



Locally-led Climate Action in the Global South: Learning from Communities

Annexure A Alignment of national schemes with LLCA design features

February 2026 | Report

Authors

Ishita Gupta
Lalitha Ramalingan
Taveri Rajkhowa
Aryan Bajpai
Vanya Pandey
Shreya Wadhawan

Annexure A: Alignment of National Schemes with LLCA Design Features

Several Indian government policies and programmes aimed at climate adaptation and mitigation increasingly reflect elements that align with the core design features of Locally Led Climate Action (LLCA). While the extent of alignment varies across schemes, many of these policies underscore the potential of LLCA-aligned approaches to enhance the effectiveness, contextual relevance, and long-term sustainability of climate action in the country. Furthermore, aligning Indian policies with LLCA principles is essential for advancing the objectives articulated in India's National Adaptation Communication (NAC), National Action Plan on Climate Change (NAPCC), State Action Plans on Climate Change (SAPCCs), and the country's Nationally Determined Contributions (NDCs).

A structured assessment was undertaken to examine the degree to which Indian climate-related policies and programmes integrate LLCA principles. The operational guidelines and mission documents of Indian policies were analysed against the three key design features of LLCA, where each design feature was further operationalised through a set of indicators.

Schemes/ Programmes/ Missions related to Climate Mitigation in India

1. Deen Dayal Upadhyaya Gram Jyoti Yojana

The Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) is a central government scheme aimed at strengthening rural electricity infrastructure and ensuring reliable power supply in villages across India. From a climate mitigation perspective, it promotes energy efficiency by separating agricultural and non-agricultural feeders, reducing transmission losses and enabling better load management. The scheme also facilitates the integration of decentralised renewable energy in rural areas, reducing reliance on diesel and biomass. Its implementation across all states has improved energy access while supporting cleaner, more sustainable rural development. By advancing low-carbon energy transitions in rural regions, DDUGJY aligns with India's NDC targets of reducing emissions intensity and expanding non-fossil fuel-based power.

Rationale for aligning with the design features of LLCA

The scheme has limited alignment with the three design features. The scheme is largely centrally designed and implemented through state power distribution companies (DISCOMs), with minimal direct financial control or decision-making authority at the local level. While village-level electrification data is used to identify target areas, local governance bodies such as Panchayati Raj Institutions (PRIs) have little involvement in planning, budgeting, or overseeing investments. Local stakeholders, including Gram Panchayats and civil society organisations, are not systematically involved in shaping project priorities or ensuring equitable service delivery. Additionally, there is no systematic use of climate risk data, emissions baselines, or long-term climate strategies to guide infrastructure planning or technology choices.

2. Integrated Power Development Scheme

The Integrated Power Development Scheme (IPDS) is a central government initiative aimed at strengthening sub-transmission and distribution networks in urban areas to ensure a reliable and quality power supply. From a climate mitigation perspective, the scheme focuses on reducing Aggregate Technical and Commercial (AT&C) losses, improving energy efficiency, and facilitating the integration of cleaner power sources into urban grids. By modernising infrastructure and promoting smart metering, the IPDS helps lower energy wastage and enhances the overall efficiency of the power sector. Its nationwide implementation across towns and cities supports the reduction of fossil fuel dependency by enabling better grid management and cleaner energy delivery. Through these measures, the IPDS contributes to India's NDC targets by improving energy efficiency and reducing the emissions intensity of its power sector.

Rationale for aligning with the design features of LLCA

The Integrated Power Development Scheme (IPDS) aligns only modestly with the LLCA design feature of strengthening subsidiarity for climate finance. While the scheme empowers state-level distribution utilities (DISCOMs) to implement urban infrastructure upgrades, the core design, funding approvals, and oversight remain firmly in the hands of central agencies like the Ministry of Power and Power Finance Corporation. Funding is provided in fixed central-state shares (60 per cent central, 25 per cent state, with additional performance-linked grants), leaving minimal discretion at city or municipal levels to redirect finance towards locally-identified climate priorities. There are no mechanisms for municipal bodies or Ward committees to lead decision-making or allocate climate-focused funds within IPDS. While state-level nodal agencies may customise technical bidding documents in consultation with utilities, financial authority, and strategic control remains vertical and centralised.

While smart metering and IT-based billing systems improve transparency and accountability, they primarily serve financial efficiency goals and do not include participatory decision-making by urban communities. There is no co-design process that incorporates input from marginalised groups or local stakeholders into the prioritisation of grid upgrades or feeder investments.

3. Smart Meter National Programme

The Smart Meter National Programme (SMNP) is an ambitious central initiative aiming to replace 250 million conventional electricity meters with smart meters across India by 2025–26 under the Revamped Distribution Sector Scheme (RDSS). It is implemented by Energy Efficiency Services Limited (EESL) through a Design-Build-Finance-Operate-Transfer (DBFOOT) model, requiring no upfront cost from states or utilities. From a climate mitigation standpoint, smart meters enhance energy efficiency by accurately monitoring consumption, reducing AT&C losses and enabling demand-response strategies and ToD pricing for better load balancing. These deployments improve billing transparency, support grid modernisation, and facilitate integration of renewable energy into distribution systems. SMNP directly supports India's NDC goals of lowering emissions intensity (by 45% by 2030 relative to 2005) and increasing non-fossil fuel electricity capacity to 50% by 2030.

Rationale for aligning with the design features of LLCA

By enabling real-time energy monitoring, load forecasting, and demand-response management, the programme directly supports data-driven investments in grid efficiency and renewable energy integration. However, the programme is centrally driven by EESL with financing and implementation managed through national-level contracts, leaving little scope for local institutions to influence funding decisions. On participation and inclusion, SMNP lacks structured community engagement or citizen input in planning or rollout phases, although it indirectly empowers consumers by improving billing transparency and enabling more efficient energy use.

4. Perform Achieve and Trade (PAT) Scheme

The Perform Achieve and Trade (PAT) Scheme is a market-based energy efficiency initiative launched under India's National Mission on Enhanced Energy Efficiency (NMEEE), targeting energy-intensive industrial sectors to achieve prescribed specific energy consumption reductions. Industries that over-achieve are awarded Energy Saving Certificates (ESCerts), which they can trade with under-performing units, thereby incentivising continuous improvement in efficiency across sectors like cement, iron and steel, power plants, textiles, and paper. The scheme's nationwide reach covers over 1,000 designated consumers across all major industrial states, collectively delivering substantial energy savings, reduced fuel use, and lower CO₂ emissions. As a result, PAT plays a significant role in decoupling growth from carbon intensity, helping India meet its Nationally Determined Contribution (NDC) goals of reducing emissions intensity by 45 per cent by 2030 relative to 2005 levels.

