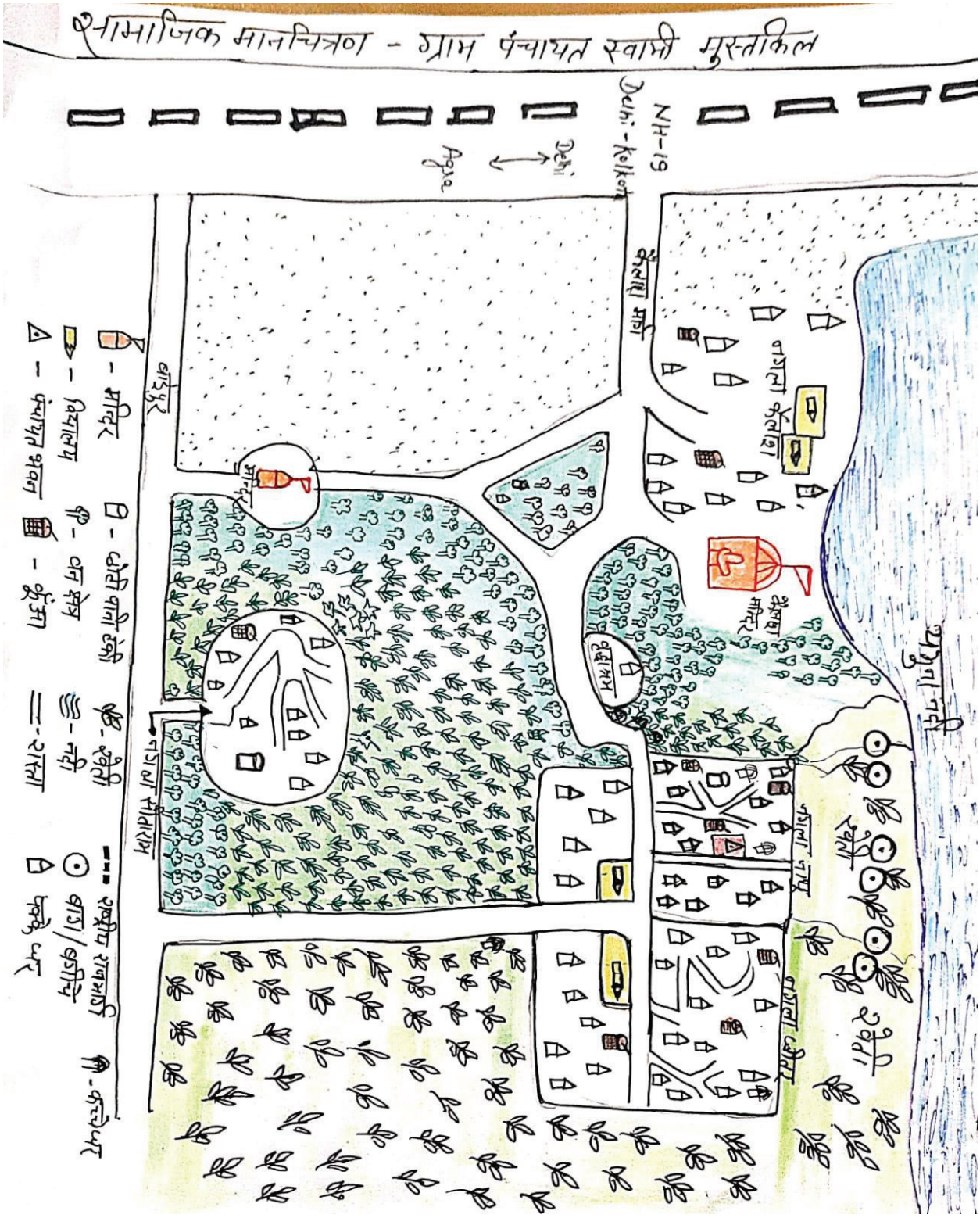
सामाजिक मानचित्रण

संलग्नक संख्या–04



ऐतिहासिक समयरेखा गतिविधि

संलग्नक संख्या 05

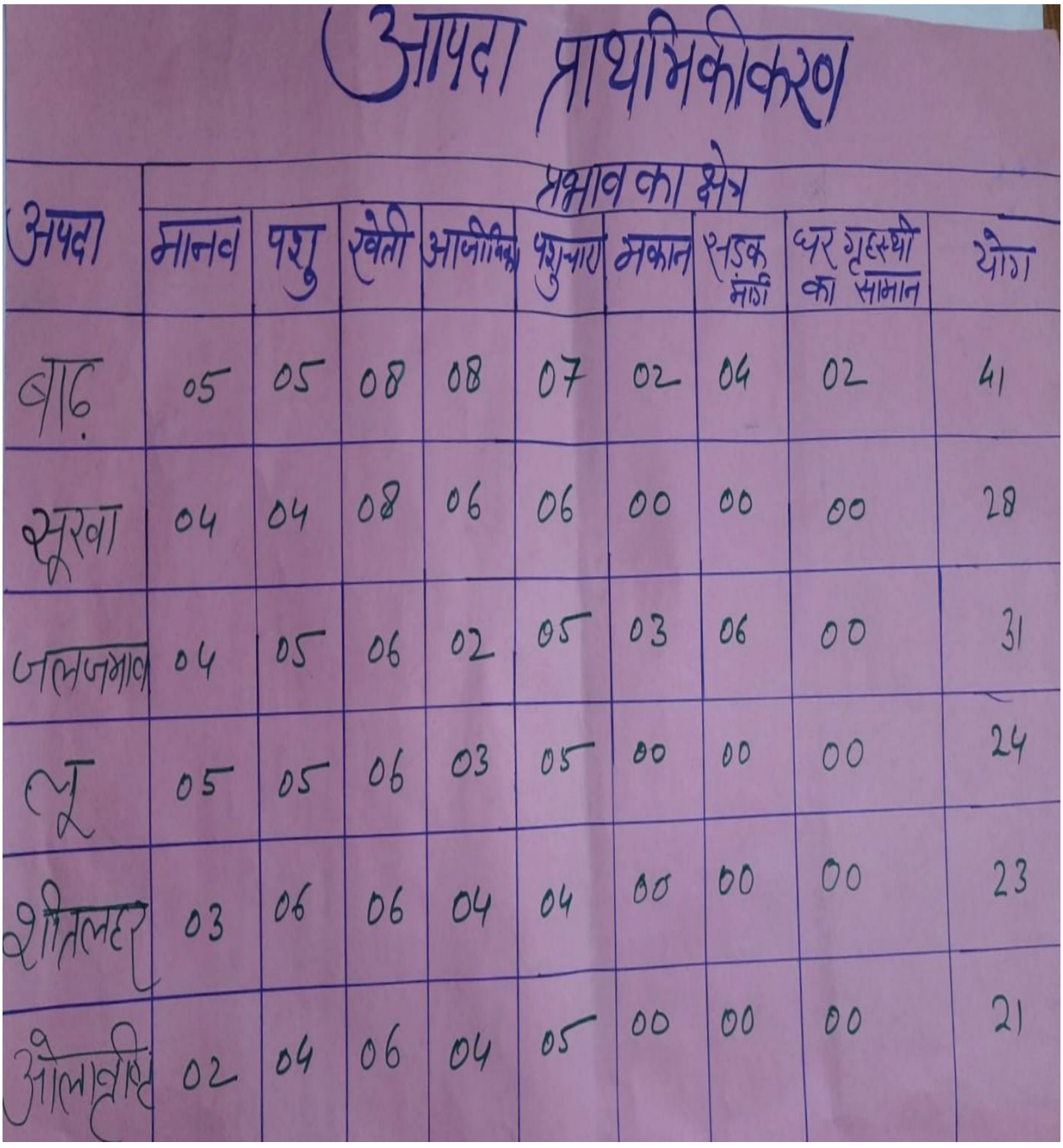
ऐतिहासिक समयरेखा

संलग्नक संख्या 06

क्रम	वर्ष	आपदा/खतरा	घटनांओ के कारण	प्रभावित लोगों की सख्या	आर्थिक क्षति	न्यूनीकरण हेतु किया गया कार्य
1	1978	बाढ	अत्यधिक बारिश ,बांध का न होना	पूरा गॉव	255 एकड खेती डूब गई	सरकार द्वारा बांधो का निर्माण
2	1991	आंधी तूफान	खराब मौसम	65 परिवार	110 एकड खेती एवं 40 कच्चे घर	कुछ ग्रामीणों द्वारा पक्के घरो का निर्माण
