



Fiji Bureau of Statistics

Closing Regional Workshop for the SEEA Project

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Highlights of Satellite Accounts

<http://www.statsfiji.gov.fj/statistics/economic-statistics/national-accounts-gdp-2>

Tourism
Satellite
Accounts

SEEA

Measuring
Sustainable
Tourism



Presentation Outline

1. Country Background
2. National Strategies and Priorities
3. Fiji's SEEA Accounts
4. Fiji's Energy Accounts
5. Issues & Challenges

Country Background



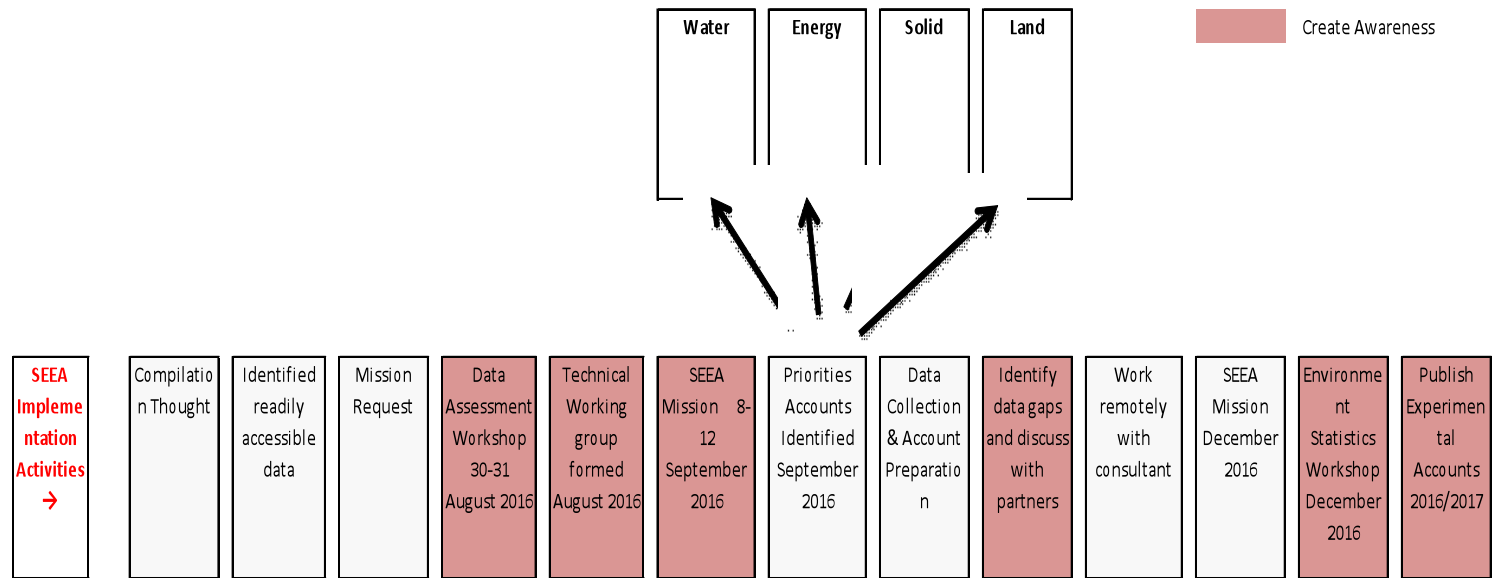
Fiji comprises of more than 332 islands of which 110 are permanently inhabited. The total land area is about 18,300 square kilometres. The two main islands are Viti Levu and Vanua Levu. These two islands account for 87% of the population of 0.9m. The main industries of the country are Manufacturing, Wholesale & Retail, Tourism, Transport & Storage and Financial & Insurance.



