Biennial Update Report and the use of GIS tools

"Fiji's Initial Biennial Update Report (BUR1) under the United Nations Framework Convention on Climate Change (UNFCCC)"

Climate Change and International Cooperation Division

Ministry of Economy

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BUR Background

- To meet non-Annex I Parties' reporting requirements under the United Nations Framework Convention on Climate Change, is required to prepare and submit the BUR report.

- Such reports provide updates on actions undertaken by a Party to implement the Convention, including the status of its GHG emissions as well as on the actions to reduce emissions.

BUR Background continued….

- The BUR Projected is being implemented under a UN Environment multi-country project which has secured funding from the Global Environment Fund established under the UNFCCC (GEF).

- **Project Duration**

- Starts from the signature of the PCA (November 2018)

- 28 February 2022 (Technical Completion)

- **Project Budget**

- USD 452, 000

Objectives:

A National Greenhouse Gas Inventory Report

Mitigation Actions

Support Needed and Received.
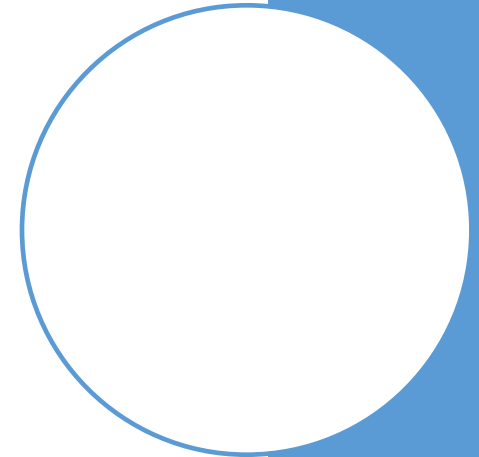
Benefits of National Reporting

- **Providing coherent data for informed national policy- and decision-making on climate issues and other related matters, making it possible to analyse the efficiency and effectiveness of policy implementation, which is an element of good governance;**

- **Increasing the political buy-in for climate issues at the national level;**

- **Enhancing national capacities by involving many stakeholders from a variety of national institutions in the operationalisation of the MRV system;**

- **Increasing the involvement of the private sector in climate actions; and**

- **This will support the Government to design appropriate and sustainable institutional tools, build technical capacity at national and sectoral levels and streamline information sharing processes engaging all relevant stakeholders.**

- **Improved access to funding**

National reporting is an excellent source of robust information climate-friendly project aspects such as baselines and assessment of the mitigation potential.

For many donors, development banks and other financiers, the information from national reports, MNE systems in recipient countries and NDC commitments is key to understanding the needs and opportunities for funding of climate change mitigation and adaptation in developing countries.

- **Supporting accession to political and economic communities and organisations**

A country with an established MRV system for reporting to the UNFCCC might already comply with a variety of accession requirements and might be able to use its MRV system as a source of information for complying with additional requirements.

Consultants

- Gauss International SL
- GH Sustainability

Energy Sector

- Land Transport Authority
- Energy Fiji Limited
- Fiji Bureau of Statistics
- Fiji Revenue Customs Services
- Fiji Ports Corporation
- The Pacific Community
- The University of the South Pacific
- Department of Energy
- Department of Civil Aviation
- Ministry of Transport

IPPU Sector

- Fiji Bureau of Statistics
- Fiji Revenue Customs Services
- Ministry of Trade

AFOLU Sector

- Ministry of Forestry
- Ministry of Agriculture
- Sugar Research Institute of Fiji
- Fiji Pine Trust

Waste Sector

- Water Authority of Fiji
- Ministry of Waterways and Environment
- Ministry of Local Government
- Ministry of Health

