



Forestry Department

Food and Agriculture Organization of the United Nations

**GLOBAL FOREST RESOURCES
ASSESSMENT 2010**

COUNTRY REPORT

KIRIBATI

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The Forest Resources Assessment Programme

Sustainable managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2010 (FRA 2010).

The reporting framework for FRA 2010 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes variables related to the extent, condition, uses and values of forest resources, as well as the policy, legal and institutional framework related to forests. More information on the FRA 2010 process and the results - including all the country reports - is available on the FRA Web site (www.fao.org/forestry/fra).

The Global Forest Resources Assessment process is coordinated by the Forestry Department at FAO headquarters in Rome. The contact person for matters related to FRA 2010 is:

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The Global Forest Resources Assessment Country Report Series is designed to document and make available the information forming the basis for the FRA reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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Introduction

Kiribati is comprised of 33 coral atolls in 3 main groups of islands; the Gilbert, Phoenix and Line Islands. Only 21 islands are inhabited. The total Land Area is only 811 km² (around 313 sq mi) but each of the islands is widely dispersed across a 3.5 million km² EEZ in the middle of Pacific Ocean.



Map 1. Republic of Kiribati

Tarawa Atoll, Capital

Detailed Map of Kiribati © Microsoft Corporation. All Rights Reserved. Microsoft © Encarta © 2008. © 1993-2007 Microsoft Corporation. All rights reserved.

Population as of 2005 census is 92,533 with 44% residing on Tarawa Atoll, the capital. The population in 2000 was 84,494 and when compared with the figure in 2005 it represents an increase of 9.5% or 8,093 people with an average annual rate of growth of 1.8%. And there with this annual growth, the population has reached 103,000.

The main diet for I-Kiribati people include: fish, coconut, breadfruit, local root crops, imported rice, chicken and tin meat (in the form of processed fish, beef e.g. ox and palm, etc). Fish consumption per capita is one of the highest in the world-almost .5kg/day/capita. Most I-Kiribati prefer to consume more of those imported from overseas. With this change of behavior, there is high prevalence of diabetic and hypertension starting from the early age.

Kiribati which is comprised of tiny atolls still claims to have its forest in its own right and should be respected by countries that have more thick vegetation. Although our forest may not comply with international notions, they are truly forests to us and we want the world to understand it. At the regional level forest is defined as; *'trees that have a certain size of canopy, they are not agricultural and are not located in urban areas'*. Though our trees are not in this category, they provide ecological services to sustain the lives of creatures in particular people in terms of food, shelter, medicinal purposes, etc. Kiribati is appreciating the recognition of atolls' forest by Food and Agriculture Organisation (FAO) and other United Nation conventions.

An area that is covered by coconut trees in Kiribati is classified as the first category in defining the forest and the tree is called the King Tree . Pandanus trees (the Queen Tree) falls under the second category and mangrove swamp being the third. These trees play important roles in providing: housing materials for construction, shelter for both human and species, food, protection of water reserves and coastal areas that are most affected by the climate change and sea level rise.

With the effect of climate change and sea level rise as well as the increase in population, a number of trees have eaten away due to erosion, many die and fallen off the ground due to

prolong droughts, and some were chopped down for handicraft and building purposes. The rest have reached their maturity age and are starting to produce less for consumption.

While Kiribati is engaging on the FRA assignment, there are problems encountered especially in the collection of data, thus affect the quality of information on our forest. For such reasons Kiribati needs to ask for overseas assistance in the area of getting the digitized data and record on all known forest trees in Kiribati and to have them stored safely in MapInfo Computer implemented under the Remote Sensing Programme. Things like forest degradations, coastal erosions, and other important variables covered under the FRA be incorporated in the programme mentioned for use by planners in Lands Planning Section, Agriculture Research and Environment and Conservation.

Mangroves replanting scheme has already begun on affected areas of Tarawa. This is a voluntary scheme of Environment Youths Club (EYC) instigated by the MELAD and Cosmo Oil Co from Japan and further inspired by this FAO Forestry Outlook 2020 exercise. Coconut Replanting has begun in terms of providing the seedlings to outer islands. This was carried out during the campaign against food crisis in 2008. However there is a need to continue this project as it will merge with our coconut sawmilling project most probably mid year 2009.

Way forward

- Kiribati to await the consideration FAO SAPA to fund the Coconut Sawmilling Project as expected to start early this year 2009.
- Kiribati to await as well the consideration of FAO Samoa to assist in procuring the MapInfo programme that covers the requirements needed for the management of forestry in Kiribati.
- Increasing community participation by public awareness to get the message through the mindset of people that planting trees is their supreme responsibility and life obligation;

1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2010 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds <i>in situ</i> . It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds <i>in situ</i> ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as “Forest” or “Other wooded land”.
Other land with tree cover (Subordinated to “Other land”)	Land classified as “Other land”, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2 National data

1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Metz, D.W. 1996. The Mangroves of Kiribati: An Inventory, Feasibility and Management Study. Vol 1. Prepared for Agriculture Division, MNRD, Republic of Kiribati by USDA Forest Service in collaboration with South Pacific Forestry Development Programme (FAO/UNDP/RAS/92/361) Suva, Fiji. Unpublished.	H	Mangroves on four islands in Kiribati	1995	This working paper is one of a series of publications prepared during the course (1992 – 96) of the UNDP/FAO South Pacific Forestry Development Programme. This is also one of the first comprehensive study on mangroves undertaken in Kiribati. This figure may be slightly on the lower side, since the extent of mangroves found in many small islands is not available.
Ward, J.D.1998. Mangroves of Kiribati A priceless resources needs protection. http://na.fs.fed.us/spfo/pubs/misc/mangroves/mangroves.htm	H	Mangrove in Kiribati	1995	Secondary source. Refers to 185 ha of mangroves on Butaritari
South Pacific Forestry Development Programme and USDA Forest Service. 1995. <i>Assessment of mangrove resources</i> .	M	Mangrove area	1995	Ground survey Cited in: Ward, J.D. and Metz, W.D. <i>Mangrove forests as modifiers of the impacts of climate change on high islands and atolls in</i>

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
				<i>the south pacific: mobilizing people and governments to act (atolls)</i> . Pacific Islands Regional Forestry Programme. http://www.spcforests.org/Library/Mangroves/atolls/atolls.htm This figure may be slightly on the lower side, since the extent of mangroves found in many small islands is not available.
Barr, J.J.F. 1993. Technical Report on Coconut Research in Kiribati (1990-1992) Ministry of Environment & Natural Resources Development Division of Agriculture	H	Plantation and natural coconut area	1990 1991 1992	
Government of Republic of Kiribati 2004. State of Environment Report 2000-2002. http://www.sprep.org/att/IRC/eCOPIES/Countries/Kiribati/20.pdf			2002	
MELAD, ECD. 2006. Government of Kiribati National Biodiversity Strategies and Actions Plan to the Conference of the Parties to the Convention on Biological Diversity. http://www.sprep.org/att/IRC/eCOPIES/Countries/Kiribati/9.pdf	H		2005	The country report (below) and the NBSAP - Kiribati have been cabinet approved. Both the report and the NBSAP- Kiribati reflect baseline data on the status of protected areas and the conservation of biological diversity in the context of Kiribati as an atoll nation.
MELAD, ECD. 2007. Kiribati Country Report to the Conference of Parties (COP) to the Convention on Biological Diversity (CBD). http://www.sprep.org/att/IRC/eCOPIES/Countries/Kiribati/93.pdf			2005	

1.2.2 Classification and definitions

National class	Definition
Coconut forestry	Land occupied by coconut only
Land with tree/natural woodland	Land occupied by <i>Pandanus tectorius</i> , <i>Artocarpus altilis</i> , <i>Ficus carica</i> (wild fig), and <i>Calophyllum inophyllum</i> planted by man. Also includes: Fallow littoral shrubs, bushes <i>Morinda citrifolia</i> a, <i>Tormefortia argentea</i> , <i>Pandanus tectorius</i> (wild) <i>Guerttarda speciosa</i> , and <i>Scavola taccada</i> Mangrove: <i>Bruguiera gymnorrhiza</i> ; <i>Lumnitzera littorea</i> ; <i>Rhizophora mucronata</i> ; <i>Sonneratia alba</i>
Areas with absence of trees	Pond and open fields

1.2.3 Original data

Inventory on Kiribati vegetation haven't carried out ever since therefore data provided based on estimation.

