INTEGRATED LANDSCAPE MANAGEMENT (ILM):

Assessments of anticipated impacts and recommendations for action

>> Economic Gains • Jobs and Livelihoods • SDG Alignment • NDC Contributions <<

Key recommendations to achieve these impacts relate to policy, finance, implementation and institutionalizing ILM as an integrated delivery mechanism.

Ujjwalit Bharat Vision - April 2026

EXECUTIVE SUMMARY

Integrated Landscape Management (**ILM**) — as envisioned in the **Ujjwalit Bharat Vision** (Vision for India's bright future) proposed by the Global livelihoods and Landscape Recovery Platform (GALLOP) *Initiative*, Medius Earth, Indian Institute of Technology (**IIT**)-Bombay, and Indian Institute of Science (**IISc**)-Bangalore — represents a paradigm shift from fragmented, siloed sectoral interventions to a coherent, community-owned landscape governance model. This brief assesses the potential GDP and economic gains, livelihood creation, SDG alignment, and NDC contributions that a nationwide ILM implementation can deliver.

Drawing from this ethos, this assessment demonstrates that ILM is not merely an environmental intervention — it is an investible, community-driven rural development architecture that simultaneously creates jobs and livelihoods, strengthens local GDP, creates diverse jobs, provides livelihoods, advances India's SDG commitments, and contributes to Paris Agreement NDCs.

Vision	**Ujjwalit Bharat,** *Vision Paper - Thriving Economies through ILM Approaches*
Proponents	GALLOP, Medius Earth, HoD-IIT Bombay, ex-HoD IISc Bangalore-UNCCD-IPCC
Entry point	Agri-Horti-Forestry (**AHF**), Regenerative Agriculture, Ecosystem Restoration
Scale	Gram Sabha to national — one block at a time, bottom-up
Finance	Blended: public scheme convergence + private capital+ carbon finance + philanthropic capital
In country alignment	Viksit Bharat 2047, NITI Aayog's 2024 GROW Report, 2021-30 NDCs to UNFCCC, 2030 Agenda for Sustainable Development, NAPCC
Global alignment	World Bank, IMF, WEF, UNCCD, UNFCCC, UNCBD, GCA, UNFAO, UNEP, UNDP, IUCN, IPCC, BeyondGDP (2022), Ethiopia, Germany-GIZ, UK, Costa Rica

I. Economic Gains

ILM creates a multi-layered economic system by unlocking ecosystem services, enabling community enterprises, attracting blended landscape finance, and improving the utilization of existing public scheme budgets — all while strengthening local GDP from the ground up.

1.1. Core Economic Value Propositions

Budget efficiency	Single-window convergence of AHF, restoration schemes at gram panchayat level reduces unused allocations; translates existing public budgets into ground outcomes. It generates efficient outcomes on public spends.
Local GDP growth	AHF livelihoods, NTFP commercialization, FPO market linkages, and rural tourism collectively strengthen local GDP through landscape recovery
Landscape finance	ILM's returns-generation model multiplies public scheme allocations, attracting private, philanthropic, and blended capital into landscapes
Carbon finance	AHF + ARR projects via Article 6 / VCM; carbon revenues flow directly to farming communities through Medius Earth-type project developers, CSO's.

1.2. Key Economic Pathways

Agri-Horti-Forestry Value Chains & FPOs

Multi-strata AHF systems — fruit orchards, bamboo, horticulture, and timber species — generate direct farm income and enable downstream agri-processing enterprises. Farmer Producer Organizations (FPOs) create organized market linkages that improve realized prices for small and marginal farmers through collective aggregation and bargaining. Returns compound as trees mature, providing long-term income security. This also boosts livestock and dairy industry incomes.

- FPOs enable formal credit, insurance, and government procurement access
- Bamboo can generate Rs. 80,000 to 1,20,000 per acre over a 4-year cycle
- AHF can generate ~Rs. 2,00,000 per acre and sequester 28tCO2/ha over a 4-year cycle

Improved Utilization of Government Scheme Budgets

A single-window convergence of government schemes at the Gram Panchayat level—across the Agriculture, Watershed Development, Rural Development, Tribal Affairs, and Land Resources ministries—can significantly reduce unutilized budget allocations. *NITI Aayog's GROW 2024 Report* (pg.67) calls for consolidating AHF schemes on wastelands, thereby converting existing public funds into measurable ground outcomes. These public funds can then be leveraged to mobilize private and philanthropic capital, amplifying impact manyfold. ***Ujjwalit Bharat*** extends this approach to degraded and drought-affected lands across the country at large, enabling more effective use of public outlays. In turn, this can generate livelihoods and jobs at scale, strengthen local economies and GDP, and deliver multiple downstream co-benefits, including addressing climate change.