The Climate Change division of the Ministry of Economy collects relevant data/information in cooperation with a broad range of relevant Ministries and Agencies.
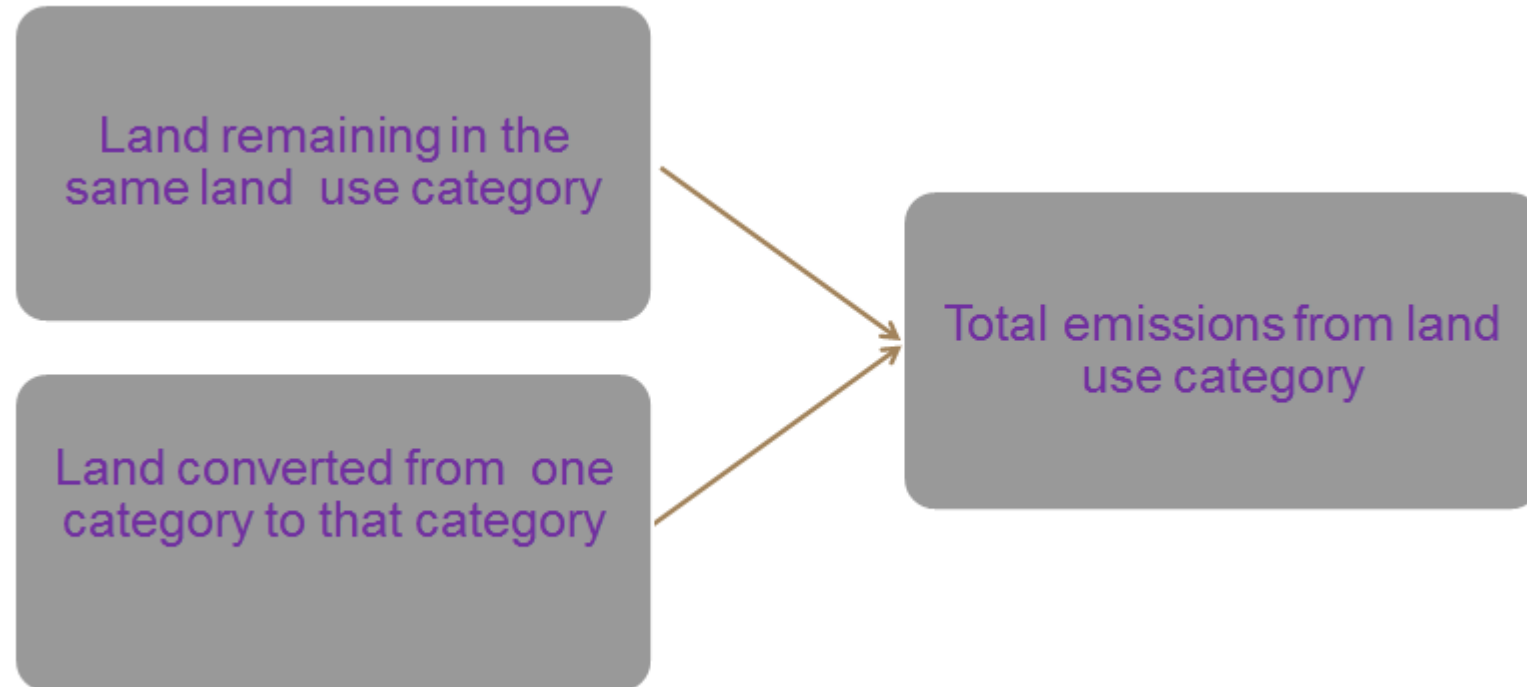
Six land-use categories

Stock changes of C pools are estimated and reported for the six "**top-level**" land-use categories
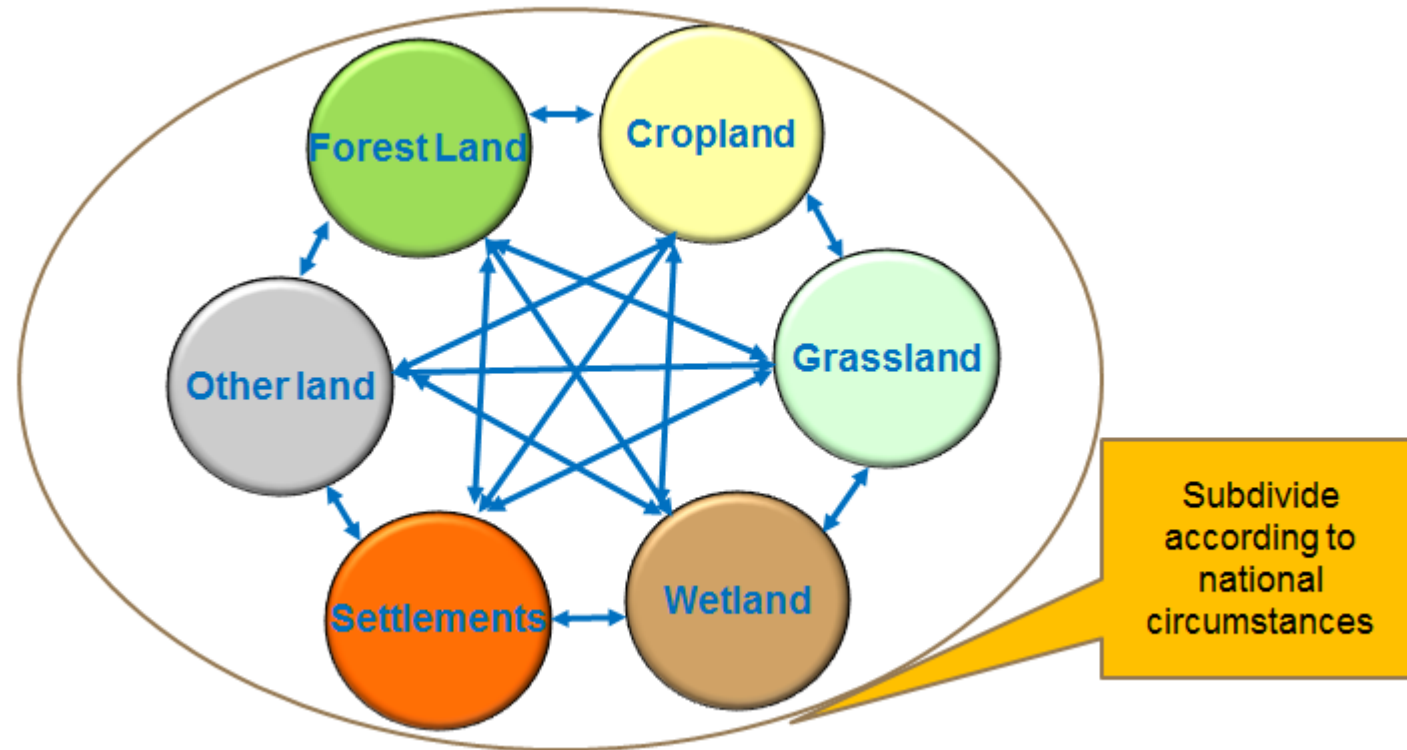
Total estimates for GHG are made up of subdivisions of land use categories