Since it is estimated that 80% of the total land areas is covered with coconut it is estimated that 15% covered by other trees, bushes and shrubs while 5% used up by ponds, open fields, and building.

Classes	Percentage	1000 of hectares	FRA classes
Land occupied by coconut only	80	64.8	Other land with tree cover
Land occupied by 1. <i>Pandanus tectorius</i> , <i>Artocarpus altilis</i> , <i>Ficus carica</i> (wild fig), and <i>Calophyllum inophyllum</i> planted by man. 2. Fallow littoral shrubs, bushes <i>Morinda citrifolia</i> a, <i>Tormefortia argentea</i> , <i>Pandanus tectorius</i> (wild) <i>Guerttarda speciosa</i> , and <i>Scavola taccada</i> . 3. Mangrove <i>Bruguiera gymnorrhiza</i> ; <i>Lumnitzera littorea</i> ; <i>Rhizophora mucronata</i> ; <i>Sonneratia alba</i>	15	12.15	Forests
Areas with absence of trees: Ponds, open fields and buildings	5	4.05	Other land and inland water
Total	100	81.00	

Fallow littoral shrubs, bushes, planted land, and mangroves were considered forest area as there is not enough data to sub-divided in other categories. Note that trees are more than 5 meters high.

	Most reliable, recent mangrove area estimate	
	ha	year
Mangrove	258	1995

Source: Metz 1996.

1.3 Analysis and processing of national data

1.3.1 Calibration

Calibration was not needed.

1.3.2 Estimation and forecasting

Forest and all other classes are considered constant since 1990.

1.3.3 Reclassification into FRA 2010 categories

See Section 1.2.3 above.

1.4 Data for Table T1

FRA 2010 categories	Area (1000 hectares)			
	1990	2000	2005	2010
Forest	12.15	12.15	12.15	12.15
Other wooded land	0	0	0	0
Other land	68.85	68.85	68.85	68.85
...of which with tree cover	64.8	64.8	64.8	64.8
Inland water bodies	0	0	0	0
Total	81	81	81	81

1.5 Comments to Table T1

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest	<p>The total land area included species that are shrubs, but it is not possible to define the exact extension of these areas. As most of the species mentioned in the national class of naturally wood land mainly mangrove are trees with more than 5 meters high all these area was re-classified as forest.</p> <p>Documentation/mapping of existing mangrove forested areas of Kiribati using GPS is under planning for 2009 but this is highly dependent on available external funds and appropriate TAs (regional or international Technical Assistants) who shall work closely with local counterparts at MELAD ECD level.</p>	<p>Not yet assessed at national level.</p> <p>Forecasting on land areas of trees, shrubs, bushes and mangrove forest is that they will be reduced due to rapid increase of population therefore there is a need for deforestation for new residences.</p> <p>Currently, MELAD ECD is engaged in mangrove replanting on the capital island (South Tarawa). There are plans to extend this mangrove replanting programme to outer islands. This would start some time this year.</p>
Other wooded land		No available data in place to adequately report on this.
Inland water bodies	Applied only to swamp and pond. National data mentioned 4.05 ha of inland water and open fields.	

Other general comments to the table

Inventory on Kiribati vegetation haven't carried out ever since therefore data provided based on estimation where believe to be decreasing throughout the year. Since 80% of the total land areas covered with coconut it estimated that 15% covered by other trees, bushes and shrubs while 5% used up by ponds, open fields, and building.

Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping	
Field inventory	Within the next 4 years (2009 – 2012). Again this subject to available external funds and overseas TAs that MELAD ECD could tap to do this specifically.
Remote sensing survey / mapping	Within the next 4 years (2009 – 2012). Again this subject to available external funds and overseas TAs that MELAD as a whole could tap to do this specifically.

2 Table T2 – Forest ownership and management rights

2.1 FRA 2010 Categories and definitions

Category	Definition
Public ownership	Forest owned by the State; or administrative units of the public administration; or by institutions or corporations owned by the public administration.
Private ownership	Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
Individuals (sub-category of Private ownership)	Forest owned by individuals and families.
Private business entities and institutions (sub-category of Private ownership)	Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc.
Local communities (sub-category of Private ownership)	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development.
Indigenous / tribal communities (sub-category of Private ownership)	Forest owned by communities of indigenous or tribal people.
Other types of ownership	Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed.
Categories related to the holder of management rights of public forest resources	
Public Administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals/households	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private institutions	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements.
Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
LMD Maps:	M		2008	
Schlencker Mapping Pty Limited, Australia	H		1998	

2.2.2 Classification and definitions

National class	Definition
Public Ownership	Forest owned by State only.
Private Ownership	Forest owned by individuals, families and communities
Individual Ownership	Forest owned by individual and families only
Private Business and entities	NA
Local Communities	Should be under private ownership. Local Communities can be happened in short terms due to the Village or island function.
Indigenous/Tribal Communities	NA

2.2.3 Original data

Data is with Lands Department from which are well consolidated but are not updated yet. 70% of the forest land is public, 30 % is private. A 5% of the private forest area belongs to individuals, no specific distribution for other types of private lands.

2.3 Analysis and processing of national data

2.3.1 Calibration

Not yet assessed

2.3.2 Estimation and forecasting

Increase due to increase private ownership, however due to population increase forest ownership will decrease.

2.3.3 Reclassification into FRA 2010 categories

2.4 Data for Table T2

Table 2a - Forest ownership

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public ownership	8.505	8.505	8.505
Private ownership	3.645	3.645	3.645
...of which owned by individuals	0.182	0.182	0.182
...of which owned by private business entities and institutions			
...of which owned by local communities			
...of which owned by indigenous / tribal communities			
Other types of ownership			
TOTAL	12.15	12.15	12.15

Note: If other types of ownership is reported, please specify details in comment to the table.

Note: Forest ownership in the outer islands throughout Kiribati has not yet been updated. The information as of 2005 are recorded while the past ones are supposed to be submitted by court clerks.

Does ownership of trees coincide with ownership of the land on which they are situated?	<input checked="" type="checkbox"/>	Yes
	<input type="checkbox"/>	No
If No above, please describe below how the two differ:		
It could be a noting that private owners especially in the Northern islands allow other people to harvest their land e.g. copra cutting and other purposes. It is part of their tradition and culture but its only happens in special occasions such as community gathering, rituals, and other sacred gatherings and ceremonies.		

Table 2b - Holder of management rights of public forests

FRA 2010 Categories	Forest area (1000 hectares)		
	1990	2000	2005
Public Administration	n.a.	n.a.	n.a.
Individuals	n.a.	n.a.	n.a.
Private corporations and institutions	n.a.	n.a.	n.a.
Communities	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.
TOTAL	n.a.	n.a.	n.a.

2.5 Comments to Table T2

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Public ownership	Government land areas mainly in the Line and Phoenix Islands	Includes littoral forest and mangroves areas.
Private ownership	The forest percent coverage is 30% due to very small land area of each of the islands of which owned by private owners Applicable for lands owned by individuals. It also applicable to an individual who buys/lease land from public Administration	Include coconut plantations.
Other types of ownership	Applicable to lands used by private companies, churches and schools	
Management rights	Government have full management right, however on the outer islands and through the local Government the private and individual land owner may have their management rights. In Butaritari (Northern Part of Kiribati). Lands and forests are free to be accessed in special occasions e.g. for catechist and church purposes	

Other general comments to the table

Data is with Lands Department from which are well consolidated but are not updated yet. 70% of the forest land is public, 30 % is private. A 5% of the private forest area belongs to individuals, no specific distribution for other types of private lands.