Green Growth Framework

Environment	Social	Economic
1. Building Resilience to Climate Change and Disasters	4. Inclusive Social Development	7. Energy Security
2. Waste Management	5. Food Security	8. Sustainable Transportation
3. Sustainable Island and Ocean Resources	6. Freshwater Resources and Sanitation Management	9. Technology Innovation and Development
		10. Greening Tourism and Manufacturing Industries

SEEA Journey



SEEA Accounts


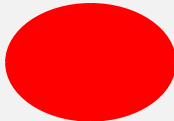


SEEA		
1.0	Asset Accounts	
	1.1.1	Land Cover Account
	1.1.2	Mineral & Energy Resource
	1.1.3	Soil Resources
	1.1.4	Timber Resources
	1.1.5	Aquatic Resources
	1.1.6	Other Biological Resources
	1.1.7	Water Resource Account
2.0	Physical Flow Accounts	
	2.1.1	Air Emission Account
	2.1.2	Water Emission Account
	2.1.3	Waste Account
	2.1.4	Full set of supply and use for materials
	2.1.5	Economy wide material flow accounts
	2.1.6	Physical supply and use for water
	2.1.7	Physical supply and use for energy
3.0	Environmental Activity Accounts	
	3.1.1	Environmental protection expenditure accounts
	3.1.2	Environmental goods and services sector
	3.1.3	Environmentally related payments by government
	3.1.4	Environmentally related payments to government
	3.1.5	Permits and licenses to use environment assets
	3.1.6	Emissions permit
4.0	Experimental Ecosystem Accounts	
	4.1.1	Eco system condition and extent
	4.1.2	Physical flow of eco system services
	4.1.3	Carbon stock accounts
	4.1.4	Bio diversity accounts

SEEA Journey

FIJI'S STATE OF ENVIRONMENT REPORT 2013



Data Status

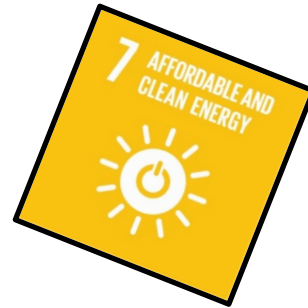
SEEA ACCOUNTS	26/10/16 Status	Comments
Land Cover Account		Need to have a common land use classification across agencies
Solid Waste		Regular data collection on solid waste is required
Water Flow Account		Current work only covers tap water. Include other sources of water.
Energy Flow Account		Current work only covers electricity. Include other sources of energy.

Fiji's Experimental Energy Account



Fiji's Experimental Energy Account

Why?



- ▶ Green Growth Framework (2014) & National Energy Policy (2014-2020)

- ▶ Access to sustainable, reliable and affordable energy
- ▶ Public awareness about efficiency
- ▶ Need to monitor supply and use

- ▶ Also:

- ▶ Climate Change
- ▶ Health



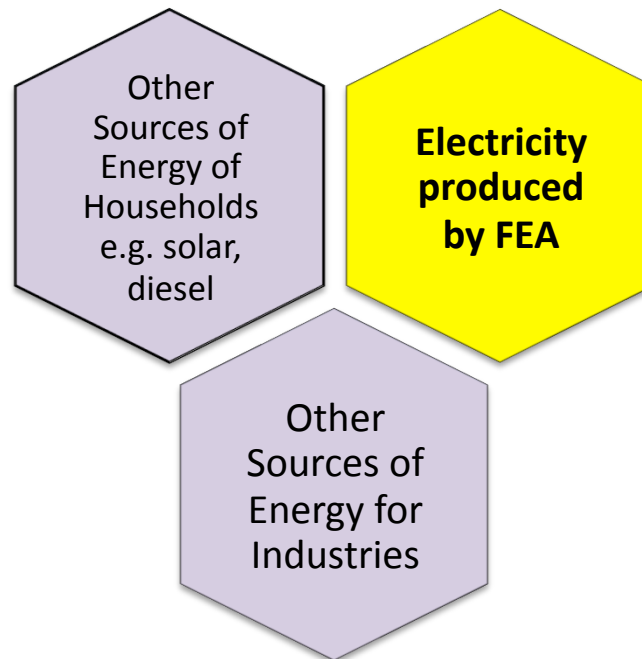
Fiji's Experimental Energy Account

What?