Rationale for aligning with the design features of LLCA

The scheme is grounded in energy audits, baseline emission intensity metrics, and real-time monitoring of energy performance to guide industrial investments. However, the scheme does not adhere to the indicators under subsidiarity as financial incentives and compliance targets are centrally defined by the government and statutory bodies, with no control or allocation authority at the local or facility level. Additionally, the scheme does not institutionalise stakeholder engagement or community participation; it primarily engages designated consumers (industries), rather than enabling broader community input or empowerment.

5. National Program on Energy Efficiency and Technology Upgradation in Small and Medium Enterprises (SMEs)

The National Program on Energy Efficiency and Technology Upgradation in SMEs is a government initiative focused on enhancing energy efficiency and promoting the adoption of cleaner, more advanced technologies in small and medium enterprises (SMEs) across India. It offers technical support, energy audits, and financial assistance to help SMEs upgrade inefficient equipment and optimize energy use. Targeting sectors such as food processing, foundries, textiles, and engineering goods, the program reaches thousands of SMEs throughout industrial clusters nationwide. By reducing energy consumption and fuel-related emissions, it directly contributes to lowering industrial carbon intensity. The program supports India's NDC commitments by aiding in the reduction of emissions intensity and fostering broader uptake of non-fossil fuel-based energy use by 2030.

Rationale for aligning with the design features of LLCA

The National Program on Energy Efficiency and Technology Upgradation in SMEs demonstrates notable strengths in promoting data-driven investments: energy audits, baseline energy

assessments, and performance monitoring underpin targeted support for cleaner equipment adoption. Financial incentives and capacity building are channelled through central agencies and implementers, so there is limited opportunity for local or enterprise-level control over funding decisions. Community empowerment and participatory planning are not formal components; instead, uptake depends on SME-level engagement and awareness, rather than broader stakeholder involvement. While the program helps diffuse low-carbon technologies among SMEs, it lacks mechanisms to decentralise decision authority or institutionalise inclusive, locally-led planning.

6. Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM-KUSUM)

The Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) is a flagship programme to solar-power Indian agriculture by installing decentralized solar plants, standalone pump sets, and solarising grid-connected pumps, targeting nearly 35 GW capacity by 2026. It aims to reduce diesel and grid electricity use for irrigation, enhance farmers' incomes through solar energy generation, and drive cleaner irrigation systems across rural India. With already several gigawatts commissioned and hundreds of thousands of pumps deployed nationwide, PM-KUSUM has reached millions of farmers across states like Rajasthan, Haryana, Maharashtra, Uttar Pradesh and others. By displacing fossil fuel usage in agriculture and scaling up solar generation, the scheme contributes directly to lowering greenhouse gas emissions. It aligns with India's NDC commitments by helping achieve targets for increasing non-fossil fuel power capacity and reducing emissions intensity by 2030.

Rationale for aligning with the design features of LLCA

The PM-KUSUM programme showcases strong alignment with data-informed climate investments, as project selection and subsidy allocation are guided by solar resource mapping, irrigation demand, and load-benefit analyses to maximise clean energy output and diesel displacement. Financial support is administered through a mix of central and state agencies, with eligibility and approval criteria set nationally—local institutions and farmers have limited discretion over fund allocation or project design. Participation and empowerment occur indirectly: farmers choose whether to opt in, but formal community engagement or co-design mechanisms are absent. While it significantly expands decentralised solar irrigation and reduces emissions at the grassroots level, the programme does not embed mechanisms for local decision-making authority or inclusive planning across diverse stakeholder groups.

Schemes/ Programmes/ Missions related to Climate Adaptation in India

1. National Water Mission

The National Water Mission (NWM) is a flagship component of India's National Action Plan on Climate Change, focused on conserving water resources, promoting efficient water use, and ensuring sustainable water management across sectors. It supports practices like micro-irrigation, wastewater recycling, and watershed development to reduce energy-intensive water extraction and greenhouse gas emissions. The mission reaches across all Indian states and union territories, influencing planning at the national, state, and district levels through policy reforms and capacity-building initiatives. By promoting energy-efficient water-use technologies and sustainable practices, NWM indirectly curbs fossil fuel consumption in agriculture and urban water supply.

Rationale for aligning with the design features of LLCA

The National Water Mission aligns with LLCA principles by grounding investments in climate-informed data and locally relevant strategies. Its interventions, such as water budgeting, district-level action plans, and watershed schemes, are informed by hydrological assessments, efficiency models, and climate projections. Financing for mission-related projects follows centrally defined frameworks, with limited discretion for sub-national or community-led resource allocation. Community involvement is facilitated through tools like Participatory Irrigation Management and village water budgets, yet these mechanisms stop short of fully empowering local stakeholders in design or financial decision-making. While the mission enables more sustainable water-energy linkages at state and district levels, deeper local-level authority and co-governance structures remain underdeveloped.

2. The Dam Rehabilitation and Improvement Programme

The Dam Rehabilitation and Improvement Programme (DRIP) is a central government initiative to enhance the safety, operational efficiency, and climate resilience of ageing dams across India through modernisation, monitoring systems, and structural upgrades. DRIP improves hydropower generation performance and reduces water loss and related energy wastage by optimising reservoir operations. The programme covers dozens of major and medium dams in states like Maharashtra, Madhya Pradesh, Kerala, Bihar, and Uttar Pradesh. By boosting clean energy output and reducing inefficiencies in water storage and release systems, DRIP contributes to lower carbon intensity in India's energy matrix. These outcomes align with India's NDC goals by enhancing low-carbon hydropower capacity and reducing emissions associated with energy generation.

Rationale for aligning with the design features of LLCA

The Dam Rehabilitation and Improvement Programme incorporates climate-informed decision-making by leveraging dam safety assessments, hydrological data, and performance monitoring to prioritise upgrades that enhance hydropower output and reduce inefficiencies in water use. However, funding decisions and project approvals are centrally driven through agencies like the World Bank, Central Water Commission, and states, offering little scope for local government or community entities to influence finance allocation or project choice. Community engagement is generally limited to stakeholder consultations during implementation, rather than active participation in planning or monitoring. While DRIP strengthens resilience and clean energy infrastructure at a macro level, it does not institutionalise decentralised authority or participatory design processes at the local scale.

