Terms of Reference

For Consulting Services

Development and conduction of a Pre-feasibility study on digital and AI solutions for Disaster risk management and Forest biodiversity, in India

FEXTE Digital for Development (D4D) Asia-Pacific Program

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# Background

Expertise France (EF), under the mandate of the Agence Française de Développement (AFD), is implementing the "FEXTE Digital for Development (D4D) Asia-Pacific" program. The program promotes inclusive, sustainable, and responsible digital development in emerging and developing countries by providing technical assistance for feasibility studies and workshops/pilot projects in the fields of digital infrastructure, connectivity, artificial intelligence and other emerging technologies.

India presents a dynamic ecosystem for digital development, with rapid progress in e-governance, internet-of-things (IoT)-based monitoring, artificial intelligence (AI) research, and data-driven decision-making. However, challenges persist, such as fragmented data systems, limited interoperability between environmental and disaster management databases, and uneven access to digital infrastructure. Leveraging digital and AI technologies to strengthen disaster resilience and biodiversity protection aligns with both India’s national priorities and AFD’s strategic focus on climate resilience and green transition.

Building on AFD’s existing project portfolio in India, spanning forestry and biodiversity (Assam, Rajasthan, West Bengal) and disaster risk resilience (Kerala, Himachal Pradesh, Maharashtra), this activity seeks to assess the potential of digital technologies to enhance AFD projects in these sectors and identify opportunities for future AFD investments. More specifically, AFD’s Assam Project on Forest & Biodiversity Conservation (APFBC) has institutional depth and a track record on reforestation and community engagement, useful scaffolding for data lakes and remote-sensing analytics. In Rajasthan, AFD’s Forest & Biodiversity Conservation project can field-test geospatial Forest Management Information System (FMIS) enhancements, species monitoring models, and interoperable application programming interfaces (APIs) with state data portals. On the disaster risk management (DRM) side, Himachal Pradesh’s disaster risk reduction (DRR) & preparedness program has formalized AFD engagement and provides an anchor for early-warning upgrades to the digital infrastructure (sensor networks, landslide/flood nowcasting, …). In Kerala, tools like the Disaster & Climate Action Tracker (DCAT), offer a ready integration point for AI-assisted risk scoring and climate-informed planning, with multilateral co-financing signals.

Pragmatically, two cautions should shape the roadmap. First, interoperability and mandates: West Bengal and Rajasthan also host JICA-financed biodiversity programs; so making sure data standards and governance playbooks are aligned is better than AFD trying to invent new stacks. Second is operational realism: investing in early warning systems (EWS) and using AI for biodiversity only de-risk if last-mile connectivity, maintenance budgets, and data rights are nailed down; otherwise states inherit siloed dashboards. This Terms of Reference should not be treated as just a technology roll-out but as a standards and integration effort, to fund shared schemas, open geospatial services, and procurement toolkits across Assam/Rajasthan/Kerala/Himachal, then add selective AI pilots (e.g., fire-risk forecasting, landslide susceptibility, wildlife movement inference) where telemetry and governance are already mature, to finally inform a need for investment in digital infrastructure to support these toolsets.

# Objective

The consultancy aims to support groupe AFD in two complementary actions under FEXTE D4D:

* Organize and facilitate Indo-French roundtable on “Digital and AI solutions for Disaster risk reduction and Biodiversity,” convening key stakeholders from AFD, Expertise France, CDRI, Indian ministries or sub-national government offices, and technical partners as a launch event in January 2026, on the pathway to the AI Impact Summit in India;
* Conduct a detailed pre-feasibility study on the potential use of IoT, AI, geospatial and more globally digital technologies to enhance AFD portfolio of projects in the DRR and biodiversity sectors:
  + Disaster risk management’s EWS, hazard mapping, and real-time disaster monitoring.
  + Forest and biodiversity management: Forest monitoring, wildlife protection, and ecosystem data integration.
* Organize and facilitate a restitution workshop/event to share the study conclusions and open the discussion for future collaboration opportunities between France and India in the Digital and AI sector.

# Scope of services, tasks, expected deliverables

Under the supervision of Expertise France's Project Manager and in coordination with the AFD office in India, the Consultant will undertake the following tasks:

1 – Organization of a roundtable event alongside the AI Impact Summit in India

* Design and facilitate a roundtable event in France, India, or online (hybrid), in coordination with AFD and Expertise France.
* Develop a concept note, agenda, and participant list, aligned with Indo-French cooperation platforms (e.g., CDRI, Indo-French Biodiversity Talks).
* Prepare background materials highlighting global best practices in AI and IoT for DRM and biodiversity, with case studies from Asia, Europe/France.
* Deliver a summary note capturing key discussions, stakeholder interests, and collaboration pathways.