3	1996	सूखा	बारिश का कम होना	पूरा गॉव	110 एकड खेती	नलकूप निर्माण
4	2010	बाढ	अत्यधिक बारिश एवं यमुना का जलस्तर बढने से	350 परिवार	165 एकड फसल डूब गई	कोई कार्य नहीं
5	2013	बाढ	अत्यधिक बारिश एव उत्तराखंड त्रासदी से आई बाढ	225 परिवार	120 एकड फसल डूब गई	कुछ किसानों द्वारा खेतो पर उंची मेडबन्दी
6	2018	लू	तापमान बढने से	18 लोग एवं 25 पशु बीमार	बीमारी पर हुआ व्यय	कोई कार्य नहीं
7	2020–21	कोविड–19 महामारी	आगरा पर्यटन केन्द्र होने एवं गॉव के नजदीक होने से प्रभावित लोग	6 लोग बीमार	लॉकडाउन लगने से रोजगार बाधित	टीकाकरण

आपदा प्राथमिकीकरण चित्रण

संलग्नक संख्या 07



आपदा प्राथमिकीकरण

आपदा	प्रभाव का क्षेत्र								
	मानव	पशु	खेती	आजीविका	पशुचारा	मकान	सड़क मार्ग	घर गृहस्थी का सामान	योग
बाढ़	05	05	08	08	07	02	04	02	41
सूखा	04	04	08	06	06	00	00	00	28
जलजमाव	04	05	06	02	05	03	06	00	31
लू	05	05	06	03	05	00	00	00	24
शीतलहर	03	06	06	04	04	00	00	00	23
ओलावृष्टि	02	04	06	04	05	00	00	00	21