3. Jal Jeevan Mission

The Jal Jeevan Mission (JJM) is a flagship national initiative to provide every rural household in India with an assured potable water supply through tap connections by 2024. It encourages adopting energy-efficient water sourcing methods—such as solar-powered pumps and decentralised systems—and promotes water conservation to reduce reliance on electrically intensive groundwater extraction. Its reach extends to every state and union territory, targeting over 200 million rural households through community-led water supply systems. By reducing energy needs in water provisioning and enabling cleaner alternatives, JJM helps decrease emissions associated with water access.

Rationale for aligning with the design features of LLCA

The Jal Jeevan Mission aligns moderately with LLCA principles by anchoring investments in climate- and resource-informed planning. States and districts develop water quality and quantity assessments to guide decisions on solar-powered pumps, rainwater harvesting, and decentralised supply systems. Financial flows, however, are primarily centrally managed with fixed grants and implementation templates, limiting local jurisdiction over fund prioritisation or deployment models. Community engagement is integrated through Village Water & Sanitation Committees (VWSCs), which oversee water supply infrastructure, though broader inclusion or participatory design frameworks are not consistently institutionalised across all project phases. As a result, the mission fosters energy-efficient water provisioning and localised implementation at scale but does not fully devolve decision-making power to rural communities.

4. Namami Gange Programme

The Namami Gange Programme is a flagship integrated mission focused on revitalising and cleaning the Ganga River by reducing pollution, restoring ecosystem health, and enhancing wastewater treatment infrastructure across its basin. The initiative supports projects like sewage treatment plants, riverfront solar installations, and bioremediation systems, measures that lower energy-intensive fossil fuel reliance in wastewater processing and help reduce greenhouse gas

emissions. Operating across states including Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal, it has financed dozens of treatment plants, river cleaning operations, and ecological restoration schemes.

Rationale for aligning with the design features of LLCA

Namami Gange demonstrates alignment with LLCA principles by leveraging data-driven planning, including river pollution mapping, flow modelling, and environmental impact assessments to prioritise wastewater treatment and solar-driven infrastructure across the Ganga basin. However, fund allocation and execution decisions are centrally controlled through national agencies, with limited capacity for local communities or state institutions to direct project finances or operational priorities. Community participation occurs via stakeholder consultations and public hearings, but these mechanisms rarely extend to co-design or financial empowerment at the grassroots. While significant improvements in clean energy use and pollution control are achieved, Namami Gange stops short of institutionalising local authority or truly participatory governance in climate-relevant water interventions.

5. National River Conservation Programme

The National River Conservation Programme (NRCP) is a central government initiative focused on preserving and restoring river ecosystems across India through pollution abatement, riverfront development, and ecological conservation interventions. From a climate adaptation perspective, it enhances urban and rural resilience by improving flood buffer zones, restoring wetlands and riverine vegetation, and strengthening wastewater management to reduce climate-sensitive water risks. Covering numerous rivers in states such as Uttar Pradesh, Tamil Nadu, Karnataka, Gujarat, and Assam, the programme supports infrastructure upgrades and eco-restoration projects in both metropolises and smaller towns. These actions help communities adapt to changing climate patterns, like altered monsoon flows and water stress, by bolstering natural water filtration and flow regulation. Through healthier river systems and adaptive infrastructure, NRCP contributes to sustainable water security and community resilience in a warming climate.

Rationale for aligning with the design features of LLCA

The National River Conservation Programme leverages hydrological and pollution data, such as water quality indices, flood risk mapping, and ecological assessments, to prioritise interventions like wetland restoration and riverfront buffers that bolster resilience. However, financing and project approvals are steered by central agencies, with limited latitude for state or local authorities to direct funds based on community-defined needs. Local involvement is generally limited to consultation processes, lacking formal roles in planning, design, or financial decision-making. While the programme supports climate adaptation via strategic ecosystem restoration and infrastructure upgrades, it does not fully enable downstream communities to lead or co-govern these climate-informed efforts.

6. National Plan for Conservation of Aquatic Ecosystem

The National Plan for Conservation of Aquatic Ecosystem is a central scheme focused on protecting and restoring diverse aquatic habitats across India—lakes, wetlands, reservoirs, and coastal water bodies—through ecological conservation, pollution control, and biodiversity restoration. From a climate adaptation standpoint, it strengthens resilience by maintaining water storage, reducing flood and drought vulnerabilities, and conserving natural buffers like wetlands and floodplains.

Rationale for aligning with the design features of LLCA

The National Plan for Conservation of Aquatic Ecosystems integrates climate- and ecosystem-informed data, such as hydrological assessments, floodplain mapping, and wetland vulnerability analyses, to guide restoration and conservation priorities in lakes, wetlands, reservoirs, and coastal zones. However, funding and project approvals remain centrally orchestrated, with limited flexibility for state or community-level discretion in financing decisions. While the programme incorporates consultation with local stakeholders and engages NGOs during implementation, it does not institutionalise participatory project design or empower communities in financial or governance roles. Consequently, it enhances climate resilience through scientifically informed ecosystem interventions but falls short of enabling local leadership or decentralised decision-making in adaptive ecosystem management.

7. Atal Bhujal Yojna

The Atal Bhujal Yojana (ABY) is a centrally sponsored programme aimed at strengthening groundwater management through community-led water conservation, demand management, and aquifer recharge initiatives in water-stressed regions. From a climate adaptation standpoint, it builds local resilience by empowering gram panchayats in water budgeting, participatory groundwater monitoring, and rainwater harvesting efforts to buffer against erratic monsoons and prolonged dry spells. Implemented across select blocks, it engages rural communities in aquifer mapping and water use planning. The programme institutionalises local water governance and reduces over-extraction, ABY enhances climate resilience at the grassroots and helps communities better cope with growing hydrological uncertainty.

Rationale for aligning with the design features of LLCA

The Atal Bhujal Yojana involves communities in aquifer mapping, water table monitoring, and participatory water budgets to guide recharge infrastructure and conservation interventions. Finance flows are defined within a central framework, offering limited flexibility for Panchayat-level decision-making in fund allocation or project prioritisation. However, the programme actively empowers rural communities via gram panchayat-led water user

associations, participatory monitoring, and collective governance of groundwater resources. While it embeds scientific planning and local-level stewardship, full decentralisation of financial authority remains constrained under centrally governed funding arrangements.