3 Table T3 – Forest designation and management

3.1 FRA 2010 Categories and definitions

Term	Definition
Primary designated function	The primary function or management objective assigned to a management unit either by legal prescription, documented decision of the landowner/manager, or evidence provided by documented studies of forest management practices and customary use.
Protected areas	Areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.
Categories of primary designated functions	
Production	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Protection of soil and water	Forest area designated primarily for protection of soil and water.
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Social services	Forest area designated primarily for social services.
Multiple use	Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function.
Other	Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use.
No / unknown	No or unknown designation.
Special designation and management categories	
Area of permanent forest estate (PFE)	Forest area that is designated to be retained as forest and may not be converted to other land use.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.
Forest area under sustainable forest management	To be defined and documented by the country.
Forest area with management plan	Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Phoenix Islands Protected Area (PIPA) Information Fact Sheet	H		2006	The designation of the Phoenix Islands Protected Area (PIPA) also includes terrestrial biodiversity conservation, which includes existing flora and fauna available in these islands.

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
				<p>The designation of the PIPA came about after a series of scientific expeditions by a recognized research organization (New England Aquarium), who has been instrumental in advising the Government of Kiribati that these islands and surrounding marine environment have high biodiversity values that need to be protected.</p> <p>The PIPA is now the biggest protected area designated in the world.</p>
PIPA Regulations 2008	H		2008	The PIPA Regulations 2008 is a regulation under the Environment Act 1999 (as amended 2007)
Wildlife Conservation Ordinance	H		1977	The Wildlife Conservation Ordinance will be revised some time in 2009
Government of Kiribati country report (1 st) to the Conference of the Parties to the Convention on Biological Diversity (CBD) & Government of Kiribati National Biodiversity Strategies and Actions Plan (NBSAP – Kiribati)	H		2005	<p>The country report and the NBSAP - Kiribati have been cabinet approved and are now ready for submission to the Secretariat of the Convention on Biological Diversity.</p> <p>Both the report and the NBSAP-Kiribati reflect baseline data on the status of protected areas and the conservation of biological diversity in the context of Kiribati as an atoll nation.</p>
Maps – Lands Management Division (LMD) of Ministry of Environment, Lands & Agricultural Development (MELAD)	H			Be available later
Metz, D.W. 1996. The Mangroves of Kiribati: An Inventory, Feasibility and Management Study. Vol 1. Prepared for Agriculture Division, MNRD, Republic of Kiribati by USDA Forest Service in collaboration with South Pacific Forestry Development Programme (FAO/UNDP/RAS/92/361) Suva, Fiji. Unpublished.	H	Mangroves on four islands in Kiribati	1995	<p>This working paper is one of a series of publications prepared during the course (1992 – 96) of the UNDP/FAO South Pacific Forestry Development Programme.</p> <p>This is also one of the first comprehensive study on mangroves undertaken in Kiribati.</p> <p>This figure may be slightly on the lower side, since the extent of mangroves found in many small islands is not available.</p>

3.2.2 Original data

Mangrove management plan has been completed since 1997 but this plan is yet to be fully implemented at national level.

	Most reliable, recent mangrove area estimate	
	ha	year
Mangrove	258	1995

The designation of the Phoenix Islands Protected Area (PIPA) also includes terrestrial biodiversity conservation, which includes existing flora and fauna available in these islands. There is not information available to determine the forest area existing in the littoral of this protected area.

3.3 Data for Table T3

Table 3a – Primary designated function

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	0	0	0	0
Protection of soil and water	0	0	0	0
Conservation of biodiversity	0.258	0.258	0.258	0.258
Social services	0	0	0	0
Multiple use	0	0	0	0
Other (please specify in comments below the table)	0	0	0	0
No / unknown	11.892	11.892	11.892	11.892
TOTAL	12.15	12.15	12.15	12.15

Table 3b – Special designation and management categories

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	n.d.	n.d.	n.d.	n.d.
Forest area within protected areas	n.d.	n.d.	n.d.	n.d.
Forest area under sustainable forest management	n.d.	n.d.	n.d.	n.d.
Forest area with management plan	0.258	0.258	0.258	0.258

3.4 Comments to Table T3

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Production		
Protection of soil and water	Water reservoir areas on South Tarawa (as the capital island) and Kiritimati Island have been designated and protected to safeguard ground water (water lens) for drinking water for the general public living on South Tarawa – maps available only.	Information reflected in the Government of Kiribati SOE.
Conservation of biodiversity	Not yet assessed. Baseline information and maps have been collected mainly. These baseline information and data need to be verified. Verification pending, subject to available funds and appropriate TAs to be identified, who would work closely with local counterparts within ECD MELAD. However, data on total land areas and bush areas are available with MELAD LMD. All mangrove area has been included in this category.	SOE report is still in draft, information and data on conservation of biodiversity is also included.
Social services		
Multiple use	Phoenix Islands Protected Area (PIPA) Regulations 2008 designate the Phoenix Islands Group as a Protected Area for multiple uses under the IUCN Protected Areas strategy 1b – wilderness area.	PIPA management plan is still in draft.
Other		
No / unknown designation		
Area of permanent forest estate		
Forest area within protected areas	Forest area within designated conservation closed areas (on land and on conservation off-islets) and wildlife sanctuaries under the Wildlife Conservation ordinance 1977 are yet to be assessed.	

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest area with management plan	Mangrove management plan has been completed since 1997 but this plan is yet to be fully implemented at national level.	Mangrove management plan needs to be updated and reassessed. Plans to do update and assessment of islands with mangrove forests within 2009 – 2012.

Other general comments to the table
<p>The Republic of Kiribati has taken the remarkable step of declaring the Phoenix Islands archipelago and surrounding waters, an area of 410,500 sq. km., as the Phoenix Islands Protected Area (PIPA). It is the largest marine protected area in the world today. The Phoenix Islands group is one of the Earth's last intact oceanic coral archipelago ecosystems and represents a marine wilderness area that has had very limited human exploitation due to their extremely remote location.</p>

4 Table T4 – Forest characteristics

4.1 FRA 2010 Categories and definitions

Term / category	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Introduced species	A species, subspecies or lower taxon, occurring <u>outside</u> its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Characteristics categories	
Primary forest	Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
Other naturally regenerated forest of introduced species (<i>sub-category</i>)	Other naturally regenerated forest where the trees are predominantly of introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
Planted forest of introduced species (<i>sub-category</i>)	Planted forest, where the planted/seeded trees are predominantly of introduced species.
Special categories	
Rubber plantations	Forest area with rubber tree plantations.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
Bamboo	Area of forest and other wooded land with predominant bamboo vegetation.

4.2 National data

4.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Metz, D.W. 1996. The Mangroves of Kiribati: An Inventory, Feasibility and Management Study. Vol 1. Prepared for Agriculture Division, MNRD, Republic of Kiribati by USDA Forest Service in collaboration with South Pacific Forestry Development Programme (FAO/UNDP/RAS/92/361) Suva, Fiji. Unpublished.	H	Mangroves on four islands in Kiribati	1995	<p>This working paper is one of a series of publications prepared during the course (1992 – 96) of the UNDP/FAO South Pacific Forestry Development Programme.</p> <p>This is also one of the first comprehensive study on mangroves undertaken in Kiribati.</p> <p>This figure may be slightly on the lower side, since the extent of mangroves found in many small islands is not available.</p>

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
South Pacific Forestry Development Programme and USDA Forest Service. 1995. <i>Assessment of mangrove resources.</i>	M	Mangrove area	1995	Ground survey Cited in: Ward, J.D. and Metz, W.D. <i>Mangrove forests as modifiers of the impacts of climate change on high islands and atolls in the south pacific: mobilizing people and governments to act (atolls).</i> Pacific Islands Regional Forestry Programme. http://www.spcforests.org/Library/Mangroves/atolls/atolls.htm This figure may be slightly on the lower side, since the extent of mangroves found in many small islands is not available.
MELAD, ECD. 2005. Government of Kiribati 1 st Country Report to the Conference of the Parties to the Convention on Biological Diversity. MELAD, ECD. 2005. Government of Kiribati National Biodiversity Strategies and Actions Plan to the Conference of the Parties to the Convention on Biological Diversity.	H		2005	The country report and the NBSAP - Kiribati have been cabinet approved and are now ready for submission to the Secretariat of the Convention on Biological Diversity. Both the report and the NBSAP- Kiribati reflect baseline data on the status of protected areas and the conservation of biological diversity in the context of Kiribati as an atoll nation.