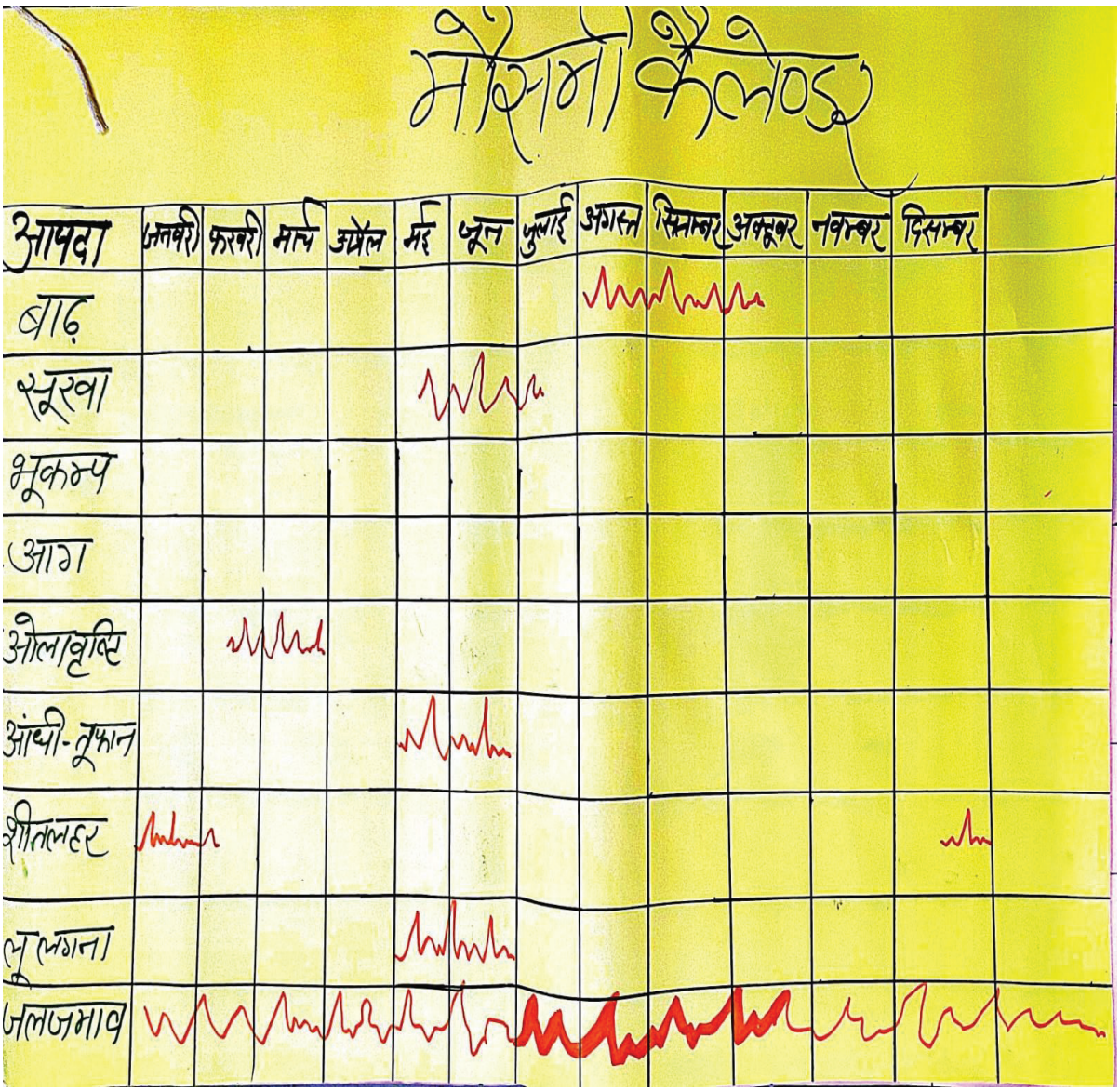
नोट :–

★ग्रामीणों के साथ किया गया आपदा प्राथमिकीकरण में बाढ़, जल–जमाव, सूखा, लू, शीतलहर और ओलावृष्टि को कमशः प्रथम , द्वितीय, त्रतीय, चतुर्थ, पंचम व छठें स्थान पर रखागया है ।

✶ शून्य सबसे कम और 08 से सबसे अधिक प्रभाव की तीव्रता को दर्शाया गया है ।

आपदाओं का मौसमी चित्रण

संलग्नक संख्या 08



नोट :– जल जमाव वर्षभर रहता है किन्तु जुलाई से मध्य अक्टूवर तक वर्षकाल में यह स्थिति और अधिक गंभीर होजाती है, जिसे गहरी लाइनों–गहरे रंग में दर्शाया गया है ।