2 – Digital technologies landscape and opportunities

* Study the panorama of digital solutions / promising technologies (AI / ML, IoT, geospatial, drones, virtual modelling, etc.) and best practices/solutions in India, the region, and elsewhere (France and relevant) for biodiversity protection (ex: monitoring of afforestation and wildlife protection systems) and DRR (EWS systems, disaster modelling for planning, monitoring of rescue operations);
* Assess the availability of relevant dataset (ex: geospatial, World Bank, CEEW or GIRI tools, forest inventories, hazard maps, early warning systems, etc) in India; Analyze current data gaps, interoperability challenges, and institutional arrangements, as well as associated costs and access rights;

**Specifically, for Disaster risk reduction (DRR):**

* In connection with AFD projects, review existing EWS coverage and decision-support tools in Kerala, Himachal Pradesh, and Maharashtra, identify needs and gaps, and recommend for enhancement/improvement;
* Assess integration potential with national and subnational databases and systems;
* Evaluate use cases for IoT sensors, AI-driven forecasting, and satellite imagery for multi-hazard early warning and risk-informed planning;
* Evaluate the potential for integrating these technologies into existing or planned projects;
* Recommend architecture for an interoperable DRM platform linking climate, urban, and emergency data.

**Specifically, for Biodiversity and Forest:**

* In the connection with the AFD projects, study the approach of the forestry stack existing in Assam, Rajasthan and West Bengale, map the digital maturity and assess the existing digital solutions, focusing on systems such as FMIS (Forest Management Information System), MIS, E-Green Watch and geospatial tools; Provide needs assessment and recommendations for enhancement;
* Identify opportunities to upgrade the existing stack using AI and remote sensing for forest fire detection, illegal logging alerts, habitat monitoring and wildlife monitoring; Evaluate the potential for integrating these technologies into existing or planned projects;
* Explore French and European innovations that could be adapted to Indian context—like biodiversity monitoring using acoustic sensors, camera trap AI for wildlife, or forest fire early warning systems (Firecast, Prométhée, etc.);
* Assess data integration possibilities—linking forest management systems with biodiversity databases, wildlife movement data, and land-use change platforms (like Forest Survey of India or NRSC). Recommend integration pathways between forest data, biodiversity databases, and disaster/climate systems;

**Institutional and capacity building:**

* Assess institutional capacity (technical, financial, human resources) within key départements /agencies to implement the recommendations/solutions;
* Examine potential for multi-sector interoperability, linking forest data with disaster risk reduction systems or climate adaptation platforms. Or multi-state interoperability. Provide recommendations (on data governance, interoperability policies, etc.) for harmonizing the various systems between the Indian States through central agencies, with a set of best practices;
* Examine alignment or synergies with existing digital public infrastructure or e-government systems;
* Propose capacity building on digital tools, data management and AI literacy if relevant.

**Costs and risks analysis:**

* Estimate initial investment, operational, and maintenance costs of proposed enhancements;
* Analyse expected benefits (e.g. improved efficiency, risk reduction, transparency, data availability, etc.);
* Identify potential risks (e.g. data misuse, cybersecurity, privacy, technological obsolescence, etc.).

**Roadmap and recommendations:**

Finally, the consultant will deliver:

* A strategic note developing a comprehensive and actionable action plan that outlines how the identified digital solutions can be integrated into current AFD projects and prepare the ground for new project opportunities in the DRR and biodiversity sectors.
  + Map integration opportunities, such as adding digital layers, analytics or interoperability features to existing systems (ex: Adding IoT to existing DRR, integrating AI analysis to enhance detection of deforestation, etc.); Propose upgrade pathways;
  + Identify emerging digital domains that could form the basis of new project, or to be integrated as a component of a new project; Outlines concept notes for 2 to 3 potential projects.
* Suggest pilot opportunities linking AI, geospatial data, and green infrastructure investment (ex : for DRM can study a landslide watchlist by ensuring digital infrastructure is set-up to measure rainfall/slope and calculate real-time risk index for designated hotspots by Indian authorities; for forestry/biodiversity, can study fire-risk scoring by improving on digital connectivity within forested areas and setup of IoT devices).

3 - Dissemination and presentation of results

At the conclusion of the study, the Consultant will support the organization and facilitation of a second roundtable to present the findings and recommendations to a broader public audience, including relevant ministries, partners, and projects covered by the study. The Consultant will prepare and deliver presentation materials summarizing key analyses, results, and strategic recommendations to ensure wide dissemination and stakeholder engagement.