8. National Mission for Sustainable Agriculture

The National Mission for Sustainable Agriculture (NMSA) focuses on building climate-resilient agriculture through sustainable farming practices, soil health management, agro-meteorological advisory services, and water-efficient technologies across India. It promotes drought- and saline-tolerant crop varieties, precision irrigation, integrated farming systems, and farmer training via Krishi Vigyan Kendras. Implemented in all major states and covering diverse agro-climatic zones, NMSA aims to reduce vulnerability in rainfed and irrigated agriculture systems. By enhancing adaptive capacity in crop and soil systems, promoting water- and energy-efficient practices, and supporting resilient livelihoods, the mission contributes to India's climate adaptation objectives at scale.

Rationale for aligning with the design features of LLCA

Grounded in agro-meteorological data, soil health assessments, and regional vulnerability mapping, the NMSA informs interventions like precision irrigation, climate-tolerant crop varieties, and integrated farming suited to local conditions. While financial support through state and national programmes enables implementation, rural communities and farmer groups do not have direct authority over fund allocation or prioritisation within the scheme. Farmer participation takes the form of extension services, advisory inputs, and KVK-led trainings, but broader local co-design or decision-making structures are not institutionalised.

9. National Innovations in Climate Resilient Agriculture

The National Innovations in Climate Resilient Agriculture (NICRA) is a central initiative aimed at enhancing the resilience of Indian farming systems through the development and dissemination of climate-smart technologies, crop varieties, and practices tailored to local agro-climatic zones. It supports farmer participatory trials, demonstration plots, on-farm testing of drought-, heat- and flood-tolerant seeds, and soil-moisture conservation techniques, reaching thousands of villages across select states and institutional partners like ICAR–Krishi Vigyan Kendras. NICRA combines adaptive research with capacity-building among farmers and local extension functionaries to promote context-specific climate adaptation. The initiative strengthens adaptive agricultural capacities and supports India's broader climate resilience objectives.

Rationale for aligning with the design features of LLCA

NICRA leverages locally relevant climate and agro-environmental data, for example, flood and drought projections, soil-moisture mapping, and crop vulnerability assessments, to design

appropriate resilience interventions such as tolerant seed varieties, moisture conservation infrastructure, and cropping pattern adjustments. Central agencies fund and administer the project framework, leaving minimal discretion for farmer collectives or local institutions to decide resource allocation or project scope. Participation occurs through farmer-led trial plots, on-site feedback, and KVK-supported demonstrations, yet formal mechanisms to empower broader community co-design or decision-making structures are absent.

10. Rashtriya Krishi Vikas Yojana

The Rashtriya Krishi Vikas Yojana (RKVY) is a central-state partnership programme aimed at accelerating agricultural growth by providing flexible funding to states for innovation and investment in priority agricultural sectors. From a climate adaptation angle, the scheme supports farmer resilience by funding climate-smart practices such as water-efficient irrigation, agroforestry, weather-resilient cropping systems, and post-harvest infrastructure in diverse agro-climatic zones. By empowering state governments to tailor projects based on local agro-ecological needs, it reaches both irrigated and rainfed regions nationwide. Through decentralised planning and outcome-oriented financing, RKVY enables adaptation interventions scaled across states while strengthening local agricultural systems.

Rationale for aligning with the design features of LLCA

RKVY enables state governments to plan and implement context-specific agricultural interventions, offering greater flexibility in fund allocation and project design based on local agro-climatic conditions. Planning is done through State and District Agriculture Plans, allowing for some responsiveness to regional climate risks, although the integration of granular climate data varies widely by state. While farmer consultations may be part of planning exercises, structured mechanisms for participatory decision-making and community empowerment are not uniformly institutionalised. The scheme's flexibility supports adaptation investments like micro-irrigation, resilient cropping systems, and infrastructure, but local institutions have limited direct control over fund disbursement or co-design authority at the grassroots level.

11. National Rural Livelihood Mission – Deendayal Antyodaya Yojana

The National Rural Livelihood Mission – Deendayal Antyodaya Yojana empowers rural women's Self Help Groups (SHGs) with capacity building, credit access, and livelihoods diversification support, including climate-resilient enterprises such as drought-tolerant agriculture, sustainable forestry, and eco-friendly micro-enterprises. By reaching millions of rural households across all states, it builds resilience among vulnerable communities through group-based savings, skill development, and climate-smart livelihood promotion. The programme fosters community-based resource planning and promotes collective action on sustainable practices. Through its focus on locally managed, resilient income streams, NRLM supports India's climate adaptation goals by strengthening the adaptive capacity of rural households and enhancing livelihood security in the

face of varied climate risks.

Rationale for aligning with the design features of LLCA

National Rural Livelihood Mission – Deendayal Antyodaya Yojana promotes decentralised financial decision-making by empowering Self Help Groups (SHGs) and community-based institutions to manage and allocate funds for livelihoods tailored to local needs. These institutions receive direct financial support, enabling bottom-up planning and co-financing of adaptive livelihood solutions. The programme is rooted in participatory planning through social mobilisation, community resource persons, and village-level institutions, fostering inclusion of women, marginalised groups, and vulnerable households. While climate data is not always explicitly integrated, many supported livelihoods—such as agroforestry, rainwater harvesting, and sustainable agriculture—respond to local climate risks and enhance resilience.

12. National Mission on Agricultural Extension and Technology

Grounded in agro-climatic data and field-level diagnostics, the National Mission on Agricultural Extension and Technology (NMAET) supports targeted deployment of climate-resilient innovations, such as stress-tolerant seeds, precision agronomy tools, and advisory services tailored to local cropping systems. Financial support is structured through central and state extension bodies, with little flexibility for farmer groups or local institutions to direct fund use or prioritise technology choices. While extension services include farmer field schools, technology fairs, and on-farm demonstrations, formal roles for community co-design or participatory financial decision-making are not institutionalised.