4.2.2 Classification and definitions

National class	Definition
Natural regenerated forests	Land comprises of Littoral shrubs as in Table 1 with a high indication of human disturbance in regards for high demand of timber, fuel wood, and handicraft.
Planted forest with Introduced species	Trees such as bamboo and nitrogen fixations occupying only a limited land areas

These area also fall under Table 1

4.2.3 Original data

Classes	FRA classes
Land occupied by <i>Pandanus tectorius</i> , <i>Artocarpus altilis</i> , <i>Ficus carica</i> (wild fig), and <i>Calophyllum inophyllum</i> planted by man.	Planted forest
Fallow littoral shrubs, bushes <i>Morinda citrifolia</i> , <i>Tormefortia argentea</i> , <i>Pandanus tectorius</i> (wild) <i>Guerttarda speciosa</i> , and <i>Scavola taccada</i> .	Naturally regenerated
Mangroves <i>Bruguiera gymnorrhiza</i> ; <i>Lumnitzera littorea</i> ; <i>Rhizophora mucronata</i> ; <i>Sonneratia alba</i>	Naturally regenerated

	Most reliable, recent mangrove area estimate 1995	
	ha	FRA class
Mangrove	258	natural regenerated

Bamboo introduced from Australia found in agriculture research in the main land and Butaritari in the northern island both are not common, just occupying a small land area.

Rubber is not available in the country

4.3 Analysis and processing of national data

There are some planted trees, but no data on the area.

Introduced forest including bamboo and other nitrogen fixing trees which are not common in the country found on a small scale of land. Actual planting on designated planting sites on important atoll forestry have been carried out mainly on South Tarawa, as the capital island.

From MELAD ECD, actual planting on designated planting sites on important atoll forestry resources have been carried out mainly on South Tarawa, as the capital island.

Even forest areas situated far from households are disturbed for the high demand on timber for households construction, fuel wood, and handicrafts.

Hence, all forests and woodlands have been classified as Other naturally regenerated forests.

4.3.3 Reclassification into FRA 2010 categories

4.4 Data for Table T4

Table 4a

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Primary forest	0	0	0	0
Other naturally regenerated forest	12.15	12.15	12.15	12.15
...of which of introduced species	0	0	0	0
Planted forest	n.d.	n.d.	n.d.	n.d.
...of which of introduced species	0	0	0	0
TOTAL	12.15	12.15	12.15	12.15

Table 4b

FRA 2010 Categories	Area (1000 hectares)			
	1990	2000	2005	2010
Rubber plantations (Forest)	0	0	0	0
Mangroves (Forest and OWL)	0.258.	0.258	0.258	0.258
Bamboo (Forest and OWL)	n.a.	n.a.	n.a.	n.a.

4.1 Comments to Table T4

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Primary forest		
Other naturally regenerating forest	Not yet assessed Comprises of shrubs normally assist in providing timber to the community therefore actually disturbed by human.	
Planted forest	<p>Introduced forest including bamboo and other nitrogen fixing trees which are not common in the country found on a small scale of land. Actual planting on designated planting sites on important atoll forestry have been carried out mainly on South Tarawa, as the capital island.</p> <p>From MELAD ECD, actual planting on designated planting sites on important atoll forestry resources have been carried out mainly on South Tarawa, as the capital island.</p>	The National Adaptation Programme for Action has a component of mangrove plantation in the coastal zone management resilience, enhancement and adaptation. http://unfccc.int/resource/docs/napa/kir01.pdf
Rubber plantations	Rubber is not available in the country	

Mangroves		
Bamboo	Bamboo introduced from Australia found in agriculture research in the main land and Butaritari in the northern island both are not common, just occupying a small land area.	

Other general comments to the table

Natural forest in Kiribati involved abandoned areas where wild pandanus, bushes, and shrubs grow naturally. Unfortunately data are not available as plant/tree inventory haven't carried out ever since therefore inventory is one of the country needs which require technical and financial support.

5 Table T5 – Forest establishment and reforestation

5.1 FRA 2010 Categories and definitions

Term	Definition
Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.
Reforestation	Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.
Natural expansion of forest	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).

5.2 National data

No data available

5.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
GEF/UNDP/UNFCCC REPUBLIC OF KIRIBATI NATIONAL ADAPTATION PROGRAM OF ACTION (NAPA) 2007.	M	Planting programme		General information on the plantation strategy.

5.2.2 Classification and definitions

National class	Definition
Replanting	Refers to replanting and planting of trees in particular coconut trees, mangroves and such to hold and protect the soil from erosion and other natural disasters and mostly to adapt and minimize adverse impact of climate change.
Agro-forestry	Refers to forestry combined with farming. Within the Agricultural Division this section looks after food crops, medicinal plants, fuel wood, nitrogen fixation plants and other plants that are useful to households. This is where they establish mother plant from which they propagate them and sold them to households such as breadfruit, pandanus, etc however some are free for the communities, i.e. women's club, church, youths plus the feed only for starch crops
Rehabilitation	Refers to maintaining and improving the life span of coconut trees only. This happens in 1990s,
Natural regenerated forests	Land comprises of Littoral shrubs as in Table 1 with a high indication of human disturbance in regards for high demand of timber, fuel wood, and handicraft.
Planted forest with Introduced species	Trees such as bamboo and nitrogen fixations occupying only a limited land areas

5.2.3 Original data

No specific data was available. Information about the species that are to be included in the planting strategy are presented on the comment section.

5.4 Data for Table T5

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species ¹⁾ (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	NA	NA	NA	NA	NA	NA
Reforestation	NA	NA	NA	NA	NA	NA
...of which on areas previously planted	NA	NA	NA	NA	NA	NA
Natural expansion of forest	NA	NA	NA	NA	NA	NA

Note: The figures for the reporting years refer to the averages for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

5.5 Comments to Table T5

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Afforestation		
Reforestation		
Natural expansion of forest		

Other general comments to the table
<p>Species to be included in the planting strategy.</p> <p><i>Cocos lucifera</i> Coconut</p> <p><i>Scaevola sericea</i> Vahl Salt bush</p> <p><i>Guettarda spp</i> Guettarda;wut</p> <p><i>Tournefortia spp</i> Tree heliotrope</p> <p><i>Mirinda citrifolia</i> Beach mulberry</p> <p><i>Pemphis acidula forst. (I)</i> Iron wood, pemphis</p> <p><i>Rhizophora spp</i> Mangroves</p> <p><i>Pandanus tectorius</i> Pandanus tree</p> <p><i>Cyrtosperma chamissions</i> Giant Swamp Taro</p> <p><i>Casuarina eqiseifola</i> Ironwood, she-oak, beefwood tree</p>

6 Table T6 – Growing stock

6.1 FRA 2010 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Growing stock of commercial species	Growing stock (see def. above) of commercial species.

6.2 National data

6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Rhett Butler	M	Growing stock	1994-2006	Species
World Resources Institute	L	Growing stock	2006	Species

6.2.2 Classification and definitions

National class	Definition
Growing stock	All living tree/scrub components on forest areas and all living tree/scrub components on Other wooded land areas, suppose the average canopy height is 7m to all tree/scrub components.

