

## GIS & Remote Sensing Mentor

### Ministry of Environment, Lands and Agricultural Development(MELAD), Kiribati

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| Assignment title         | GIS & Remote Sensing Mentor                          |                |           |
| Partner organisation     | MELAD-Land Management Division                       |                |           |
| Location                 | Kiribati                                             | Bairiki,Tarawa |           |
| Type of assignment       | In-country Assignment                                |                |           |
| Duration of assignment   | 12 months                                            |                |           |
| Assignment phases        | Phase                                                | Mode           | Duration  |
|                          | 1                                                    | In-Country     | 12 months |
| Proposed start date      | 1 February 2027                                      |                |           |
| Website                  | Website link Not Available                           |                |           |
| Australian organisation: | No Australian Organisation linked to this assignment |                |           |

### ABOUT THE PARTNER ORGANISATION

The Lands Division under the Ministry of Environment, Lands and Agricultural Development (MELAD) is the central government body responsible for land administration and management in Kiribati. We operate across the islands of Kiribati, with our main office located in South Tarawa.

Our aim is to ensure the sustainable, fair, and efficient management of land resources for the people of Kiribati. We work closely with landowners, local communities, and other government agencies to manage land tenure, resolve disputes, and maintain critical land records.

Facing challenges such as coastal erosion, sea-level rise, and population pressure, our future goals are to modernize our land records through digital mapping and GIS technology. This will enable us to make informed decisions for climate resilience, urban planning, and the sustainable development of our limited land resources.

### ABOUT THE ASSIGNMENT

This assignment is critically important to the Lands Division as they transition from outdated paper-based maps to a modern, digital Geographic Information System (GIS). Accurate spatial data is essential for addressing land disputes, planning infrastructure, managing coastal zones, and mitigating the effects of climate change on our vulnerable islands.

A volunteer GIS & Remote Sensing Specialist is essential to build the technical capacity of the team, as these specialized skills are not currently available within the local labour market. The volunteer will support the organisation by helping them to develop a centralized spatial database, training staff in GIS software, and how to analyze satellite imagery to environmental changes.

The organisations strength lies in their dedicated local staff and their deep understanding of the land tenure system in Kiribati. The volunteer will have the opportunity to learn about this unique system and contribute directly to a nationally significant project that will shape the future of land management in a small Island Developing State on the front lines of climate change.

## ASSIGNMENT OBJECTIVES AND PROPOSED ACTIVITIES

The volunteer will work alongside members of Lands Management Division to support the below objectives:

| Assignment objectives                                                                                                                                   | Proposed activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <b>In-Country Phase Objective1:</b> Strengthen the National Geospatial Infrastructure and Enterprise GIS Capability of the Lands & Geospatial Division. | <ul style="list-style-type: none"> <li>• Design and implement an enterprise geospatial database (PostgreSQL/PostGIS) for centralized management of cadastral, lease, land tenure, topographic, environmental, and infrastructure datasets.</li> <li>• Develop GIS data governance frameworks, metadata standards, quality assurance protocols, and spatial data management procedures aligned with international standards.</li> <li>• Support the development of a Spatial Data Infrastructure (SDI) for MELAD to facilitate data sharing across government agencies.</li> <li>• Develop automated workflows for data integration, validation, synchronization, backup, and recovery of geospatial datasets.</li> <li>• Establish version-controlled geospatial data management systems to improve data integrity and accessibility.</li> </ul> |
| <b>In-Country Phase Objective2:</b> Build Technical Capacity in Geospatial Analysis, Automation, and Spatial Modelling.                                 | <ul style="list-style-type: none"> <li>• Deliver advanced training in QGIS, PostgreSQL/PostGIS, Python for GIS,</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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|                                                                                                                                                                      | <p>Remote Sensing, and geospatial data management.</p> <ul style="list-style-type: none"> <li>• Develop automated GIS workflows using Python, Model Builder, and QGIS Processing Framework to improve operational efficiency.</li> <li>• Train staff in spatial statistics, geoprocessing techniques, terrain analysis, raster modelling, and geospatial decision-support systems.</li> <li>• Develop standard operating procedures (SOPs) and technical manuals for GIS and Remote Sensing operations.</li> <li>• Mentor GIS&amp;RS staff through practical project implementation and knowledge transfer programmes.</li> </ul>                                                                                    |
| <p><b>In-Country Phase Objective 3: Develop Decision-Support Tools for Land Administration, Climate Change Adaptation, and Sustainable Development Planning.</b></p> | <ul style="list-style-type: none"> <li>• Develop GIS-based decision-support systems for land management, government lease administration, land-use planning, and development control.</li> <li>• Support the integration of cadastral, lease, environmental, and socio-economic datasets into planning frameworks.</li> <li>• Develop spatial suitability models for housing, infrastructure development, and land reclamation projects.</li> <li>• Produce geospatial products and dashboards to support evidence-based decision making at national and island levels.</li> <li>• Strengthen the use of GIS in climate adaptation planning, disaster risk reduction, and coastal resilience initiatives.</li> </ul> |
| <p><b>In-Country Phase Objective 4: Strengthen Coastal Change Monitoring and Shoreline Change Atlas Development for Kiribati.</b></p>                                | <ul style="list-style-type: none"> <li>• Support the development and maintenance of a National Shoreline Change Database for Kiribati.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Establish standardized shoreline extraction and monitoring methodologies using historical aerial photography, satellite imagery, and GPS survey data.</li> <li>• Produce shoreline change statistics, erosion/accretion trend analyses, and vulnerability assessments for targeted islands.</li> <li>• Develop geospatial tools and workflows for long-term shoreline monitoring and reporting.</li> <li>• Contribute to the preparation of a Shoreline Change Atlas and coastal management information products for national planning purposes.</li> </ul>                                                                                                          |
| <b>In-Country Phase Objective 5: Explore Emerging Geospatial Technologies and Innovation.</b>                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Assess opportunities for integrating UAV (Drone) mapping, LiDAR, GNSS surveying, and cloud-based geospatial technologies into MELAD operations.</li> <li>• Investigate the use of Google Earth Engine and cloud-based processing platforms for large-scale environmental monitoring.</li> <li>• Support pilot projects utilizing artificial intelligence (AI) and machine learning for feature extraction and change detection.</li> <li>• Develop recommendations for future geospatial technology investments and capacity development priorities.</li> <li>• Promote innovation and digital transformation within the Lands &amp; Geospatial Division.</li> </ul> |
| <b>Inclusion objective and proposed activity</b>                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>The volunteer will work alongside the Lands &amp; Geospatial Division to ensure equitable access to geospatial information, technology, and capacity-building opportunities.</p> <p>The volunteer will work alongside members of the Lands Department to:</p> <ul style="list-style-type: none"> <li>• Promote equal participation of women, men, youth, and persons with disabilities in GIS and Remote Sensing training programmes.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

- Develop accessible geospatial products and maps that support community-level understanding and decision-making.
- Strengthen access to land and spatial information services for outer-island communities through digital platforms and outreach activities.
- Support inclusive stakeholder engagement in geospatial data collection, validation, and planning processes.
- Encourage the use of geospatial technologies to support vulnerable communities affected by coastal erosion, flooding, and climate change.

## SELECTION CRITERIA

### Education and qualifications

| Essential                                                                                                                                                                                                                                             | Desirable                                                                                                                                                                                                          |
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| <ul style="list-style-type: none"> <li>• A Bachelor's degree in GIS, Remote Sensing, Geography, Environmental Science, or a related field.</li> <li>• Certified training or demonstrated proficiency in GIS software (e.g., QGIS, ArcGIS).</li> </ul> | <ul style="list-style-type: none"> <li>• A postgraduate qualification in GIS, Spatial Science, or a related discipline.</li> <li>• Certification in Remote Sensing analysis or a specific GIS platform.</li> </ul> |

### Knowledge and experience

| Essential                                                                                                                                                                                                                                                                                                                                                                                                     | Desirable                                                                                                                                                                                                                                               |
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| <ul style="list-style-type: none"> <li>• Minimum of 3 years of practical experience in GIS database development, spatial data management, and digitization.</li> <li>• Proven experience in analyzing satellite imagery for environmental monitoring (e.g., land cover change, coastal change).</li> <li>• Demonstrated experience in conducting training or mentoring others in technical skills.</li> </ul> | <ul style="list-style-type: none"> <li>• Previous international development or cross-cultural work experience, particularly in the Pacific region</li> <li>• Experience working with land administration, cadastral, or land tenure systems.</li> </ul> |

*Following the Program's values on locally led development, this Assignment Description has been developed and negotiated in good faith with the Partner Organisation. The information contained was correct at the time of acceptance of the request. However, while we take responsibility for matters under our direct control, all assignments and arrangements are subject to change. This assignment may be amended or withdrawn to reflect changes in circumstances.*