- ▶ Ideally have data on all sources, use of energy, by type, by industry, households for all purposes
- ▶ An Energy Account integrates data from all sources in a coherent framework
- ▶ Experimental Energy Account
 - ▶ Covers only portion of the population (FEA customers)
 - ▶ Focuses on electricity generation and use
 - ▶ No information on individual power providers
- ▶ Future work to include total population, outer islands, rural, fuel imports, use in industry and transportation

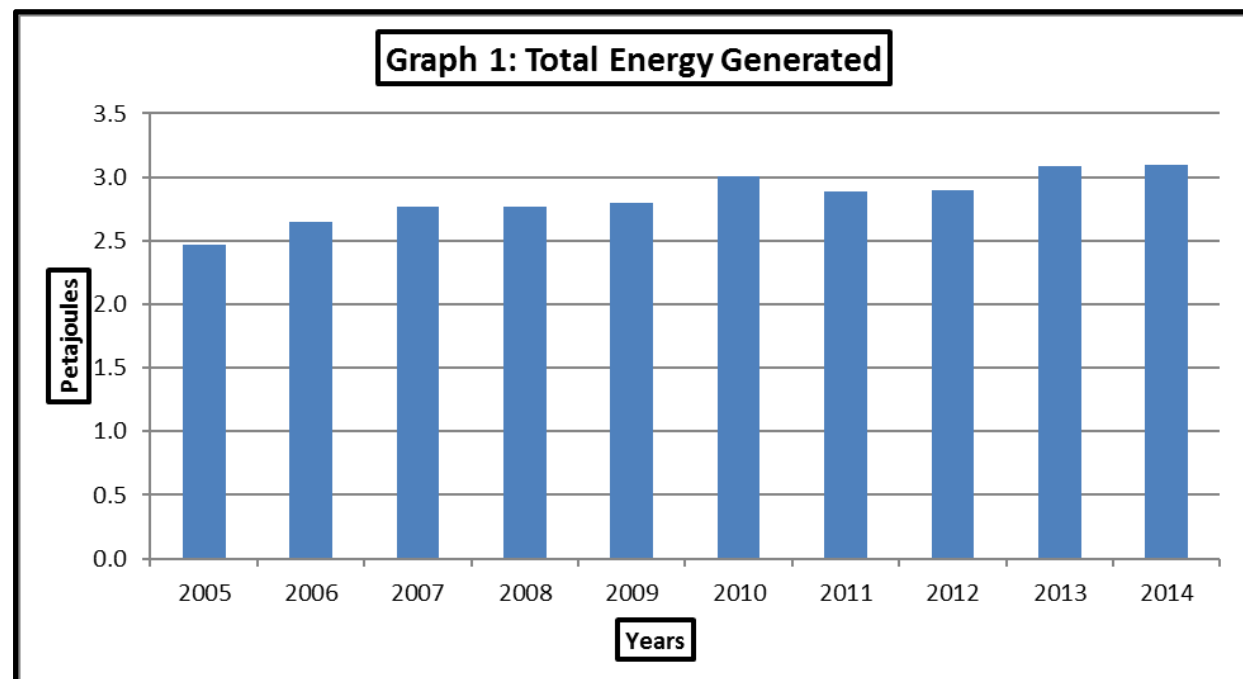
Fiji's Experimental Energy Account



Data Gaps

Fiji's Experimental Energy Account

Generation of electricity increased by 10% between 2005 and 2014



Users mainly commercial (45%), households (28%) and industry (27%)

Fiji's Experimental Energy Account

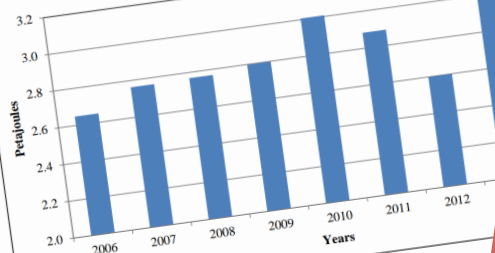
Some details

2014					
UNIT: GIGAJOULES		Commercial	Industrial	Domestic	Inventori
Natural inputs	Extraction of coal	-	-	-	-
	Electricity from renewal sources	-	-	-	-
	<i>Hydro</i>	-	-	-	-
	<i>Solar & Wind</i>	-	-	-	-
	Wood	-	-	-	-
Products	Fuel oil	-	-	-	-
	Gasoline	-	-	-	-
	Electricity	-	2.9	-	-
	Fuel wood	-	-	-	-
Residuals	Losses during extraction (coal)	-	-	-	-
	Losses during distribution (electricity)	-	0.2	-	-

Fiji's Experimental Energy Account

Some details

Graph 1: Total Energy Generated



FEA represents 97.5% of all electricity generated on the grid in Fiji. generation is representative of all electricity, then the electricity intensity of generation represents an improvement of about 33.0% over 2005.