NTFP Proliferation & Commercialization

Restored landscapes enable Non-Timber Forest Produce — medicinal herbs, resins, honey, seeds, and forest foods — to proliferate on common and revenue lands. With market linkages, NTFP becomes a significant supplementary income stream, particularly for tribal and forest-fringe communities who possess traditional harvesting knowledge. NTFP can contribute 20 to 40% of total household income in forest landscapes. Long term ROI up to 30 times *(WRI - Roots of Prosperity)*.

Climate Adaptation and Resilience

AHF helps build resilience to climate risks. In the event of crop failure, it complements farmers' incomes while sustaining downstream benefits from nature-based solutions (NBS). ILM is among the most effective adaptation strategies for dryland ecosystems.

Environmental benefits

ILM programs deliver significant environmental benefits by contributing to biodiversity conservation, improving soil fertility and soil organic carbon, and restoring degraded lands. It supports groundwater recharge and strengthens long-term water security, while enhancing forest and tree cover across landscapes. ILM in revenue lands indirectly helps forest areas regenerate due to reduced human pressure and extraction. In addition, it enables carbon sequestration in both biomass and soils, supporting climate mitigation efforts. Collectively, these outcomes advance progress toward the goals of the three **UN Rio Conventions**—***UNFCCC, CBD, UNCCD.*** **It aligns with most other global forums**—reinforcing integrated, landscape-level sustainability.

Decentralized Renewable Energy Enterprises

ILM advances local vision and planning by communities. It supports local energy - solar microgrids, biogas (CBG), bio slurry and biochar production. Rural energy enterprises that reduce household costs, generate surplus revenues, and enable agri-processing. Bio slurry and biochar improve soil carbon content, reduce fertilizer input costs, and qualify for additional carbon credits over time.

Rural, Cultural & Landscape Tourism

Restored landscapes, healthy watersheds, and vibrant community cultures create a foundation for rural and cultural tourism—diversifying village economy, supporting hospitality, artisanal livelihoods, and incentivizing communities to maintain their landscapes as productive economic assets.

Circular Economy & Waste Recycling

Compost, vermicompost, agricultural waste-to-energy, and packaging recycling create rural enterprises while reducing input costs. The Ground Partners letter specifically identifies circular economy and waste recycling as key AHF-enabled community entrepreneurship pathways.

ILM and the UN's 'Beyond GDP' Agenda

ILM is a near-perfect on-the-ground delivery mechanism for the UN's BeyondGDP agenda. The UN's BeyondGDP framework — anchored in the *Valuing What Counts* policy brief (2022–23) and now being operationalized by the High-Level Expert Group (HLEG, appointed May 2025) — measures progress across 6 dimensions: 3 outcome elements and 3 process elements. ILM addresses all 6 dimensions, achieving an estimated 91% overall alignment, and directly supports at least 18 of the ~30 proposed HLEG indicators.

Why ILM is structurally a BeyondGDP instrument: GDP counts only market transactions. ILM regenerates exactly what GDP ignores — natural capital (watersheds, biodiversity, soil carbon), social capital (community governance, women's agency, trust networks), and human capital (health, nutrition, skills). Every rupee invested in ILM generates multiple layers of non-GDP value that conventional national accounting treats as economically invisible. Building resilience to climate risks and vulnerability. **Thus, ILM delivers wellness for communities and landscapes**!!

3 Outcome Elements

- Wellbeing & agency (income, nutrition, health, community autonomy)
- Respect for life & planet (natural capital, biodiversity, carbon sinks)
- Reduced inequalities & solidarity (tribal, women, marginal farmers)

3 Process Elements

- Vulnerability to resilience (watershed, climate adaptation, diversified income)
- Participatory governance (multi-stakeholder, bottom-up, Gram Panchayat)
- Innovative & ethical economies (4 Returns, blended finance, carbon markets)

A global opportunity

ILM as a global BeyondGDP reference model

An ILM landscape replacing degraded and drought affected lands, wasteland with AHF generates: (1) natural capital appreciation — restored watersheds and carbon sinks worth tens of thousands of rupees per hectare annually; (2) human capital gains — health and nutrition improvements representing 15–30% household welfare gain; (3) social capital formation — community FPOs and governance structures with multiplier effects on trust and collective action; and (4) reduced negative externalities — avoided costs of migration, groundwater depletion, and flood damage. These together far exceed what GDP records as AHF's "economic contribution."