The Consultant will adopt a pragmatic, context-sensitive approach, maintaining flexibility to adapt as new information and opportunities emerge. The main deliverables are as follows:

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| **Deliverable** | **Description** | **Timeline (indicative)** |
| 1. Inception note | Methodology, stakeholder list, and detailed work plan | 1 week after signature |
| 2. Roundtable materials | Agenda, background brief, and presentation deck for January event | 3 weeks after signature |
| 3. Event report(s) | Summary of discussions, outcomes, and agreed next steps | 2 weeks after launch event |
| 4. Pre-feasibility report (draft) | Findings on digital/AI solutions for DRR and biodiversity, including technical and institutional recommendations detailed in section “Digital technologies landscape and opportunities” in scope of work above | April 2026 |
| 5. Final report | Consolidated pre-feasibility results and strategic pipeline for AFD India  Should at least include different tracks of investment options. The strategic note needs to assess project ideas with envelopes, counterparts, and readiness criteria (data readiness/use-case readiness/owner readiness), and propose some KPIs to measure the effectiveness of the investment | May 2026 |
| 6. Second roundtable and dissemination materials | Presentation of final study results and recommendations to a wider audience and relevant stakeholders | June 2026 |

**Table 1. Expected deliverables**

# Duration and level of effort

The assignment will span approximately 6 months (December 2025 to June 2026), requiring indicatively 50 to 80 working days for preparation, coordination, analysis, and reporting.

The Consultant will be expected to travel to India. All potential travel costs shall be included in the financial offer amount.

The Consultant will be remunerated at a local expert daily rate, in accordance with Expertise France and AFD regulations.

# Location

Primary location: India (hybrid working mode possible throughout the contract, except for events and study visits).

Field visits: Selected states (Assam, Rajasthan, West Bengal, Kerala, Himachal Pradesh, Maharashtra).

Remote work for preparatory tasks and reporting possible.

# Consultant profile

The assignment must be carried out by one lead expert along with other experts or a small multidisciplinary team.

Experts’ education and experience requirements:

* Digital Resilience and AI Expert (at least one expert)
  + 10+ years of experience in AI/IoT applications for disaster or environmental management
  + Proven experience with geospatial and data-driven planning tools
* Biodiversity and Forestry Digital Systems Expert (at least one expert)
  + 10+ years of experience in AI/IoT or other digital tools applied to environmental management
  + Proven experience in forest management information systems and biodiversity monitoring technologies
* Common criteria
  + Policy & development finance experience
    - Familiarity with international development funding mechanisms
    - Experience coordinating multi-stakeholder consultations.
  + **Confirmed experience working in India, knowledge of and previous successful working experience with the Indian institutional or digital/AI ecosystem** (at least 50% of the experts)
  + Advanced degree in ICT, Environment, or Development Studies
  + Demonstrated ability to synthesize complex systems into actionable policy insights
  + Fluency in English; knowledge of French or Hindi is an asset
  + Previous collaboration with international financial institutions or development agencies is desirable.

# Contract management and supervision

The consultant(s) will report to:

* Ms. Andreea Musca, Project Manager, FEXTE D4D Asia-Pacific (Expertise France, Paris).
* Mr. Hieu Danh Luu, Project Coordinator (Expertise France, Hanoi).

Close coordination will be maintained with:

1. AFD India Office
2. AFD Mobility and digital division

All deliverables will be reviewed and validated by Expertise France and AFD

# Logistics and support

EF/AFD will cover the logistics cost of the launch event if it is organised by the timeline proposed.

EF/AFD will cover some logistics cost of the dissemination event, including: room rental, interpretation (if needed), refreshments.

EF/AFD will provide access to background documentation and facilitate introductions to stakeholders (if needed).

The experts’ travel and accommodation costs (including visas, insurance, etc.) must be covered by the contractor or the experts themselves and included in the financial offer.

# Confidentiality

The Consultant shall maintain strict confidentiality regarding all information obtained during the course of this assignment and shall not use, disclose, or publish such information without prior written authorization from Expertise France.

All reports, data, and materials produced under this consultancy will remain the property of Expertise France and AFD and may not be used for any purpose beyond the scope of this assignment without prior written authorization.

# Sustainability and inclusion

In alignment with AFD Group’s commitment to sustainable and inclusive development, the Consultant shall give due consideration to promoting digital inclusion, gender equality, and climate-resilient digital practices throughout the activities, ensuring that identified opportunities contribute to broader societal and environmental benefits.