आजीविका के साधनों पर आपदाओं का प्रभावः–

संलग्नक संख्या 09

क्रमांक	आजीविका के प्रकार	परिवार की संख्या	आपदा	आपदा का प्रभाव			क्या प्रभाव पडता है
				अधिक	मध्यम	कम	
1	कृषि	496	जलजमाव		■		• लगभग 18 एकड की फसल खराब हो जाती है। • मार्ग पर जलजमाव होने से आवागमन प्रभावित होता है जिससे कृषिगत गतिविधियों में समस्या होती है • सब्जी , गेंहू, सरसों की फसल में रोग लग जाते हैं। • कम दिन जलजमाव के क्षेत्र में भी उपज प्रभावित होती है।
			बाढ	■			• यमुना किनारे की लगभग 150 एकड फसल डूब जाती है। • बाढ से फसल में रोग लग जाते हैं • सब्जी की फसल सड जाती हैं।
			सूखा		■		• सिंचाई व्यय अधिक हो जाता है। • फसलों का उत्पादन कम हो जाता है । • फसल सूख जाती है।
			शीतलहर			■	• फसलों में पाला पड जाता है। • फसलों की पैदावर प्रभावित होती है।
2	मजदूरी	40	जलजमाव		■		• आवागमन बाधित होता है। • रोजगार बाधित होता है। • कृषि कार्य में मजदूरी बाधित होती है।
			बाढ		■		• कृषि कार्य में मजदूरी बाधित होती है। • आजीविका प्रभावित होती है।

							• आर्थिक संकट उत्पन्न होता है।
			सूखा				• आजिविका प्रभावित होती है। • खान–पान पर प्रभाव पडता है
			शीतलहर				• स्वास्थय खराब हो जाता है। • काम पर नहीं जा पाते है।
3	पशुपालन(गाय,भैस,बकरीपालन)	300	जल जमाव				• फसल खराब होने से चारा नहीं मिल पाता है। • चारे की गुणवत्ता खराब हो जाती है। • खराब चारा खाने से पशु बीमार हो जाते हैं। • पशुओं के गिरकर चोटिल होने का खतरा रहता है।
			बाढ				• खेतों में पानी भरने से चारे का संकट हो जाता है। • बाढ से पशुओं में बीमारियों का खतरा रहता है।
			सूखा				• चारे की कमी हो जाती है। • दुग्ध उत्पादन कम हो जाता है।
			शीतलहर				• पशु बीमार हो जाते हैं। • उत्पादन पर प्रभाव पडता है।

प्रधान एवं पचायंत सचिव के साथ कार्ययोजना तैयार करते हुये

संलग्नक संख्या 10

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.)[115] = **Rs. 70 per tree** (saplings are also available at no cost from DoEFCC, GoUP) Tree Guards (metal)[116] = **Rs. 1,200 per unit** Maintenance of plantations: **1.5 lakh/ha**	Sequestration potential estimated based on teak species - 5.6 to 10 tCO_2e sequestered per tree Plantation density for agro forestry is considered 100 trees/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 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		
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[117] = **Rs. 40,000/ hectare**[118]	

115 Cost as per plantation guidelines and inputs from GPs
116 Cost as per market rates
117 Cost as per Sub-mission on Agroforestry Guidelines, National Mission for Sustainable Agriculture
118 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**[119]**= 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[120]= **Rs. 90,000**	

119 Cost as per inputs received from GPs in HRVCA
120 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
4	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 harvesting plants--> 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[121]: Area (ha) * E -> 2.471 * 1,00,000 = **Rs. 2,47,100**	

121 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	Rainwater harvesting (RwH) structures	**Phase 1**: Installation of rainwater harvesting structures (RwH) in all PRI buildings + recharge pits (as recommended in HRVCA) **Phase 2**: 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 3**: 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[122]= **Rs. 35,000** Cost of 1 recharge pit= **Rs. 35,000**	

