



Feasibility Study on Green Hydrogen Potential in Maldives and Development of a  
National Roadmap for Sustainable Energy Transition

## Monitoring & Evaluation (M&E) Plan

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Prepared for



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Submitted by



pManifold Business Solutions Pvt. Ltd.

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<b>Basic Information</b>	
Title of response plan	Feasibility Study on Green Hydrogen Potential in Maldives and Development of a National Roadmap for Sustainable Energy Transition
Technical assistance reference number	2024000007
Country/ countries	Maldives
NDE focal point and organisation	Ahmed Waheed, Director, Ministry of Tourism and Environment
Sector(s) addressed	Green Hydrogen, Renewable Energy, Transport & Tourism
Technologies supported	Green Hydrogen Production Technologies (Alkaline, PEM, Biomass gasification), Fuel Cell Electric Vehicles (FCEVs),
Implementation period and total duration	September 2025-2026, 12 months
Total budget for implementation	USD 1,19,178
Designer of the response plan	UNEP-CTCN
Implementer of response plan	pManifold Business Solutions Pvt. Ltd.

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(A) Output/Activity	(B) Indicator	(C) Expected Results / Target	(D) Method and Frequency for Data Collection	(F) Comments / Assumptions
<b>Output 1: Inception Workshop and Baseline Assessment</b>	<ul style="list-style-type: none"> <li>Number of inception and consultative meeting/ workshop held</li> <li>Number of stakeholders engaged (disaggregated by gender and sector)</li> <li>Baseline assessment report completed</li> </ul>	<ul style="list-style-type: none"> <li>1 inception/ consultative meeting/ workshop conducted</li> <li>≥10 participants representing public, private, and development sectors</li> <li>1 baseline assessment report prepared</li> </ul>	<ul style="list-style-type: none"> <li>Attendance sheets, meeting minutes, photos</li> <li>Compilation and validation of baseline data from secondary sources and interviews</li> </ul>	<ul style="list-style-type: none"> <li>Active participation from key ministries and private sector</li> <li>Availability of prior energy and resource data</li> </ul>
<b>Activity 1.1: Inception workshop</b>	<ul style="list-style-type: none"> <li>Number of inception and steering committee meetings conducted</li> <li>Number of key stakeholders identified</li> </ul>	<ul style="list-style-type: none"> <li>1 inception workshop/ meeting held</li> <li>≥15 stakeholder entities confirmed</li> </ul>	<ul style="list-style-type: none"> <li>Review of workshop report, attendance records, and meeting notes</li> </ul>	<ul style="list-style-type: none"> <li>Timely coordination from all invited stakeholders</li> </ul>
<b>Activity 1.2: Baseline assessment of current energy use and renewable sources</b>	<ul style="list-style-type: none"> <li>Baseline report developed</li> <li>Number of stakeholder consultations</li> <li>Stakeholder inputs incorporated</li> </ul>	<ul style="list-style-type: none"> <li>1 comprehensive baseline report including socio-economic and environmental data</li> </ul>	<ul style="list-style-type: none"> <li>Review of technical documents, stakeholder interviews, secondary data collection, validation by steering committee</li> </ul>	<ul style="list-style-type: none"> <li>Data gaps in renewable resource mapping and hydrogen readiness may exist</li> </ul>
<b>Output 2: Feasibility Study</b>	<ul style="list-style-type: none"> <li>Number of feasibility components completed (production, transport, utilization)</li> <li>Number of recommendations for scaling-up</li> </ul>	<ul style="list-style-type: none"> <li>1 integrated feasibility study report submitted</li> <li>≥5 actionable recommendations proposed for scaling green hydrogen in Maldives</li> </ul>	<ul style="list-style-type: none"> <li>Review of feasibility study drafts and final report</li> <li>Validation through stakeholder consultation</li> </ul>	<ul style="list-style-type: none"> <li>Access to local RE potential data and water resources</li> <li>Support from national energy agencies</li> </ul>
<b>Activity 2.1: Green hydrogen production assessment</b>	<ul style="list-style-type: none"> <li>Renewable energy potential mapped</li> <li>Water resource suitability assessed</li> <li>Waste resource availability assessed</li> </ul>	<ul style="list-style-type: none"> <li>Identification of ≥2 suitable RE sources for GH2 production</li> <li>Water suitability analysis completed</li> </ul>	<ul style="list-style-type: none"> <li>Desk research, hydrological data collection, technical feasibility modelling</li> </ul>	<ul style="list-style-type: none"> <li>Availability of solar and hydrological datasets</li> </ul>