Adopting a natural capital accounting framework (SEEA-Ecosystem Accounts or UNEP's Inclusive Wealth Index) at the block/watershed level would make ILM a global reference model for operationalizing the BeyondGDP agenda from the ground up — exactly as the HLEG is calling for through 2025–26.

II. Livelihoods

ILM helps local planning and vision development at the landscape level by the communities, business, government officials, along with other stakeholders — **forming a true Landscape Partnership** (UNEP). Further, AHF-based livelihoods embedded within landscapes and directly owned by communities are the cornerstone of the Ujjwalit Bharat vision. ILM generates diverse, stable, multi-layered income streams that reduce distress migration, empower women, and increase household incomes — while simultaneously regenerating the landscape.

2.1. Livelihood Outcomes at a Glance

Primary employment	Secondary income	Migration reversal
AHF & regenerative farming — stable year-round income across multi-strata systems	NTFP harvesting, agri-processing enterprises, and energy production revenues	Multiple income streams structurally replace the root driver of distress migration from rural areas

2.2. Livelihood Pathways Enabled and systemically converged by ILM

AHF Farmers, Agroecology & Regenerative Agriculture Practitioners

Transitioning from mono-crop to multi-strata AHF, regenerative agriculture, and agroecology increases per-acre income, improves soil health, and enables year-round harvest cycles. Carbon finance rewards these practices through direct farmer payments — making ecological stewardship financially competitive with conventional farming.

Fruit, Medicine, and NTFP Processing

With enhanced AHF, sufficient fruits and NTFPs become available for local, small-scale processing. Packaging and distribution, beverage production, and traditional medicine extraction can all be established within the landscape. This provides a lot of jobs for the under and unemployed. Helps set up zero-waste value chains.

Women's Workforce Integration

The GALLOP approach specifically highlights women's workforce development as a core ILM element. NTFP collection, nursery management, agri-processing, SHG-linked enterprises, and eco-tourism hosting are particularly suited to women-led livelihoods — expanding social inclusion and economic equity at the village level. Also, creating women’s community groups for social inclusion.

Solar, Biogas & Biochar penetration

Decentralized solar installations, biogas (CBG) plants, and biochar production require local skilled installation and maintenance roles — creating quality technical employment at the village level. These also provide energy access for health and education facilities, improving community wellbeing as a co-benefit.

Build a circular economy

This can encompass agricultural and forest waste-to-energy and inputs, water circularity, animal husbandry integration, local manufacturing and repair economies, and carbon and biodiversity monetization through carbon credits and ecosystem services — all leading to self-reliance at the block level and reduced import dependency.

Water, groundwater (aquifer) recharge, drought prevention, and sanitation

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FPO Leaders, Managers & Market Linkage Agents

Farmer-Producer Organization formation creates management, logistics, quality control, and procurement roles at the community level — developing rural entrepreneurship and market integration. FPOs improve realized prices by aggregating produce and building collective bargaining power with buyers and input suppliers.

Eco-Tourism, Rural & Cultural Hospitality

Restored landscapes and vibrant communities attract cultural and agri-tourism, creating guide, hospitality, and artisanal livelihoods. Communities simultaneously become stewards of their landscape as a productive economic asset — creating a self-reinforcing conservation incentive.

Health, Education & Village Support Services

The Ground Partners letter explicitly identifies improvements in health, education, and village-level supporting jobs as downstream co-benefits of ILM. Healthier landscapes yield cleaner water, better nutrition, reduced chemical exposure, and stronger community wellbeing — reducing the hidden economic costs of landscape degradation currently borne by rural families.

III. SDG Alignment

UNEP and GIZ recognize ILM as a central vehicle for SDG achievement. By treating landscapes as interconnected systems rather than siloed sectors, ILM simultaneously addresses multiple SDGs through a single coordinated intervention — making it one of the most capital-efficient approaches to sustainable development delivery available to the Indian state.