Rationale for aligning with the design features of LLCA

The mission empowers the local extension ecosystem through the deployment of agro-climatic diagnostic tools and field-based advisories that enable farmers to access climate-resilient innovations. Financial support flows through central and state extension bodies, offering limited space for local institutions or farmer groups to influence budgeting or priority-setting. While training and demonstration units engage directly with farmers via KVKs and extension networks, formal mechanisms for co-design or participatory planning remain underdeveloped. Many interventions, such as stress-tolerant crop dissemination and precision agronomy.

13. Pradhan Mantri Fasal Bima Yojana

The Pradhan Mantri Fasal Bima Yojana (PMFBY) is a comprehensive crop insurance programme designed to support farmers against yield losses due to climatic risks like droughts, floods, and unseasonal rains. It offers coverage for yield shortfall, post-harvest losses, and prevented sowing across food, oilseed, and commercial crops. Implemented nationwide and covering millions of farmers through a subsidised premium structure, PMFBY enhances financial resilience in

climate-vulnerable areas. By stabilising farm incomes amid extreme weather events and encouraging investment in resilient agricultural practices, the scheme supports India's broader climate adaptation goals, particularly regarding farmer livelihood protection in a changing climate.

Rationale for aligning with the design features of LLCA

The Pradhan Mantri Fasal Bima Yojana (PMFBY) anchors payout decisions on climate-sensitive data such as historical yield losses, crop cut data, and weather indices to determine indemnities fairly. Premium subsidies and insurance design are established at the central and state levels, limiting local autonomy in fund utilisation or coverage customisation. Participation is restricted to enrolled farmers, with limited engagement in insurance scheme design or grievance redressal beyond claim filing; broader community voices are seldom integrated. While the reliance on weather-triggered risk metrics ensures adaptation-readiness, grassroots stakeholders have limited influence over policy design, financing, or strategic adjustments.

14. Pradhan Mantri Kisan Samman Nidhi

The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) is a direct income support scheme providing unconditional financial assistance to small and marginal farmers across India. From a climate adaptation perspective, the regular cash transfers enhance farmers' capacity to invest in resilient practices, such as purchasing quality seeds, irrigation equipment, or diversifying crops, in times of climate stress or uncertainty. With nearly all states and union territories participating, the scheme reaches over 100 million eligible farmer families in rural India.

Rationale for aligning with the design features of LLCA

PM-KISAN follows a centralised design where eligibility criteria, payment schedules, and fund disbursement are determined by national authorities, offering limited flexibility for local institutions or communities to influence financial decisions or prioritisation. The programme's framework does not provide mechanisms for participatory planning or community input; instead, it delivers universal cash transfers with minimal direct engagement or co-design by beneficiaries. While the financial assistance indirectly enables farmers to invest in climate-resilient inputs or adaptation strategies, allocations are not explicitly informed by local climate data or vulnerability assessments, and decision-making authority remains firmly centralised.

15. Pradhan Mantri Krishi Sinchayee Yojana

The Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) is a central initiative aimed at achieving "Har Khet Ko Pani" and enhancing water-use efficiency across India through integrated irrigation infrastructure, micro-irrigation technologies, watershed development, and rejuvenation of water bodies. From a climate adaptation standpoint, it supports resilience by promoting drip and sprinkler systems that conserve water, enhancing groundwater recharge, and reducing reliance

on erratic rainfall. Implemented across all states and union territories, PMKSY benefits diverse agro-climatic zones and reaches millions of farmers through schemes like Per Drop More Crop and Accelerated Irrigation Benefit Programme.

Rationale for aligning with the design features of LLCA

The Pradhan Mantri Krishi Sinchayee Yojana enables district and state agencies to prioritise micro-irrigation and watershed projects based on local water availability, cropping patterns, and soil-water assessments, aligning investments with context-specific data. Financial allocations follow centrally defined funding ratios, which provide limited discretion to local bodies in choosing or sequencing priority interventions. While beneficiary consultations and farmer involvement occur during implementation, formal mechanisms for community co-design or shared governance in planning are not institutionalised. The focus on reducing water stress and stabilising agriculture underlines climate sensitivity in programme alignment, yet local-level decision-making remains constrained by centralised structures.

16. Mission for Integrated Development of Horticulture

The Mission for Integrated Development of Horticulture (MIDH) is a national programme aimed at enhancing the productivity, quality, and resilience of horticultural crops through improved technologies, climate-smart practices, and value chain support. From a climate adaptation standpoint, MIDH promotes the use of hardy fruit, vegetable, and nut varieties; sustainable water management like drip irrigation; and protected cultivation to mitigate weather extremes. It reaches farmers across all states and union territories, offering financial assistance for infrastructure such as polyhouses, tissue culture labs, and post-harvest facilities. By integrating climate-resilient inputs and water-efficient technologies, MIDH helps farmers adapt to changing climate patterns.

Rationale for aligning with the design features of LLCA

The Mission for Integrated Development of Horticulture guides investment decisions using agro-climatic mapping, soil moisture data, and varietal suitability assessments to support climate-resilient crops, protected cultivation, and drip irrigation in horticultural zones. States propose project plans tailored to regional risks and priorities, though funding modalities remain centrally prescribed with limited local discretion over resource allocation or project sequencing. Farmer engagement is facilitated through extension, training, and value-chain linkage workshops, yet broader mechanisms for participatory planning or co-governed horticultural strategies are absent. While interventions are climate-sensitive and locally contextualised, authority for financial decision-making and programme design remains largely centralised.

17. National Livestock Mission

The National Livestock Mission (NLM) is a nationwide initiative aimed at improving livestock productivity, breed conservation, animal health services, and climate-resilient fodder development across India. From a climate adaptation perspective, it promotes resilient livestock management by supporting drought-tolerant fodder species, water-efficient feeding systems, and capacity building in animal husbandry practices suited to climate stress. The mission reaches villages and rural communities in all states and union territories, offering support for community-based fodder banks, breed improvement, and veterinary services.

Rationale for aligning with the design features of LLCA

The National Livestock Mission leverages climate- and fodder-informed assessments, such as region-specific drought patterns and fodder scarcity data, to prioritise investments in drought-tolerant fodder species, veterinary services, and feeding systems tailored to local conditions. Funding channels operate under centrally guided frameworks, limiting direct Panchayat- or community-level discretion over fiscal allocation or program design. While community-based fodder banks and breed improvement initiatives involve local beneficiary participation, formal avenues for broader co-design, planning, or inclusive decision-making are not institutionalised. As a result, while the programme supports climate-resilient livestock systems grounded in data-driven needs, grassroots governance and financial autonomy remain constrained.