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	<ul style="list-style-type: none"> <li>Private sector partners consulted</li> <li>GH2 Production technologies feasibility assessed</li> </ul>	<ul style="list-style-type: none"> <li>Waste to hydrogen production route completed</li> <li>Preliminary Levelized Cost of Hydrogen (LCOH) estimated</li> </ul>		
<b>Activity 2.2: Green hydrogen transportation analysis</b>	<ul style="list-style-type: none"> <li>Evaluation framework for feasibility assessment</li> <li>Transportation modes evaluated (compressed, liquid, ammonia, imports etc.)</li> <li>Storage options for hydrogen evaluated</li> <li>Infrastructure requirements and costs estimated</li> <li>Safety and logistics risks assessed</li> </ul>	<ul style="list-style-type: none"> <li>Technical evaluation of <math>\geq 2</math> transportation modes (e.g., liquid vs compressed hydrogen) and storage of hydrogen</li> <li>Infrastructure readiness assessment</li> <li>Cost-benefit summary developed</li> </ul>	<ul style="list-style-type: none"> <li>Technical modelling and secondary data review</li> </ul>	<ul style="list-style-type: none"> <li>Limited local infrastructure data may affect analysis</li> </ul>
<b>Activity 2.3: Green hydrogen utilization study</b>	<ul style="list-style-type: none"> <li>Potential off-takers consulted</li> <li>Energy demand analysis completed</li> <li>Optimal hydrogen use-cases identified</li> </ul>	<ul style="list-style-type: none"> <li>3–4 potential off-takers analyzed</li> <li>Demand projections completed for each sector</li> <li>GHG reduction potential (tCO<sub>2</sub>e/year) quantified</li> <li>Financial viability (IRR, NPV) estimated for each use-case</li> </ul>	<ul style="list-style-type: none"> <li>Surveys/interviews with industries, modelling of demand-supply balance</li> <li>Stakeholder consultations during mission visit</li> </ul>	<ul style="list-style-type: none"> <li>Data availability and willingness of private actors to share energy usage data</li> </ul>
<b>Output 3: Policy Gaps Analysis and Policy Framework Development</b>	<ul style="list-style-type: none"> <li>Number of policy and regulatory gaps identified</li> <li>Number of policy recommendations proposed</li> </ul>	<ul style="list-style-type: none"> <li>Policy gaps assessment completed</li> <li><math>\geq 5</math> actionable policy recommendations identified</li> </ul>	<ul style="list-style-type: none"> <li>Desk review of existing national policies, acts, and strategies</li> </ul>	<ul style="list-style-type: none"> <li>Access to national policy documents</li> <li>Active engagement from policy and regulatory stakeholders</li> </ul>

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	<ul style="list-style-type: none"> <li>Draft policy framework developed and validated</li> </ul>	<ul style="list-style-type: none"> <li>1 draft policy framework document aligned with national RE and climate goals</li> </ul>	<ul style="list-style-type: none"> <li>Key stakeholder consultations and validation workshop</li> <li>Review of government and regulatory documents</li> </ul>	<ul style="list-style-type: none"> <li>Timely validation and feedback from government counterparts</li> </ul>
<b>Activity 3.1: Review of existing policy and regulatory environment</b>	<ul style="list-style-type: none"> <li>Number of policies and regulations reviewed</li> <li>Number of institutional gaps identified</li> </ul>	<ul style="list-style-type: none"> <li>Review of relevant energy, environment, and investment-related policies</li> <li>Institutional mapping completed</li> </ul>	<ul style="list-style-type: none"> <li>Document analysis, stakeholder interviews, and consultation meetings</li> </ul>	<ul style="list-style-type: none"> <li>Policy documents are publicly available and up to date</li> </ul>
<b>Activity 3.2: Develop a draft policy framework and roadmap for enabling green hydrogen</b>	<ul style="list-style-type: none"> <li>Draft policy framework document developed and validated</li> <li>Number of policy recommendations formulated</li> </ul>	<ul style="list-style-type: none"> <li>1 policy framework document prepared</li> <li>Validation workshop conducted</li> </ul>	<ul style="list-style-type: none"> <li>Stakeholder consultation workshop report, feedback notes, and revised framework version</li> </ul>	<ul style="list-style-type: none"> <li>Political and institutional alignment with existing national energy and climate strategies required</li> </ul>
<b>Output 4: GCF Concept Note and Capacity Building Workshop</b>	<ul style="list-style-type: none"> <li>Number of GCF concept notes developed and submitted</li> <li>Number of stakeholders trained through dissemination workshop</li> <li>Number of MDBs and key stakeholders engaged in scaling discussions</li> </ul>	<ul style="list-style-type: none"> <li>1 GCF Concept Note prepared with supporting documentation</li> <li>1 in-person capacity building workshop conducted</li> <li>≥15 participants (disaggregated by gender and institution)</li> </ul>	<ul style="list-style-type: none"> <li>Review of final GCF concept note and annexes</li> <li>Workshop attendance sheets, photos, and feedback forms</li> <li>Validation of deliverables by the NDA</li> </ul>	<ul style="list-style-type: none"> <li>Timely feedback and coordination from GCF NDA</li> <li>Availability of national data for financial and environmental modelling</li> <li>Participation from key ministries, private sector, MDBs</li> </ul>
<b>Activity 4.1: Development of one GCF concept note</b>	<ul style="list-style-type: none"> <li>Concept note completed and validated by NDA</li> <li>Supporting documents compiled (ToC, financial model, pre-feasibility analysis)</li> </ul>	<ul style="list-style-type: none"> <li>1 GCF concept note and supporting documentation package submitted to NDA</li> <li>1 summary presentation prepared</li> </ul>	<ul style="list-style-type: none"> <li>Review and quality assurance of draft and final note</li> </ul>	<ul style="list-style-type: none"> <li>Timely access to project data generated from earlier outputs</li> <li>Alignment with GCF investment criteria and country priorities</li> </ul>

