

WHITEPAPER · FRAMEWORK

Sustainable IT Framework

The GCF six-principle framework for building a sustainable IT practice

About this document: Developed by Dr. Niladri Choudhuri and refined collaboratively with industry practitioners through GCF's community programmes. This framework is the foundation for GCF's Carbon Assessments, BRSR consulting, SATP curriculum, and all GCF Academy certifications. Try the EcoBodhai AI app at ecobodhai.in to ask questions about any principle in this framework.

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Core Principles

50+

Assessment Points

300+

Organisations Using

34+Years Practitioner
Experience

Why a Sustainable IT Framework?

AI's carbon footprint is growing 5x faster than the rest of IT. Data centres account for approximately 1.5% of global electricity consumption — and growing. 300 trees are required to offset the carbon generated by a single computer running for one year. India's BRSR mandate requires thousands of companies to report environmental impact — yet most lack the frameworks to measure it. The GCF Sustainable IT Framework provides a structured, practical, organisation-wide approach to measuring, reducing, and reporting the environmental footprint of digital operations.

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Measure Before You Manage

Establish a verifiable baseline carbon footprint across all IT dimensions before setting targets or claiming improvements. Measurement must cover hardware lifecycle (manufacturing, use, disposal), data centre PUE and WUE, network energy, cloud carbon intensity, and AI training and inference footprint.

- Key metric: kgCO₂e per unit of IT output — per inference, per transaction, per TB stored
- Tools: BirchLogic SustainIT, Asuene platform, Carbon Aware SDK, GCF IT Carbon Calculator
- Frequency: Quarterly baseline reassessment with monthly tracking dashboards

→ Scope: All three Scopes — direct emissions, purchased electricity, and value chain

0 2 Design for Efficiency First

Sustainability must be a first-class design constraint — not an afterthought. Every new AI system, cloud architecture, or software application should be designed to minimise energy consumption before optimising for performance or cost.

- Use CPU-native inference (Kompact AI by Ziroh Labs / IIT Madras) — 50–80% energy reduction vs GPU
- Prefer smaller, contextualised, distilled models with RAG over large foundational models
- Apply carbon-aware scheduling — run workloads when and where the grid is greenest
- Architect for edge deployment to reduce data movement and cloud compute energy

0 3 Extend Hardware Lifecycles

The largest share of a device's carbon footprint is often in manufacturing (embodied carbon) — not in operational energy use. Extending hardware life by even two years can reduce total lifecycle emissions by 20–40%.

- Target: Extend laptop lifecycles to 6+ years; servers to 8+ years
- Implement structured refurbishment and reuse programmes before any disposal decision
- Track and report embodied carbon in all hardware procurement decisions
- Partner with MoEFCC-certified e-waste recyclers; document chain of custody for all disposed devices

0 4 Optimise Workloads Continuously

Underutilised infrastructure is a sustainability failure. Organisations routinely run servers at 10–15% utilisation. Proactive workload optimisation can reduce IT energy consumption by 30–50% without reducing capability.

- Eliminate underused servers through consolidation and virtualisation
- Reduce redundant CI/CD pipelines; implement delta testing to avoid unnecessary full re-runs
- Track resource usage per developer, per application feature, and per AI workload
- Decommission features and services used by fewer than 5% of users

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Report with Transparency

Sustainability claims without evidence are greenwashing. GCF recommends full-chain transparent reporting aligned with BRSR, GRI, and India AI Governance Guidelines 2025.

- Implement BRSR-compliant reporting with Scope 1, 2, and 3 disclosure
- Use standardised kgCO₂e metrics for all AI workloads; report per-inference carbon intensity
- Publish sustainability dashboards visible to all employees and the board quarterly
- Commission third-party assurance for material sustainability claims

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Govern AI Responsibly

AI's sustainability must be embedded in governance — not left to individual teams. India AI Governance Guidelines (November 2025) establish sustainability as one of seven guiding principles for all AI deployments in India.

- Adopt the GCF Sustainable AI Governance Framework as an internal policy
- Require sustainability impact assessment for every new AI project above a defined scale threshold
- Assign clear ownership: a GreenOps role or CSO with AI sustainability accountability
- Review and report AI carbon intensity targets quarterly at board level

Implementation Roadmap

GCF recommends a phased approach — starting with measurement and building toward full governance integration over 12–18 months.

Phase	Months	Focus Area	Key Deliverable
1 — Measure	1–3	Baseline carbon assessment across all IT; select tools	Baseline Carbon Report
2 — Optimise	4–6	Hardware lifecycle audit; workload consolidation; quick wins	Efficiency Improvement Plan
3 — Report	7–9	BRSR data collection; sustainability dashboard launch	First BRSR Disclosure Draft
4 — Govern	10–12	AI sustainability policy; GreenOps role; board reporting	Sustainability Governance Policy
5 — Scale	13–18	Embed across all teams; supplier engagement; public reporting	Annual Sustainability Report

Free resource: Use the EcoBodhai AI app at ecobodhai.in to explore any principle in this framework interactively — ask questions, get examples, and calculate your organisation's carbon footprint. Completely free, no sign-up required.