6.2.3 Original data

See table T6b, list of more important species.

6.4 Data for Table T6

FRA 2010 category	Volume (million cubic meters over bark) (the unit used here is globally acceptable while it is too large for us. Anyway using the 0.0001[eg] will serve our purpose as well.)							
	Forest				Other wooded land			
	1990	2000	2005	2010	1990	2000	2005	2010
Total growing stock	ND	ND	ND	ND	ND	ND	ND	ND
... of which coniferous (tree with needle like leaves and fruits are cone shaped and usually small, like casuarinas.	ND	ND	ND	ND	ND	ND	ND	ND
... of which broadleaved	ND	ND	ND	ND	ND	ND	ND	ND
Growing stock of commercial species	ND	ND	ND	ND	ND	ND	ND	ND

Table 6b – Growing stock of the 10 most common species

FRA 2010 category / Species name			Growing stock in forest (million cubic meters)		
Rank	Scientific name	Common name	1990	2000	2005
1 st	<i>Cocos nucifera</i>	Coconut			
2 nd	<i>Scaevola sericea Vahl</i>	Salt bush			
3 rd	<i>Guettarda spp</i>	Guettarda;wut			
4 th	<i>Tournefortia spp</i>	Tree heliotrope			
5 th	<i>Mirinda citrifolia</i>	Beach mulberry			
6 th	<i>Pemphis acidula forst. (I)</i>	Iron wood, pemphis			
7 th	<i>Rhizophora spp</i>	Mangroves			
8 th	<i>Pandanus tectorius</i>	Pandanus tree			
9 th	<i>Cyrtosperma chamissions</i>	Giant Swamp Taro			
10 th	<i>Casuarina eqiseifola</i>	Ironwood, she-oak, beefwood tree			
Remaining					
TOTAL					

7 Table T7 – Biomass stock

Data is not available for this reporting table.

8 Table T8 – Carbon stock

Data is not available for this reporting table.

9 Table T9 – Forest fires

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
MELAD, ECD. 2005. Government of Kiribati 1 st Country Report to the Conference of the Parties to the Convention on Biological Diversity.	H	forest fires	2005	The country report and the NBSAP - Kiribati have been cabinet approved and are now ready for submission to the Secretariat of the Convention on Biological Diversity.
MELAD, ECD. 2005. Government of Kiribati National Biodiversity Strategies and Actions Plan to the Conference of the Parties to the Convention on Biological Diversity.				Both the report and the NBSAP - Kiribati reflect baseline data on the status of protected areas and the conservation of biological diversity in the context of Kiribati as an atoll nation.

9.2.2 Classification and definitions

National class	Definition
Indiscriminate burning	Refers to human induced activity to create fire hazards to neighbouring bush plots developed over the dispute of land ownership, personal differences, etc.

2 Original data

It was assumed that less than 1000 hectare has been affected by forest fires. It is estimated a decrease on the basis of a new method introduced by Agriculture Department which addresses the impact of indiscriminating burning.

9.3 Analysis and processing of national data

Not Available

9.4 Data for Table T9

Table 9a

FRA 2010 category	Annual average for 5-year period					
	1990		2000		2005	
	1000 hectares	number of fires	1000 hectares	number of fires	1000 hectares	number of fires
Total land area affected by fire	1		1		1	
... of which on forest	0	0	0	0	0	0
... of which on other wooded land	0		0		0	
... of which on other land	1		1		1	

Note: At Island level the impact is very minimal; at family level (land plot) the impact is very significant.

Table 9b

FRA 2010 category	Proportion of forest area affected by fire (%)		
	1990	2000	2005
Wildfire	ND	ND	ND
Planned fire	ND	ND	ND

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively

9.5 Comments to Table T9

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Area affected by fire	Human induced fire have been confirmed to be visually observed but have not been formally documented. Kiribati is made of islands where indiscriminate fire occurs without reaching 1,000ha. Increase and inflow settlers on Kiritimati island contributes to increase of indiscriminate fires.	Some forest area was affected before the 1990. There is no specific information about the area.
Number of fires	Human induced fire have been confirmed to be visually observed but have not been formally documented. Cover less than an Acre.	
Wildfire / planned fire		

Other general comments to the table

No data available for reporting on this table, however the information provided are based on the assumptions.

10 Table T10 – Other disturbances affecting forest health and vitality

10.1 FRA 2010 Categories and definitions

Term	Definition
Disturbance	Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities.
Invasive species	Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.
Category	Definition
Disturbance by insects	Disturbance caused by insect pests.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus.
Disturbance by other biotic agents	Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc.
Disturbance caused by abiotic factors	Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc.

10.2 National data

10.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Agricultural Report on Kiribati invasive species Kiribati National Report to CPBD - CBD was drafted by Temakei Tebano with the assistance of Ribanataake Awira and Kaitu Koina, in collaboration with various government ministries and departments, NGOs and individuals. 1999	M	Invasive species		List of species presented in the section of comments.
Space, J.C. and Imada, C.T. 2004. Report to the Republic of Kiribati on Invasive Plant Species on the Islands of Tarawa, Abemama, Butaritari and Maiana http://www.sprep.org/att/IRC/eCOPIES/Countries/Kiribati/11.pdf	H	Invasive species		List of invasive species (flora and fauna)

10.2.2 Classification and definitions

National class	Definition
Disturbance by pests	Disturbance caused by rodents
Disturbance by disease	Disturbance caused by rot disease affecting fruit trees
Disturbance by abiotic	Disturbance caused by climate change (sea level, droughts, coastal erosion)
Disturbance by biotic	Not an issue for Kiribati

10.4 Data for Table T10

Table 10a – Disturbances

FRA 2010 category	Affected forest area (1000 hectares)		
	1990	2000	2005
Disturbance by insects	ND	ND	ND
Disturbance by diseases	ND	ND	ND
Disturbance by other biotic agents	ND	ND	ND
Disturbance caused by abiotic factors	ND	ND	ND
Total area affected by disturbances	ND	ND	ND

Notes: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

The total area affected by disturbances is not necessarily the sum of the individual disturbances as these may be overlapping.

Table 10b – Major outbreaks of insects and diseases affecting forest health and vitality

Description / name	Tree species or genera affected (scientific name)	Year(s) of latest outbreak	Area affected (1000 hectares)	If cyclic, approx. cycle (years)
Ship rat (<i>Rates Rattus</i>)	<i>Cocos nucifera</i>	Early 1990s	ND	All around
Breadfruit Mealybug	<i>Artocarpus altilis</i>	Early 1990s	ND	All around
Breadfruit rot disease	<i>Artocarpus altilis</i>	Early 1990s	ND	All around

Note: Area affected refers to the total area affected during the outbreak.

Table 10c – Area of forest affected by woody invasive species

Scientific name of woody invasive species	Forest area affected 2005 (1000 hectares)
<i>Premna serratifolia</i>	ND
Total forest area affected by woody invasive species	

Note: The total forest area affected by woody invasive species is not necessary the sum of the values above, as these may be overlapping.

10.5 Comments to Table T10

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Disturbance by insects		

Disturbance by diseases	Refers to breadfruit trees on some islands.	
Disturbance by other biotic agents	Refers to Rodent destructive behaviour throughout Kiribati mainly on coconut trees	
Disturbance caused by abiotic factors	Mainly on climate change adverse impact	
Major outbreaks	Ship rats, breadfruit mealy bug, and fruit rot disease	
Invasive species	All above	

Other general comments to the table

The most serious pests are the insects and the non-insects (mites, slugs, crabs and rats). Of the insect pests that need mentioning include:

- Taro/Bahai beetle (*Papualta huebleri*), very serious and major problem on Tarav,'a.
- Breadfruit/Pandanus Egyptian fluted scale (*Jcerya aegyptica*), occasionally serious throughout the country.
- Coconut flat moth (*Agonoxel argaula*), occasionally serious.
- Coconut mealy bugs (*Pseudococcus oceanicus* and *Palmiculator*), occasionally serious.