18. Pradhan Mantri Matsya Sampada Yojana

The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a flagship initiative aimed at sustainable development of the fisheries and aquaculture sector through infrastructure upgrades, modern technologies, and market linkages. From a climate adaptation perspective, PMMSY promotes resilient aquaculture by supporting cage and pond farming suited to changing water regimes, conserving mangroves and wetlands as natural climate buffers, and enhancing cold storage and traceability systems to reduce post-harvest losses. The scheme operates across coastal, inland, and major reservoir-based fisheries zones in all states and union territories, benefiting fishers and aquaculture farmers nationwide.

Rationale for aligning with the design features of LLCA

The Pradhan Mantri Matsya Sampada Yojana (PMMSY) integrates investments guided by environmental and climate data, such as aquatic resource assessments, water salinity mapping, and coastal ecosystem vulnerability, to prioritise resilient aquaculture systems, mangrove restoration, and cold-chain infrastructure. Though states submit proposals tailored to local fisheries and climate risks, funding frameworks and financial approval mechanisms remain centrally defined, limiting local discretion in budget allocation or intervention selection. While implementation often involves co-management with fishers and community groups, structured mechanisms for participatory design, local decision-making, or cooperative governance are not

institutionalised.

19. Compensatory Afforestation Management Fund Act (CAMPA)

The Compensatory Afforestation Management Fund Act (CAMPA) mandates that forest clearance for development projects must be offset by afforestation or compensatory planting in non-forest areas, financed through the Compensatory Afforestation Fund Management and Planning Authority (CAMPA). From a climate adaptation standpoint, it strengthens ecosystem resilience by expanding tree cover, restoring degraded landscapes, and enhancing watershed services that buffer communities against droughts, floods, and extreme weather. The initiative operates across states and union territories nationwide, channelling funds into large-scale planting, native species restoration, and ecological monitoring efforts.

Rationale for aligning with the design features of LLCA

The Compensatory Afforestation Management Fund Act channels afforestation funds based on assessments of deforested land, watershed condition, and ecosystem vulnerability, informing restoration priorities through environmental data and landscape mapping. However, fund allocation and project approval remain centrally managed through state Compensatory Afforestation Fund Management and Planning authorities (CAMPA), restricting local-level discretion over finance deployment or ecosystem targeting. While some community involvement occurs in planting and maintenance, there is no formalised mechanism for local stakeholders or Gram Sabhas to co-design or govern afforestation plans. Consequently, although the policy promotes data-informed ecosystem restoration, it does not institutionalise decentralised financial governance or inclusive decision-making in climate-resilient land-use management.

20. Green India Mission (GIM)

The Green India Mission (GIM) is a core pillar of India's climate strategy, aiming to restore over 5 million hectares of degraded forests and expand green cover across agroforestry and urban landscapes. From a climate adaptation standpoint, it enhances ecosystem resilience by bolstering watershed protection, reducing soil erosion, and strengthening natural shelters against floods and droughts. Implemented across states, eco-sensitive zones, and urban areas, GIM engages communities in forest restoration, tree planting, and sustainable land management. The mission promotes native species regeneration and prioritises areas vulnerable to climate stress, enhancing biodiversity and livelihood outcomes.

Rationale for aligning with the design features of LLCA

GIM guides restoration investments using scientific assessments of degraded lands, watershed conditions, soil erosion vulnerability, and eco-sensitive zones, ensuring climate-resilient afforestation and agroforestry interventions are context-specific. States and Forest Departments

submit plans tailored to regional ecological stressors, yet financial and planning authority remains bounded by centrally-defined frameworks, limiting local discretion in fund allocation or intervention sequencing. Community participation is enabled through Joint Forest Management, plantation monitoring, and local stewardship roles, but broader participatory structures for co-design, financial decisions, or governance are not institutionalised.

21. Nagar Van Udyan Yojana

The Nagar Van Udyan Yojana is a central initiative focused on developing urban forests, green belts, and community gardens in cities, towns, and peri-urban areas across India. From a climate adaptation perspective, it strengthens urban resilience by enhancing canopy cover, mitigating heat island effects, improving air and water retention, and buffering against flooding and extreme weather events. The programme engages municipal bodies and residents to establish and maintain green spaces, contributing to localised cooling and ecosystem health in urban centres.

Rationale for aligning with the design features of LLCA

The Nagar Van Udyan Yojana guides investment decisions using urban climate data to prioritise the development of city forests, green belts, and parks that enhance local resilience. While municipalities and urban local bodies implement these plans, funding norms, project approvals, and budget ceilings are centrally prescribed, limiting local authorities' discretion over financial choices or project sequencing. Community involvement occurs through citizen groups and local councils participating in tree planting and maintenance, yet structured mechanisms for inclusive co-design or participatory governance in decision-making are not systematically institutionalised.

22. Intensification of Forest Management Scheme

The Intensification of Forest Management Scheme (IFMS) is a national initiative aimed at enhancing sustainable forest management and biodiversity conservation through scientific interventions, improved infrastructure, and community engagement. From a climate adaptation viewpoint, IFMS strengthens ecosystem resilience by promoting effective fire control, soil and moisture conservation, and restoration of degraded forest landscapes that buffer communities against floods, droughts, and temperature extremes. Implemented across all forested states and union territories, it supports capacity building in forest departments and local communities.

Rationale for aligning with the design features of LLCA

The Intensification of Forest Management Scheme employs forest and climate data to prioritise restoration, afforestation, and fire prevention infrastructure in degraded landscapes. State forest departments submit plans aligned with regional ecological priorities, though budgeting, fund disbursement, and project approvals are largely governed by centrally defined protocols with limited local flexibility. While implementation often involves local forest communities and

co-management committees, formal mechanisms for community participation in financial planning, priority-setting, or co-design of interventions are not institutionalised.

23. Pradhan Mantri Van Dhan Yojana

The Pradhan Mantri Van Dhan Yojana empowers tribal communities through value-added processing and collective marketing of Minor Forest Produce (MFP) like tendu leaves, herbs, and non-timber forest products. From a climate adaptation lens, it fosters resilience by diversifying livelihoods tied to forest ecosystems, strengthening local capacity to cope with climate-induced shifts in forest yields. The mission spans hundreds of tribal districts across states such as Odisha, Chhattisgarh, Jharkhand, Maharashtra, and Madhya Pradesh, supporting thousands of Self Help Groups and Van Dhan Vikas Kendras.