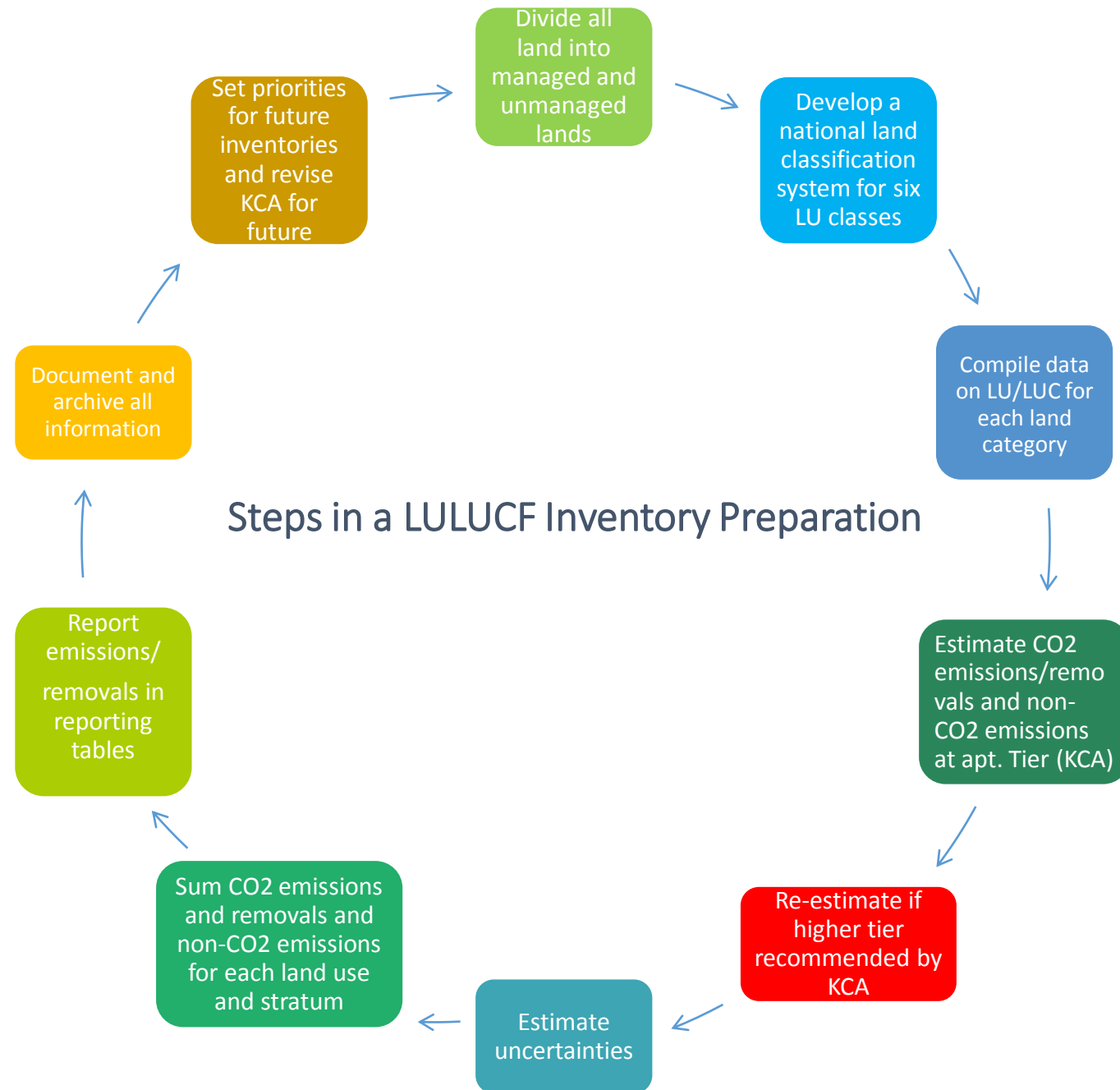# Land Representation: Why we need Land Stratification