The non-insect pests a red spider mite and vegetable mite, the latter are very common. A coconut stick insect (*Graeffea crouatzi*) that appeared in large numbers on coconut leaves at Kenna. Abemama in 1984; and a coconut hole shot borer that appeared in Teraina in 1994 damaging flesh coconut meat.

11 Table T11 – Wood removals and value of removals

Data is not available for this reporting table.

12 Table T12 – Non-wood forest products removals and value of removals

12.1 FRA 2010 Categories and definitions

Term	Definition
Non-wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Value of NWFP removals	For the purpose of this table, value is defined as the market value at the site of collection or forest border.

NWFP categories

Category
<p><u>Plant products / raw material</u></p> <ol style="list-style-type: none"> 1. Food 2. Fodder 3. Raw material for medicine and aromatic products 4. Raw material for colorants and dyes 5. Raw material for utensils, handicrafts & construction 6. Ornamental plants 7. Exudates 8. Other plant products <p><u>Animal products / raw material</u></p> <ol style="list-style-type: none"> 9. Living animals 10. Hides, skins and trophies 11. Wild honey and bee-wax 12. Wild meat 13. Raw material for medicine 14. Raw material for colorants 15. Other edible animal products 16. Other non-edible animal products

12.2 National data

No data available

12.2.2 Classification and definitions

National class	Definition
Non-wood forest product (NWFP)	Refers to goods that are limited to noni juice (<i>Morinda sp</i>) ornamental and traditional herbal medicine
Value of NWFP removals	Noni juice (750mls) - AU\$ 4.50, fine mat - AU\$ 100

12.4 Data for Table T12

Rank	Name of product	Key species	Unit	NWFP removals 2005 (T1 to be used here)		NWFP category
				Quantity	Value (1000 local currency)	
1 st	Noni-juice	<i>Morinda sp</i>	750mls/bottle	1,000	4,500	1
2 nd	Fine mats	<i>Pandanus sp</i>	1	100	10,000	5
3 rd	Thatching/roofing	<i>Pandanus sp</i>	10/bundle	4,000	28,000	5
4 th	Dancing costumes	<i>Pandanus sp</i>	1 set	400	48,000	5
5 th	Herbal medicine	Non-wood	3 days dose	600	18,000	3
All other plant products						
All other animal products						
TOTAL					108500	

2005	
Name of local currency	Australian Currency

12.5 Comments to Table T12

Variable / category	Comments related to data, definitions, etc.
10 most important products	The list of products in table 12.4 are the most important and common products produced by the locals from which money is earned.
Other plant products	
Other animal products	
Value by product	
Total value	

Other general comments to the table

13 Table T13 – Employment

13.1 FRA 2010 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment	Includes all persons in paid employment or self-employment.
Paid employment	Persons who during a specified reference period performed some work for <u>wage or salary</u> in cash or in kind.
Self-employment	Persons who during a specified reference period performed some work for <u>profit or family gain</u> in cash or in kind (e.g. employers, own-account workers, members of producers' cooperatives, contributing family workers).

13.2 National data

The data is well consolidated within the National Statistics Office.

13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Report on the 2000 Census of Population	H	National Statistics Office	2000	Information is sufficient and the figures given in tables below are based on analysis by this office
2005 Census of Population, Volume 1: Basic Information and tables	H	National Statistics Office	2005	Information is sufficient and the figures given in tables below are based on analysis by this office
Kiribati 2005 Census, Volume 2: Analytical Report	H	National Statistics Office	2005	Information is sufficient and the figures given in tables below are based on analysis by this office
Report on 1990 Census of Population.	H	National Statistics	1990	Information is sufficient and the figures given in tables below are based on analysis by this office

13.2.3 Original data

General data is well consolidated but without specific information on forestry.

13.4 Data for Table T13

FRA 2010 Category	Employment (1000 years FTE)		
	1990	2000	2005
Employment in primary production of goods	ND	ND	ND
...of which paid employment	ND	ND	ND
...of which self-employment	ND	ND	ND
Employment in management of protected areas	ND	ND	ND

13.5 Comments to Table T13

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Employment in primary production of goods	According Statistics figures, out of total population in 2005 which is 90,000+ a portion of it is approximately (69%) involved with primary production only, but not exclusively on forestry.	
Paid employment / self-employment		
Employment in management of protected areas	Generally, these people are categorised under the service worker, according to the international standard to make it easier to refer to For example; people working at the park areas are just securities and park wardens.	

Other general comments to the table

14 Table T14 – Policy and legal framework

14.1 FRA 2010 Categories and definitions This is core part of the FRA: To set up Policies and Laws

Term	Definition
Forest policy	A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of society.
Forest policy statement	A document that describes the objectives, priorities and means for implementation of the forest policy.
National forest programme (nfp)	A generic expression that refers to a wide range of approaches towards forest policy formulation, planning and implementation at national and sub-national levels. The national forest programme provides a framework and guidance for country-driven forest sector development with participation of all stakeholders and in consistence with policies of other sectors and international policies.
Law (Act or Code) on forest	A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources.

Policy and Law are equally important and are on same level of importance. Law is more specific in instructing people to and ensuring their compliance. Policy is foundation of law! But are there any forestry laws in Kiribati? Now with our interest to utilise “

14.2 Data for Table T14

Indicate the existence of the following (2008)			
Forest policy statement with national scope	<input checked="" type="checkbox"/>	Yes	
	<input type="checkbox"/>	No	
If Yes above, provide:	Year of endorsement	2011	
	Reference to document	Kiribati Development Plan (KDP)	
National forest programme (nfp)	<input type="checkbox"/>	Yes	
	<input checked="" type="checkbox"/>	No	
If Yes above, provide:	Name of nfp in country		
	Starting year		
	Current status	<input checked="" type="checkbox"/>	In formulation
		<input type="checkbox"/>	In implementation
		<input type="checkbox"/>	Under revision
		<input type="checkbox"/>	Process temporarily suspended
Reference to document or web site			
Law (Act or Code) on forest with national scope	<input type="checkbox"/>	Yes, specific forest law exists	
	<input checked="" type="checkbox"/>	Yes, but rules on forests are incorporated in other (broader) legislation	
	<input type="checkbox"/>	No, forest issues are not regulated by	

Indicate the existence of the following (2008)		
		national legislation
If Yes above, provide:	Year of enactment	1999
	Year of latest amendment	2007
	Reference to document	Environment Act 1999 (amended 2007)

In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country.		
Sub-national forest policy statements	<input checked="" type="checkbox"/>	Yes
	<input type="checkbox"/>	No
If Yes above, indicate the number of regions/states/provinces with forest policy statements		22 local councils have the mandate to develop their own policies.
Sub-national Laws (Acts or Codes) on forest	<input type="checkbox"/>	Yes
	<input checked="" type="checkbox"/>	No
If Yes above, indicate the number of regions/states/provinces with Laws on forests		

14.3 Comments to Table T14

Variable / category	Comments related to data, definitions, etc.
Forest policy statement with national scope	<p>Those who are reflected in the KDP 2008-2011 and also in Policy Statement delivered by HE Te Beretitenti 2007.</p> <p>A Plan of Action for ensuring sustainable management of land, water and forestry resources and environmental protection of SIDS has been formulated within the framework of the World Food Summit follow-up and was adopted by the FAO Council in June 1999. The Plan comprises the following five main areas of actions:</p> <ul style="list-style-type: none"> Adjusting to changes in the global trading environment; Towards a more intensified, diversified and sustainable agriculture; Meeting fisheries needs; Ensuring sustainable management of land, water and forestry resources and environmental protection; Capacity building and institutional strengthening. <p>The main forestry-related objectives and activities of the proposed plan of action are to:</p> <ul style="list-style-type: none"> promote the conservation and sustainable use of land and water resources and manage sustainably the forest resources; enhance the environmental protection; improve disaster preparedness; and develop and/or strengthen national capacities in the context of the Uruguay Round Agreement on Agriculture.
National forest programme (nfp)	Has not been established as a NFP, but is to be developed through the proposed plan of action on forestry.