3.1. SDG Contribution Matrix.

SDG	Goal	ILM contribution	Strength
SDG 1	**No poverty**	AHF income, NTFP, and FPOs reduce rural poverty and distress migration structurally.	**Very high**
SDG 2	**Zero hunger**	AHF and regenerative agriculture strengthen food security and nutrition diversity.	**High**
SDG 3	**Good health**	Cleaner water, reduced chemical inputs, better nutrition, and village health access.	**Moderate**
SDG 6	**Clean water**	Watershed management, groundwater recharge, and soil regeneration restore water security.	**Very high**
SDG 7	**Clean energy**	Decentralized solar, biogas (CBG), and biochar expand rural renewable energy access.	**High**
SDG 8	**Decent work**	FPOs, agri-processing, solar, tourism, and NTFP create quality rural employment.	**Very high**
SDG 11	**Sustainable communities**	Block-level landscape planning builds resilient, inclusive, self-governing villages.	**High**
SDG 12	**Responsible production**	Circular economy, NTFP, reduced synthetic inputs, and waste recycling enterprises.	**Moderate-high**
SDG 13	**Climate action**	Carbon sequestration via AHF and ARR; climate adaptation through landscape recovery.	**Very high**
SDG 15	**Life on land**	Ecosystem restoration, biodiversity conservation, and soil regeneration at scale.	**Very high**
SDG 17	**Partnerships**	Multi-stakeholder ILM governance aligns the NGOs, private sector, and communities with the government.	**High**

Refer - UNEP-IRC's Land Restoration for SDG's Guide

3.2. ILM as a Systemic SDG Accelerator - The Ujjwalit Bharat *vision* explicitly references UNEP's SDGs via the ILM framework as its foundational rationale. Unlike single-sector interventions, ILM addresses 10+ SDGs directly through a single coordinated framework — making it one of the most capital-efficient SDG delivery vehicles available to the Indian state. Each investment in landscape recovery creates cascading co-benefits across poverty, water, energy, food, and biodiversity goals simultaneously.

- It's the mechanism to address our **poly-crisis**: livelihoods, food, water, climate, biodiversity
- SDG co-benefits reduce the need for multiple parallel programmes and their associated costs
- Community-owned ILM ensures SDG gains are self-sustaining and locally governed

IV. NDC Contributions

India's updated Nationally Determined Contributions (NDC, 2022) carry three core quantitative targets and a broad climate resilience mandate under the Paris Agreement. ILM directly supports all three quantitative commitments while serving as the primary ground-level vehicle for India's adaptation agenda under Viksit Bharat 2047.

4.1. India's NDC Targets & ILM Contribution

45% reduction in emission intensity of GDP by 2030 (vs 2005 baseline) — **Direct & Significant**

ILM strengthens rural GDP through landscape-based income streams (AHF, NTFP, tourism, FPOs) while simultaneously reducing agricultural emissions through regenerative farming, biochar soil application, reduced synthetic inputs, and circular economy models. This dual effect — raising GDP while lowering emissions per unit of output — is the precise mechanism of the emission intensity target. The transition from input-intensive mono-cropping to diversified AHF systems also reduces N2O and CH4 emissions from over-fertilization and flooded paddy fields.

Contribution strength: High

Key pathways: Regenerative Agriculture emission reduction | Rural GDP growth | Biochar soil carbon | Reduced synthetic inputs.

50% cumulative power capacity from non-fossil fuel sources by 2030 — **Enabling**

ILM's decentralized renewable energy pathway — disconnected solar, biogas (CBG), and biomass — contributes to India's renewables target while making the energy transition a community-owned livelihood opportunity rather than a top-down infrastructure deployment. Village-scale solar microgrids and biogas plants reduce diesel dependence, create skilled rural employment, and can feed into local distribution networks. This can help scale an additional opportunity for bio-fertilizers and slurries, thereby reducing government spending on imports of crude oil, fossil-based fertilizers, and timber for pulp and construction (**~2–3%** of total imports) and the associated subsidy burden. Reduced imports would greatly help stabilize the rupee against the US dollar, supporting currency and exchange rate stability.

Contribution strength: Moderate-high

Key pathways: Village solar microgrids | Biogas (CBG) | Biomass energy | Energy access for agri-processing | bio-fertilizers | reduced imports & subsidies.