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<p><b>Activity 4.2: In-person workshop and project wrap-up</b></p>	<ul style="list-style-type: none"> <li>• Number of dissemination and capacity-building events organized</li> <li>• Number of participants (disaggregated by gender and institution)</li> <li>• Final project report prepared and shared</li> </ul>	<ul style="list-style-type: none"> <li>• 1 final in-person workshop conducted</li> <li>• ≥20 participants engaged in the final workshop</li> <li>• 1 Webinar conducted</li> <li>• 1 press release developed</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop report including photos, agenda, attendance sheet, and evaluation forms</li> <li>• Review of final compiled report and presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Engagement from MDBs, GCF NDA, and GEF focal points ensured</li> </ul>

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<b>Impact Statement</b>	
Challenge	The Maldives struggles to diversify energy due to limited land, technical capacity, and lack of policy frameworks. Despite ocean potential for floating solar and green hydrogen, the absence of a national hydrogen strategy, feasibility of GH2 production technologies and skilled workforce hinders progress. Hence it is essential to assess feasibility, build capacity, and guide Maldives toward a sustainable, net-zero future.
CTCN assistance	<ul style="list-style-type: none"> <li>• Conduct green hydrogen feasibility study and cost-benefit analysis</li> <li>• Support development of a national roadmap with clear frameworks</li> <li>• Build stakeholder capacity through consultations and training</li> <li>• Provide technical guidance on technology options and financing landscape</li> </ul>
Anticipated impact	<ul style="list-style-type: none"> <li>• Enhancement of national capacity for GH2 Production Technology</li> <li>• Development of National GH2 Policy framework for green hydrogen deployment</li> <li>• Creation of new economic opportunities in the renewable energy sector</li> <li>• Stimulation of investment of relevant stakeholders in the hydrogen sector of Maldives</li> <li>• Core Indicator: GH2 Production technologies feasibility assessed</li> </ul>
Anticipated co-benefits from the TA	The project will empower women and youth by creating opportunities in the hydrogen sector, fostering gender equality and promoting inclusive economic growth. The involvement of women and youth in the renewable energy industry will drive socio-economic benefits for island communities, enhancing their resilience and sustainability
Gender aspects of the TA	The TA will be supported by gender analysis (gender action plan). A gender expert will conduct an assessment to ensure gender mainstreaming throughout the project. This will involve collecting gender-disaggregated data, evaluating project design for gender responsiveness, and promoting women's participation in green hydrogen enterprises. The project will allocate 5% of the budget to gender-specific activities.
Anticipated contribution to NDC	<ul style="list-style-type: none"> <li>• Supports Maldives' target of net-zero emissions by 2030</li> <li>• Aligns with NDC goals to expand renewable energy use</li> <li>• Delivers a roadmap for integrating green hydrogen into national systems</li> <li>• Builds capacity for climate mitigation and resilient energy planning</li> </ul>
The narrative story	The Maldives has a bold vision of achieving net-zero emissions by 2030, yet its path to sustainable energy is challenged by geographic constraints and limited resources. With scarce land for conventional renewables and high dependence on imported fuel, the Maldives must explore innovative solutions like floating solar and green hydrogen. However, the nation currently lacks a national hydrogen policy, technical expertise, and investment pathways to fully investigate these alternatives. This technical assistance project will conduct a feasibility study to assess the potential for green hydrogen production and its integration into the

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	energy mix. It will deliver a national roadmap, build institutional capacity, and engage stakeholders across sectors. The result will empower the Maldives to make informed, strategic decisions in its pursuit of a resilient, low-carbon energy future, while opening the door to long-term technology investments and sustainable economic growth.
Contribution to SDGs	<ul style="list-style-type: none"> <li>• SDG 7 (Affordable and Clean Energy): Promotes renewable and clean energy solutions like green hydrogen, reducing reliance on costly fuel imports</li> <li>• SDG 13 (Climate Action): Accelerates low-carbon strategies essential for net-zero commitments and resilience against climate impacts</li> <li>• SDG 9 (Industry, Innovation, and Infrastructure): Stimulates innovation in energy infrastructure and builds a foundation for industrial development around green hydrogen</li> </ul>
Reference to knowledge products	<ul style="list-style-type: none"> <li>• The TA envisages use of Technology Executive Committee (TEC) briefs on             <ul style="list-style-type: none"> <li>○ Enabling environments and challenges to technology development and transfer identified in TNA, NDCs and CTCN Technical Assistance</li> <li>○ Gender-responsive technology and infrastructure for sustainable urban mobility</li> </ul> </li> </ul>