122 Rooftop Rainwater Harvesting Guidelines, Indian Standards (IS 15797:2008)

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	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 1**: Cleaning, desilting & fencing of water bodies + Tree plantations (1000) around periphery of water bodies (along with tree guards) **Phase 2**: Additional 100 tree plantations (along with tree guards) around water bodies + continued maintenance of water bodies **Phase 3**: Continued maintenance of water bodies	Approximate Cost[123]: 1. Restoration (cleaning, desilting, increase in catchment area, etc.) of 1 pond = **Rs. 7 Lakhs** 2. Construction of 1 Retention Pond (300 m^3 capacity) = **Rs. 7 Lakhs** 3. Tree plantation with tree guard = **Rs. 1,200 per unit** 4. Maintenance Cost: a. 1 Pond/water body = **Rs. 3, 75,000** b. 1 Retention Pond = **Rs. 50,000** c. Tree with tree guard = **Rs. 20 per unit**	
3	Enhancing drainage and sewerage infrastructure	**Phase 1**: Repair of broken drains and drainage management + enhancing drainage infrastructure (construction of new drains) Construction of canals for ground water recharge and agricultural irrigation Construction of DEWATS based on need assessment for sewage treatment **Phase 2 & 3**: Maintenance of existing drains, canals and STP Construction of additional drains & canals (if required)	Refer mostly to the costs provided in the HRVCA document For DEWATS/ Oxidation Pond: For every GP with 5000 population and water supply quantity as 100 l/ person/day,	

123 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
			Wastewater generated is 70% of the water supply, therefore total wastewater generated is 3,50,000 litres/day or 0.35 MLD So, considering future demand, **estimated capacity of DEWATS/ Oxidation Pond = 0.70 MLD** (doubling the existing wastewater generated) **Cost for 1 MLD capacity DEWATS/ Oxidation Pond is Rs. 50 Lakhs**, therefore for 0.7 MLD DEWAT will be around Rs. 40 Lakhs	
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[124]: **Rs. 50,00,000 per km**	
2	Enhancing Intermediate Public Transport (IPT)	E-rickshaws as per inputs on requirement of GP	Cost of 1 e-rickshaw: **~ Rs. 50,000** Available subsidy: up to **Rs. 10,000 per vehicle**	

124 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
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	
Sustainable solid waste management				
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[125] = 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.)	

125 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. GP-level recycling and plastic shredder unit b. Installation of additional waste bins c. Provision for additional Electric Garbage Vans d. Maintenance of existing facilities/ infrastructure e. Scaling up partnership	No. of plastic shredder unit = 1 per GP 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[126]: 1. 1 Electric Garbage Van = Rs. 95,000 to 1,00,000 2. 1 waste bins/ containers[127] = Rs. 15,000 3. Plastic shredder unit[128] = Rs. 50,000 per unit	
2	Management of organic waste	**Phase 1**: 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	Potential compost quantity (kg per day) which can be generated[129] = amount (kg/day) of organic waste / 2	

126 Cost as per market rates

127 Cost as per SBM guidelines and inputs in HRVCA reports

128 Cost as per market rates

129 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
		Phase II and III: a. Maintenance and increasing compost pits capacity b. Scaling up partnership	Cost[130]: 1. Compost Pits cost reference: 30 vermicomposting and 15 Nadep compost pits = **Rs. 4,50,000** 2. Solid Waste Management Yard (for both organic and inorganic waste) cost[131] reference: **Rs. 35,00,000**	
3	Ban on single-use-plastics	**Phase I**: 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 II: 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 III: 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	

130 Cost as per inputs received from GPs in HRVCA

131 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
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.[132] 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<

132 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 Households level= No. of Households * 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[133] No. of units of clean electricity generated per day= Annual Electricity generated/ 365	

133 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**[134] No. of units of clean electricity generated per day= Annual Electricity generated/ 365	

134 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[135]	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**[136]	

135 Cost as per market rates and PMKSY guidelines

136 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 Households 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 Households **Phase 3**: All fans in all Households 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**[137]	
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**[138]	
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**[139]	

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

138 Costs as per market rates

139 Costs as per market norms

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

Name of plants	Family	Local names	Uses/ Medicinal properties
Amorphophallus paeoniifolius Dennst	Araceae	Elephant foot, Zimi Kand	Eaten as vegetable.
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!