Forest Land → Cropland

- When estimating GHG emissions and removals, land areas are used as activity data (AD). As activity data, they represent the magnitude of a human activity that generates GHG emissions and/or removals during a given period of time.

- This is why the stratification of land is a paramount tool to achieve accuracy of GHG estimates.

- *Example of a land representation and associated C stock changes* This illustration is an example of how land stratification correlates with the amount of C stocks found in a unit of land and their dynamic.

- As you can see the conversion of land from forest land to cropland determines a negative C dynamic of C stocks (i.e. the amount of C stocks in this unit of land decreases across time).

Steps in a LULUCF Inventory Preparation

- Divide all land into managed and unmanaged lands
- Develop a national land classification system for six LU classes
- Compile data on LU/LUC for each land category
- Estimate CO2 emissions/removals and non-CO2 emissions at apt. Tier (KCA)
- Re-estimate if higher tier recommended by KCA
- Estimate uncertainties
- Sum CO2 emissions and removals and non-CO2 emissions for each land use and stratum
- Report emissions/removals in reporting tables
- Document and archive all information
- Set priorities for future inventories and revise KCA for future

Typical Hierarchical Stratification Levels for an AFOLU Inventory

1. The first level of stratification is the six land-use categories:
- Forest Land
- Cropland
- Grassland
- Wetlands
- Settlements
- Other Land

2. The second level of stratification has two subcategories:
- Managed land
- Unmanaged land

3. The third level of stratification includes many subcategories that account for variables, such as:
- Climate zone
- Soil type
- FAO ecological zones
- Vegetation type
- Management type
- Age class

Data on land areas

There is rarely a single reference for land-area data that provides everything you need for an AFOLU inventory, including data organized by land categories and subcategories. For example, many countries have separate forest and agriculture ministries, departments or agencies, each of which may collect its own land-use dataset. In such situations, you should be aware of the following:

- Different datasets may be collected using different methods and land-use definitions.
- The territorial coverage of a dataset may overlap with the other datasets.
- The land-use categorization for the same land area may differ between datasets.
- Datasets may miss important land-use information.

Having different sources of data presents challenges with determining which dataset provides the most accurate data, especially on land conversions between different land uses (for example how much Forest Land is converted to Grassland or Settlements).

This may also create inconsistency problems if one dataset is used to determine reference levels while another is used for subsequent years.

Collecting and combining data

To collect land-area data that fits your stratification of categories and subcategories you will probably need to combine data from more than one source. Combining land-area data generally requires you to rearrange the data of all datasets on the basis of the structure of the least disaggregated dataset. This may result in compromising on your ideal stratification structure to match the realities of the data available for your country.

Over the longer term, you should work with your data suppliers to ensure that they can collect more disaggregated datasets that better match your methodological needs.