Carbon sink creation — 2.5 to 3 billion tCO2e via forest & tree cover | **Direct & Very Strong**

AHF is one of the most scalable vehicles for creating additional carbon sinks on agricultural and degraded lands. Landscape restoration across India's estimated 37 Mha of wasteland (NITI Aayog GROW 2024), combined with Afforestation/Reforestation (ARR) on other degraded lands, directly contributes to India's sink targets. Medius Earth-type project developers can register these as Article 6 or VCM projects, generating climate outcomes and farmer revenues simultaneously.

Contribution strength: Very high

Key pathways: AHF on farmland | ARR on wastelands | Bamboo & horticulture sinks | Soil organic carbon.

Climate resilience of vulnerable frontline communities | **Cross-cutting & Critical**

India's NDC explicitly calls for building adaptive capacity of the poor and vulnerable. ILM's integrated approach — watershed restoration, groundwater recharge, soil regeneration, diversified income streams — is precisely the adaptation infrastructure frontline rural communities need. Our ethos positions climate finance (adaptation and mitigation) as central to its work, with ILM as the primary vehicle for deploying adaptation finance at the grassroots level, one gram sabha at a time.

Contribution strength: Very high

Key pathways: Watershed restoration | Groundwater recharge | Livelihood diversification | Climate finance.

4.2. Finance Pathways for NDC Delivery

ILM projects can access multiple climate finance streams aligned with India's NDC commitments:

- PM-KUSUM scheme — Aligned with ILM's decentralized solar pathway for farmer energy access
- National Mission for Green India (GIM) — Existing public scheme directly aligned with ILM's tree cover and ecosystem restoration goals
- Voluntary Carbon Market (VCM) — Verra, Gold Standard, and Plan Vivo frameworks for AHF, ARR, and regenerative agriculture projects
- Article 6.2 bilateral carbon credit agreements — Government-to-government transactions linking AHF carbon outcomes to partner country NDCs
- Article 6.4 multilateral carbon mechanism — Registered ILM projects generating Emission Reduction Units on the UNFCCC carbon market
- The World Bank, other MDBs, DFIs, CSR, and the private sector at large,
- Green Climate Fund (GCF) and Adaptation Fund — Accessed through national implementing entities for landscape-scale adaptation projects

V. Key Recommendations

5.1. Policy Actions

- **Integrate ILM as an explicit delivery framework** within the national development mission
- **Consolidate AHF-related government schemes** across Rural Development, Watershed Development, Agriculture, and Land Resources into a single-window clearance mechanism**,** and make it available at the Gram Panchayat level (See NITI Aayog GROW 2024, page 67)
- **Create enabling conditions** for the private sector/CSR to invest and uplift the land sector
- **Create state-level ILM facilitation units** to support NGOs and CSOs in navigating multi-ministry scheme convergence via a national digital backbone (similar to UPI for payments)
- **Establish block-level Landscape Partnerships** (UNEP) co-chaired by a central Land Agency, and the local district administration to help build a vision, with business, community representatives, and other stakeholders to coordinate planning and resource deployment.

5.2. Finance Actions

- **Establish a National Landscape Finance Facility** to aggregate and de-risk private investment in ILM landscapes
- **Encourage the build-up of Landscape Impact Investment Funds with targeted tax incentives**. This will motivate the private sector to scale up involvement manifold, channelling funds via CSR, ESG, family offices, and other philanthropic sources — delivering a 30x ROI.
- **Design blended finance facilities** that stack public scheme funds, carbon finance revenues, private, and philanthropic capital into a single landscape investment vehicle
- **Create performance-based carbon revenue sharing models** that direct the majority of VCM revenues to community members
- **Enable Article 6 registrations for AHF / ARR project** across degraded & common lands

5.3. Implementation Actions

- **Establish a Land Agency** at the national and state levels**,** to coordinate, enable, and promote ILM through policies, programs, interactive mechanisms, and financing
- **Begin ILM pilots at the block level in 5 to 10 states**, using the degraded watershed and landscape restoration as a replicable template. Institute state and regional-level land agencies
- **Invest in NGO and CSO capacity for participatory landscape planning**, community data collection, and multi-ministry scheme navigation
- **Develop a unified monitoring and review framework** to track SDG and NDC progress at the landscape level, enabling evidence-based policy refinement.

5.4. Institutionalize ILM as an integrated delivery mechanism

- **Make it cross-functional** across lifestyle, development, education, business, and industry.

*— **Making ILM** a priority and actioning policy convergence with financial and operational ecosystem development will propel the country towards a Viksit and Ujjwalit Bharat, enabling decoupling of sustainable economic development from environmental degradation and help decarbonization.*