Law (Act or Code) on forest with national scope	None
Sub-national forest policy statements	None
Sub-national Laws (Acts or Codes) on forest	None

Other general comments to the table

15 Table T15 – Institutional framework

15.1 FRA 2010 Categories and definitions

Term	Definition
Minister responsible for forest policy-making	Minister holding the main responsibility for forest issues and the formulation of the forest policy.
Head of Forestry	The Head of Forestry is the Government Officer responsible for implementing the mandate of the public administration related to forests.
Level of subordination	Number of administrative levels between the Head of Forestry and the Minister.
University degree	Qualification provided by University after a minimum of 3 years of post secondary education.

15.2 Data for Table T15

Table 15a – Institutions

FRA 2010 Category	2008
Minister responsible for forest policy formulation : please provide full title	Minister of Environment, Lands and Agricultural Development (MELAD)
Level of subordination of Head of Forestry within the Ministry	1 st level subordination to Minister
	x 2 nd level subordination to Minister
	3 rd level subordination to Minister
	4 th or lower level subordination to Minister
Other public forest agencies at national level	not applicable
Institution(s) responsible for forest law enforcement	None beside MELAD including local governments that have their own mandate to make by-laws.

Table 15b – Human resources

FRA 2010 Category	Human resources within public forest institutions					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Total staff			91	20	70	23
...of which with university degree or equivalent	13	54	11	64	62	29

1. Includes human resources within public forest institutions at sub-national level
2. Excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers.

15.3 Comments to Table T15

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Minister responsible for forest policy formulation	<p>Minister for Environment, Lands and Agricultural Development.</p> <p>The formulation of the forest policy and such falls under the Ministry of Environment, Lands and Agricultural Development. Levels 2-4 are the ones to feed the minister with information through Level 1 while level 1 assist in formulation of policy and submit it to Minister to bring it up to Cabinet.</p>	<p>The ministry of Environment, Lands and Agricultural Development is one institute who takes the lead in managing, conserving and protecting the protected areas. The Ministry of Fisheries and the Ministry of Tourism are other ministry who also took parts in these initiatives through legislation and policy.</p>
Level of subordination of Head of Forestry within the Ministry	<p>To provide all forestry related information both technically and academically</p> <p>The forestry issues related to Kiribati Situation are currently under the Crop Research and Agro-forestry Section within the Agriculture Division. Other key stakeholders within the Government and NGOs also play their different roles in the implementation of activities addressing forest issues with the support from overseas donors.</p> <p>Nurserymen stationed in the outer islands are the ones to carry out the activities which are more agricultural related and are coordinated by the head of Agriculture Department.</p>	
Other public forest agencies at national level	<p>Environment and Conservation Division and Agriculture Department are within MELAD domain. Within the Environment Department there is a section that deals with biodiversity and other forest related activities such as mangrove planting/replanting and others. Within agriculture department there is a section that deals with Crop Research, Agro forestry and Quarantine and their activities are basically forest related The nurserymen on outer islands are also included.</p>	
Institution(s) responsible for forest law enforcement	<p>No such institution beside Agriculture Department however there is no specific legislation on forest within this department. In Kiribati institutions responsible for forest law enforcements are mainly the ECD under the Environment Act (but this is more on EIA and protection of fragile environment) and the Lands (but this is related to land tenure system in Kiribati and protection of individuals' right on trees on their own lands, and this is covered under the Lands Ordinance. ALD's involvement is in quarantine services – i.e. to protect forests from pests and invasive species or in looking after imported forests under biofuel initiatives, for example. Again, like the Environment Act and Lands Ordinance, the Quarantine Laws have no clear spelt out coverage of Kiribati forests.</p>	

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Human resources within public forest institutions	In Kiribati there are graduates who are not specialised in Forestry. However most graduates within the Department of Agriculture are Masters and Degree holders in the field of Agriculture	.

Other general comments to the table
<p>ECD and wildlife officers are dealing with forest related work in the field of replanting/planting of mangroves, conservation and maintaining the health of the breeding sites of wildlife creatures especially the indigenous birds. It is also important to note that most staff working within the institute of MELAD-ALD & ECD are qualified with Masters and Bachelors in Agriculture, Environment and other related forest courses and none is purely Forest students. Those under Environment Act, Lands Ordinance and Quarantine Act whose works also cover enforcement of Kiribati forest protection, management and utilisation.</p> <p>Notes:</p>

16 Table T16 – Education and research

16.1 FRA 2010 Categories and definitions

Term	Definition
Forest-related education	Post-secondary education programme with focus on forests and related subjects.
Doctor's degree (PhD)	University (or equivalent) education with a total duration of about 8 years.
Master's degree (MSc) or equivalent	University (or equivalent) education with a total duration of about five years.
Bachelor's degree (BSc) or equivalent	University (or equivalent) education with duration of about three years.
Technician certificate or diploma	Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education.
Publicly funded forest research centers	Research centers primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions.

16.2 National data

National data is supposed to be with our National Statistics office but they are not available.

16.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Agricultural and Livestock Development	M	Agriculture staff list	2000 2005	Hard to get data on the past records especially for the 2000; the results are based on estimation
Environment and Conservation Division	M	ECD staff list	2000 2005	No records available, they are based on estimation
Public Service Office	M	Human Resource Development Plan (HRD)	2000 2005	Data will be available later
Ministry of Education	L	Scholarship award	2000 2005	Not available

16.2.2 Original data

FRA 2010 Category	Graduation ¹⁾ of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Master's degree (MSc) or equivalent	1	none	5	4.6	5	4.8
Bachelor's degree (BSc) or equivalent	10	9.5	9	10.9	12	16.1
Forest technician diploma	5	3.1	2	10.9	No diploma	11.2
Certificate	27	11.1	27	nil	27	nil
Nursery men	22	nil	22		22	

Note that nurserymen are also included in both areas as they have been involved in a lot of hands-on training and they are the ones to carry out forestry related activities on outer islands

16.3 Analysis and processing of national data

Not necessary

16.3.1 Estimation and forecasting

16.4 Data for Table T16

FRA 2010 Category	Graduation ¹⁾ of students in forest-related education					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Master's degree (MSc) or equivalent	1	0	5	60	5	60
Bachelor's degree (BSc) or equivalent	10	6	9	77	12	83
Forest technician certificate / diploma	54	12.96	51	14	49	14
FRA 2010 Category	Professionals working in publicly funded forest research centres ²⁾					
	2000		2005		2008	
	Number	%Female	Number	%Female	Number	%Female
Doctor's degree (PhD)	0	0	0	0	0	0
Master's degree (MSc) or equivalent	1	0	1	0	0	0
Bachelor's degree (BSc) or equivalent	3	66	1	100	6	33

Notes:

1. Graduation refers to the number of students that have successfully completed a Bachelor's or higher degree or achieved a certificate or diploma as forest technician.
2. Covers degrees in all sciences, not only forestry.

16.5 Comments to Table T16

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Graduation of students in forest-related education	Out of the total number of staff within the Department of Agriculture the involvement of women in forest related activities are now encouraged although they are still outnumbered by men, there is a slight increase of women graduates than of men as seen from data collected from 2000 till 2008.	In long term there is a guarantee that women participation in these activities will increase since the percentage of student graduates (women in particular) have been gradually increasing than of men graduates.
Professionals working in public forest research centres	There is no such centre exist except a research centre within the Agriculture department which only comprised of a Principle officer as the head of this research centre and a very few number of staff.	The number of staff within this research centre is now decreasing as they are now holding different and higher positions within the department.

Other general comments to the table

Accessing and collection of accurate data is a problem. It might be easy to do so if everything has been put in place; therefore the information collected is based on estimation and verbal communication.