The general types of data references you may have access to include:

- Land owner surveys
- Research surveys
- Systematic field sampling programs
- Remote sensing
- Government statistics

Keep in mind that AFOLU inventories require data on land area at multiple points in time so that you can calculate CO_2 emissions and removals over a time series.
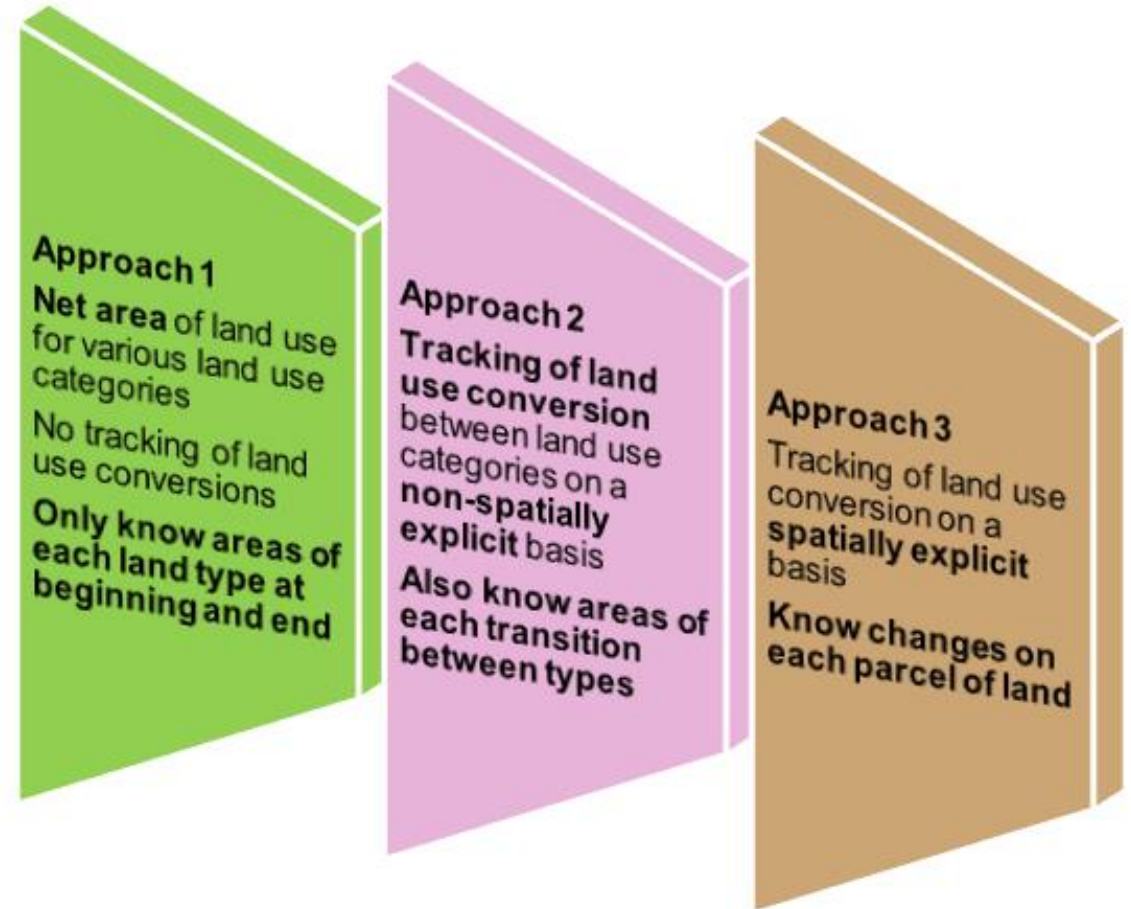
Land Stratification – Land Use

Can countries apply their own country specific land use definitions?

• Yes- countries may apply their own country specific definitions as long as:

• A hierarchical order is established among the country specific definitions

• Country specific definitions need to cover the entire range of land uses represented in the country's territory and avoid mixing areas with very different C stocks and C stock dynamics together in the same category

• Often country-specific definitions are based on land cover classes, and therefore need to be reconciled with IPCC land use categories.

Three approaches for Consistent Land Representation: Methodological Approaches

Approach 1
Net area of land use for various land use categories

No tracking of land use conversions

Only know areas of each land type at beginning and end

Approach 2
Tracking of land use conversion between land use categories on a **non-spatially explicit** basis

Also know areas of each transition between types

Approach 3
Tracking of land use conversion on a **spatially explicit** basis

Know changes on each parcel of land

Available datasets

- Need to investigate what land-use data has already been collected before deciding to invest in new data collection efforts.

- Before using a particular land-area dataset, you need to look carefully at:

- Definitions of land-use to ensure that they are good match to land-use category definitions used in the inventory.

- The spatial resolution of the data in order to determine whether the data are fine-grained enough to distinguish between the relevant land categories.

- The time periods for which the data are available.

Way Forward

WHAT CAN WE DO COLLECTIVELY TO CONTRIBUTE TOWARDS THE INVENTORY?

HOW CAN WE WORK TO IMPROVE ON THE DATA REQUIREMENTS OVER TIME?

EXPLORE OPPORTUNITIES FOR COLLABORATION