Rationale for aligning with the design features of LLCA

The Pradhan Mantri Van Dhan Yojana incorporates insights from local forest ecosystem assessments and value-chain mapping to support adaptive enterprises based on MFP availability and climate-sensitive yield patterns. Financial support is routed centrally with fixed guidelines, offering only limited discretion for tribal communities to tailor funding for enterprise development or local priorities. While tribal SHGs and Van Dhan Kendras manage value-addition, production, and market linkages through collective action, governance and financial decision-making remain primarily top-down. Consequently, while the scheme empowers communities through livelihood diversification tied to local ecosystems, it does not institutionalise decentralised authority or participatory fiscal planning.

24. Green Skill Development Programme

The Green Skill Development Programme (GSDP) is a national initiative aimed at equipping youth and local communities with green jobs and climate-resilient livelihood skills across sectors like forestry, renewable energy, waste management, and sustainable agriculture. From a climate adaptation perspective, it builds community resilience by training individuals in flood-resilient agriculture practices, afforestation, ecosystem restoration, and water-conservation techniques adapted to local environmental stresses. Implemented through training partners and institutions across all states and union territories, GSDP reaches thousands of trainees annually.

Rationale for aligning with the design features of LLCA

The Green Skill Development Programme draws on climate- and ecosystem-informed needs, such as flood-prone zones, drought vulnerability, and soil degradation data, to prioritise training in areas like ecosystem restoration, water conservation, and climate-resilient livelihoods. While training delivery is decentralised through certified partners across states, funding allocations, curricula, and implementation guidelines are centrally prescribed, limiting local flexibility in

course design or target group selection. Trainees, often local youth and community members, participate in hands-on green-skills training and placement support, but formal roles in shaping programme content or governance are absent. Although it enhances adaptive capacity through targeted upskilling, local decision-making authority over programme structure remains constrained.

25. National Coastal Mission Scheme

The National Coastal Mission (NCM) Scheme is a national programme aimed at enhancing coastal resilience through ecosystem-based interventions, such as mangrove restoration, dune stabilisation, and construction of climate-resilient infrastructure, along India's shoreline. From a climate adaptation perspective, it protects coastal communities from sea-level rise, storm surges, erosion, and saline intrusion, while strengthening natural buffers in vulnerable coastal zones. Operating across coastal states and union territories, NCM facilitates regional and district-level planning, community awareness, and coastal resource management.

Rationale for aligning with the design features of LLCA

The National Coastal Mission (NCM) uses coastal vulnerability assessments, sea-level rise modelling, and erosion risk mapping to guide investments in ecosystem-based resilience like mangroves, dunes, and adaptive infrastructure. While planning occurs through district and state coastal committees, financial allocations and design parameters are centrally framed, limiting local discretion over funding priorities or strategy customisation. Community involvement in planting, awareness drives, and resource management is present but lacks formal mechanisms for participatory planning, co-design, or governance. Consequently, while the mission advances climate-resilient infrastructure grounded in scientific data and local conditions, it does not fully devolve financial authority or engender inclusive decision-making at community levels.

26. National Mission for Sustaining the Himalayan Ecosystem

The National Mission for Sustaining the Himalayan Ecosystem is a flagship initiative aimed at conserving the fragile Himalayan environment through glacier monitoring, watershed protection, biodiversity conservation, and eco-sensitive area management. From a climate adaptation standpoint, it enhances regional resilience by safeguarding water sources, stabilising fragile slopes, and conserving ecosystems that buffer downstream communities from climate shocks. Implemented across Himalayan states, such as Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh, it supports research, community-based conservation, and capacity-building in high-altitude zones.

Rationale for aligning with the design features of LLCA

The National Mission for Sustaining the Himalayan Ecosystem relies on climate- and ecosystem-specific data, such as glacial melt monitoring, slope stability assessments, and watershed vulnerability mapping, to guide interventions in high-altitude zones. While research

and project planning engage regional institutes and state authorities, funding mechanisms and approval frameworks remain centrally defined, offering limited flexibility for local institutions to prioritise or adapt deployment based on community needs. Some projects include community participation through citizen science and conservation partnerships, yet decision-making authority and financial control are not devolved to mountain communities or local governance bodies.

27. National Mission on Himalayan Studies

The National Mission on Himalayan Studies is a research-driven initiative focused on understanding and enhancing the resilience of Himalayan ecosystems through transdisciplinary research, citizen science, and policy innovations. From a climate adaptation standpoint, it supports sustainable livelihoods and ecosystem-based strategies such as slope stabilisation, water management, and biodiversity conservation. The mission operates through select Higher Educational Institutions and research centres across the Himalayan states, including Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.

Rationale for aligning with the design features of LLCA

The National Mission on Himalayan Studies uses climate- and ecosystem-specific research, such as glacial hydrology data, slope destabilisation modelling, and regional biodiversity assessments, to inform targeted interventions like watershed restoration, slope stabilisation, and community-led conservation strategies. While research institutions and Himalayan states collaborate on planning, funding mechanisms and project approvals are structured centrally, limiting discretion for local communities or mountain governance bodies to tailor investments. Citizen science contributions and community engagement are encouraged through participatory research and local data collection, but decision-making authority over resources or strategy design does not rest with grassroots stakeholders.

28. Aapda Mitra Scheme

The Aapda Mitra Scheme trains volunteers and community members in disaster preparedness, search-and-rescue, and early response techniques to build resilience in vulnerable areas exposed to climate-related shocks. From a climate adaptation standpoint, it enhances local capacity to respond effectively to events like floods, storms, and heatwaves, reducing loss of life and livelihoods. The programme operates across districts frequently impacted by natural disasters, engaging local youth, village panchayats, and first responders.

Rationale for aligning with the design features of LLCA

While funding and program design are led by national and state disaster management authorities, local volunteers and panchayats operationalise training and deployment on the

ground. Community members participate actively as trained responders, contributing to preparedness drills and response coordination at village and district levels, though broader strategic planning or funding control remains centralised. This ensures that climate-sensitive emergency preparedness reaches vulnerable areas, even as decision-making authority stays with higher-level agencies.