17 Table T17 – Public revenue collection and expenditure

17.1 FRA 2010 Categories and definitions

Category	Definition
Forest revenue	All government revenue collected from the domestic production and trade of forest products and services. For this purpose, forest products include: roundwood; sawnwood; wood-based panels; pulp and paper; and non-wood forest products. As far as possible, this should include revenue collected by all levels of government (i.e. central, regional/provincial and municipal level), but it should exclude the income of publicly owned business entities.
Public expenditure	All government expenditure on forest related activities (further defined below).
Operational expenditure (sub-category to Public expenditure)	All government expenditure on public institutions solely engaged in the forest sector. Where the forest administration is part of a larger public agency (e.g. department or ministry), this should only include the forest sector component of the agency's total expenditure. As far as possible, this should also include other institutions (e.g. in research, training and marketing) solely engaged in the forest sector, but it should exclude the expenditure of publicly owned business entities.
Transfer payments (sub-category to Public expenditure)	All government expenditure on direct financial incentives paid to non-government and private-sector institutions, enterprises communities or individuals operating in the forest sector to implement forest related activities.
Domestic funding	Public expenditure funded from domestic public financial resources, including: retained forest revenue; forest-related funds; and allocations from the national budget (i.e. from non-forest sector public revenue sources).
External funding	Public expenditure funded from grants and loans from donors, non-governmental organisations, international lending agencies and international organisations, where such funds are channelled through national public institutions.

17.2 National data

A report from the National Statistics office says that all information and data is dispersed within various government ministries and organizations and it may be very difficult for them to provide such data especially those connected with forest related activities as such. Referring back to ALD there is no data put in place; and even if they were in place, staff would find it very difficult to identify and to provide for use.

17.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Agriculture and Livestock Department	L	First and second half of year (Progress report)- Ministry Operational Plan (MOP)	2000	
Kiribati Handicraft Local Produce	L			Data has not been centralized and consolidated thus everything is scattered as well. However rough figures of annual revenue earned from handicrafts

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Other sources	L			Some information obtained from home and neighbouring families and colleagues in the office.
Women's Handicraft community	L			No concrete data to refer to

17.2.2 Classification and definitions

National class	Definition
Handicrafts	'Handicrafts' refers to local made crafts from forest leaves, woods, fruits, stems, and branches such as coconut tree, pandanus tree, etc Forest here is defined as <i>'trees in their own right in serving the need of the people owing to their ecological services and functions in sustaining the lives of all creatures in terms of food, shelter and general health securities'</i> and from which money is earned.
Others	'Others' refers to other certain parts of the forest trees from which money is generated. These would include, fruit juice, jam, syrup, and many others.

17.2.3 Original data

The sources are mainly from the Kiribati Handicraft Local Produce. The women's community barely have a concrete data thus are not certain in providing figures. The data received through verbal communication which is almost the same to the amount generated by KHLP each year but gradually decreases because of high competition between the private but individual vendor.

For the year 2005 the KHLP reported \$ 3000 and for 2008 reported \$ 9000

7.4 Data for Table T17

Table 17a - Forest revenues

FRA 2010 Categories	Revenues (1000 local currency)	
	2000	2005
Forest revenue	3	9

Table 17b - Public expenditure in forest sector by funding source

FRA 2010 Categories	Domestic funding (1000 local currency)		External funding (1000 local currency)		Total (1000 local currency)	
	2000	2005	2000	2005	2000	2005
Operational expenditure		1054		458		1512
Transfer payments	nd	nd	nd	nd	nd	nd
Total public expenditure		1054		458		1512
If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply.	<input checked="" type="checkbox"/>	Reforestation				
	<input checked="" type="checkbox"/>	Afforestation				
	<input type="checkbox"/>	Forest inventory and/or planning				
	<input checked="" type="checkbox"/>	Conservation of forest biodiversity				
	<input checked="" type="checkbox"/>	Protection of soil and water				
	<input checked="" type="checkbox"/>	Forest stand improvement				
	<input type="checkbox"/>	Establishment or maintenance of protected areas				
	<input type="checkbox"/>	Other, specify below				
		The main purpose of payments is to draw the attention of landowner to fully participate solely on planting their lands The data includes mainly copra.				

17.5 Comments to Table T17

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Forest revenue	<p>Not applicable in terms of direct forest revenue for the Government, however the outer island communities have been relying on local trees such as pandanus, coconut trees, mangroves, casuarina trees (introduced), te uri (<i>Guettarda speciosa</i>) and te mao (<i>Scaevola sericea Vahl</i>), te ren (<i>Tournefortia samoensis</i>), and te ngea (iron tree) for construction and other needs.</p> <p>Other revenue comes from the national public handicraft and local produce, while others are derived from the women's community. The data and information on these activities is too vague and scattered as well. There are a number of local produce and handicrafts which have been sold out in local markets and in overseas markets, i.e. Australia, Japan.</p> <p>Other revenue sources will soon earned from local juice, jams and such that are made from pandanus fruits, pumpkin and other vegetables and fruits.</p>	<p>Recently In terms of revenue generation from handicraft and local produce the revenue is not that high. This is due to high competition amongst the private and individual vendor, the public handicraft and local produce institute and the women communities. This contributes to the decrease in revenue from these local produce compared to the past experience.</p> <p>However on the other hand Kiribati Handicraft and Local Produce (KHLP) have recently seen the increase in revenue generated from handicraft. Money earned in 2008 is higher than generated in 2000.</p> <p>The National Fruit Processing Project Phase 1 (Product Development on trial for 7 weeks) has long been completed. The next phase is looking for a private business to drive on the project.</p>

Variable / category	Comments related to data, definitions, etc.	Comments on the reported trend
Operational expenditure	Not applicable as there is no formal organizational arrangement, however through Government under its National budget each ministry in particular MELAD-ALD & ECD are given money through the recurrent budget to carry out a number of forestry related activities, while others comes from overseas grants through SPC, FAO, Cosmo Oil Co Japan, etc.	The activity is still Ongoing
Transfer payments	No formal institutional arrangements, however the forestry activities are encompassed under the Agriculture Department. Coconut replanting in the 1970s was one example where the Government paid out money to landowners on the outer islands to plant trees on their land in particular the coconut trees. The funding was from Overseas Development Assistant (ODA). This was one major project in Kiribati which the British initiated to maintain economic growth once the phosphate started to diminish.	The project failed when Government couldn't pick it up and merge it under its operational national plans in meeting cost of maintenance and other considerations. The main reason for its failure was due to very low moral support since the incentive for the venture depended on the availability of funds. The next approach on this same project will be to discourage monetary payments in the form of subsidies and to conduct a nationwide initiative in convincing people that the replanting of their land is of benefit for future generations. How much people plant is how much they and their families will survive in the long term in future.

Other general comments to the table
<p>The table above consists of bits of information on the revenue generation and money expended annually while the bulk of it is still unexplored due to very scattered data and information. Even the data at the Agricultural Department is hard to locate.</p> <p>The data cannot be provided for transfer payments due to the lack of correct information; but generally ODA appeared to have contributed with a relevant contribution in starting up and implementing the Replanting project. The data on subsidy paid to copra cutters can't be available due to breakdown of network system.</p>

Acronyms and Abbreviations

MELAD	Ministry of Environment, Lands and Agricultural Development
ALD	Agriculture and Livestock Development
ECD	Environment and Conservation Division
LMD	Lands Management Department
SOE	State Of Environment
NA	Not Available
N/A	Not Applicable
PIPA	Phoenix Island Protected Area
CBD	Convention of Biodiversity
CS	Copra Society
NS	Not Stated
ODA	Overseas Development Assistant
SPC	South Pacific Community
FAO	Food and Agriculture Organization
ISME through Cosmo Oil Co Japan	International Society for Mangrove Ecosystem
EYC	Environment Youth Club
MFMRD	Ministry of Fisheries and Marine Resource Development
NGOs	Non Government Organizations