29. National Vector Disease Borne Control Programme

The National Vector Borne Disease Control Programme (NVBDCP) is a national initiative focused on controlling and preventing vector-borne diseases, such as malaria, dengue, chikungunya, and JE, through surveillance, early warning systems, and integrated vector management. From a climate adaptation standpoint, it enhances community resilience by strengthening public health infrastructure to anticipate and respond to climate-sensitive disease outbreaks, particularly during monsoon shifts and warming trends. Through active case detection, vector surveillance, community awareness, and capacity building in health systems, the programme operates across all states and union territories.

Rationale for aligning with the design features of LLCA

The National Vector Borne Disease Control Programme uses climate- and epidemiological data, such as seasonal rainfall patterns, temperature trends, and vector mapping, to inform planning of surveillance, early warning, and control interventions in high-risk zones. Financing, protocols, and response modalities are centrally defined, limiting local entities' discretion in resource allocation or program design. At the district level, health workers and community health volunteers implement vector control activities and case detection, but there is no structured mechanism for community-led planning or decision-making. While the programme enhances adaptive public health resilience to climate-sensitive disease threats, strategic authority remains centralised.

30. National Cyclone Risk Mitigation Project

The National Cyclone Risk Mitigation Project (NCRMP) is a comprehensive programme designed to reduce cyclone risk in vulnerable coastal and island regions through resilient infrastructure development, early warning systems, and community preparedness initiatives. From a climate adaptation perspective, it strengthens resilience by constructing cyclone shelters, upgrading evacuation routes, installing real-time meteorological systems, and conducting disaster drills. Operating across cyclone-prone states such as Odisha, Andhra Pradesh, West Bengal, Gujarat, Maharashtra, and the Andaman & Nicobar Islands, NCRMP engages local governments, disaster management authorities, and residents in preparedness planning.

Rationale for aligning with the design features of LLCA

The National Cyclone Risk Mitigation Project (NCRMP) leverages data such as storm track modelling, coastal vulnerability assessments, and population exposure mapping to locate priority

zones for resilient infrastructure like cyclone shelters, evacuation routes, and early warning systems. Funding mechanisms and design standards are centrally framed, offering limited discretion for state or local governments to tailor investments based on local risk and community priorities. Operational implementation includes participation from community members in disaster drills and awareness training, but there are no formal channels for local co-design or involvement in decision-making. While the programme strengthens preparedness in climate-exposed regions, strategic control remains centralised.

31. Atal Mission on Rejuvenation and Urban Transformation (AMRUT)

The Atal Mission for Rejuvenation and Urban Transformation (AMRUT) aims to enhance urban resilience by improving water supply, stormwater drainage, green spaces, and sewerage infrastructure in mid-sized and large cities across India. From a climate adaptation perspective, it strengthens urban systems to manage flooding, reduce urban heat islands, and conserve water through integrated drainage and rainwater harvesting solutions. The mission engages municipal bodies and state agencies to plan and deploy infrastructure upgrades in over 500 cities, promoting sustainable urban hydrology and public utility systems.

Rationale for aligning with the design features of LLCA

The Atal Mission on Rejuvenation and Urban Transformation anchors investments in climate-sensitive urban planning to guide infrastructure upgrades like rainwater harvesting, green spaces, and drainage systems. Municipal bodies are responsible for implementation, but financial allocations and project approval norms are largely determined by central guidelines, limiting flexibility in local prioritisation or sequencing. While public consultation and stakeholder engagement are part of city-level planning processes, formal co-design structures or community budgeting mechanisms are not universally institutionalised.

32. Swachh Bharat Mission (Rural and Urban)

The Swachh Bharat Mission (Rural and Urban) is a transformative national initiative focused on eliminating open defecation and ensuring universal sanitation access through the construction of toilets, faecal sludge management systems, and public hygiene infrastructure. From a climate adaptation perspective, it builds resilience by improving public health, reducing groundwater contamination, and enhancing urban and rural sanitation systems to mitigate climate-sensitive disease risks during floods and extreme weather events.

Rationale for aligning with the design features of LLCA

The Swachh Bharat Mission (Rural and Urban) employs sanitation and hygiene data, such as open defecation prevalence, floodwater contamination risk, and local sanitation gaps, to target investments in toilets, faecal sludge treatment units, and drainage systems. Funding formulas and

programme parameters are centrally defined, leaving limited scope for Gram Panchayats or municipalities to determine financing priorities or service models. While behaviour-change campaigns, community-led total sanitation drives, and local sanitation committees engage residents, there is no systematic mechanism for participatory governance or co-design of sanitation infrastructure. Consequently, although the mission utilises context-specific health and sanitation data to inform interventions, it stops short of devolving strategic decision-making or financial authority to the community level.

33. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is the world's largest public works programme, providing demand-driven employment to rural households while creating community assets that enhance climate resilience. Operating across all Indian states, the scheme guarantees 100 days of wage employment annually to rural households, with works focused on water conservation, drought proofing, irrigation infrastructure, and land development. From a climate adaptation perspective, MGNREGS strengthens local resilience by enabling communities to build water harvesting structures, rejuvenate degraded lands, and develop climate-responsive infrastructure in drought-prone and climate-vulnerable areas. The programme's demand-led design ensures that households can access employment during climate shocks, while the assets created address both current climate variability and longer-term adaptation needs. By combining income security with ecosystem-based adaptation investments, MGNREGS contributes significantly to India's climate adaptation objectives while supporting the livelihoods of over 70 million households annually.

Rationale for aligning with the design features of LLCA

MGNREGS demonstrates strong alignment with strengthening subsidiarity for climate finance by devolving decision-making authority to Gram Panchayats, which register households, identify and prioritise works based on local needs, and oversee implementation with wage payments disbursed directly to beneficiary accounts. The scheme exemplifies robust participation and inclusion through its legal mandate for representation of women, Scheduled Castes, Scheduled Tribes, and marginalised communities, with social audit mechanisms institutionalising transparency and empowering Gram Sabhas to scrutinise expenditures and verify works. However, MGNREGS shows more modest alignment with climate-informed investment planning, as systematic integration of climate risk data, vulnerability mapping, and future climate scenarios into planning processes remains limited. Strengthening the climate-responsiveness of MGNREGS works through enhanced use of climate information services, participatory vulnerability assessments, and ecosystem-based adaptation frameworks would further amplify the scheme's contribution to building climate-resilient rural livelihoods and landscapes.