Given that 53.0% of FEA's electricity is generated from thermal generation of fuels consumed represent not only a significant cost, but also environmental impact. The fuel for thermal generation cost \$180m. The fuel was converted into an estimated loss in transformation (mainly heat, which could be recovered in the energy content of the fuel).

Further Work

Electricity represents only a small portion of Fiji's energy mix. The Energy Accounts covers only a part of Fiji's energy supply and use. Further work is needed to provide a comprehensive picture of Fiji's energy supply (fuel for transport) and information on additional sources of energy supply (fuel for transport) and more detail on users.

For example, the energy intensity of specific industries would be more detail on rural and outer island households would be improvements in access to energy. Understanding the distribution would provide a framework within which requirements and impacts.

Energy consumers are based on the classification (commercial, household and industry).

Appendix 2: Technical Notes

Definition (SEEA 2012 – UNSD)

SEEA 2012 Central Framework – is a multipurpose conceptual framework for understanding the interactions between the economy and the environment, and for describing stocks and changes in stocks of environmental assets.

Energy Account - Energy flow accounts record flows of energy, in physical units, from the initial extraction or capture of energy resources from the environment into the economy; the flows of energy within the economy in the form of the supply and use of energy by industries and households; and, finally, the flows of energy back to the environment.

Joules – the basic unit of measurement for energy.

Petajoules – is equivalent to quadrillion joules.

Gigajoules – the equivalent to one billion joules.

Loss during transformation – refers to the energy lost, for example, in the form of heat, during the transformation of energy product into another energy product.

Loss during distribution – are losses that occur between a point of abstraction, extraction or supply and a point of use.

Commercial user – refers to users in businesses and light industries.

Industrial user – refers to users in heavy industries.

Domestic user – refers to household users.

Returns to environment – comprises of all energy that is returned to the environment i.e. sum of loss during transformation, billed energy (electricity), and loss during distribution.

Energy available for distribution – refers to energy after transformation available for distribution to users.

MWh - A megawatt hour (MW) is equivalent to one million watt.

Conversion Factors:

1 MWh = 0.0000036 Petajoules

1 tonne of fuel = 1111.20 litres of fuel

1 tonne of fuel = 0.000043 Petajoules

Fiji's Experimental Energy Account

Some details

Appendix 1: Fiji's Energy Account

Energy Account 2006 - 2014 Petajoules [PJ]

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Sources of Energy									
Hydro	1.2	1.8	1.8	1.7	1.5	1.6	1.9	1.9	1.4
Solar and Wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel oil	3.7	2.4	2.6	2.9	3.8	3.1	2.5	3.0	4.1
<i>less loss during Transformation</i>	2.3	1.5	1.6	1.8	2.3	1.9	1.8	1.9	2.5
Energy Available for distribution	2.6	2.7	2.8	2.8	3.0	2.8	2.6	3.1	3.1
Users:									
<i>Commercial</i>	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3
<i>Industrial</i>	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8
<i>Domestic</i>	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8
Loss during distribution	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2
Returns to the environment	5.0	4.2	4.3	4.5	5.3	4.8	4.7	4.9	5.6
<i>% of energy loss during transformation</i>	47%	36%	36%	39%	43%	40%	41%	38%	45%
<i>% of energy loss during distribution</i>	4%	5%	5%	4%	6%	4%	7%	6%	4%

Any discrepancy in totals and sum of components are due to rounding.

N.B. This is a simplified version of the energy account, the SEEA Conceptual Framework Version of the Energy Account i.e. inclusive of the Physical Supply and Use Tables is available on the website: www.statsfiji.gov.fj.

Fiji's Experimental Energy Account

Future



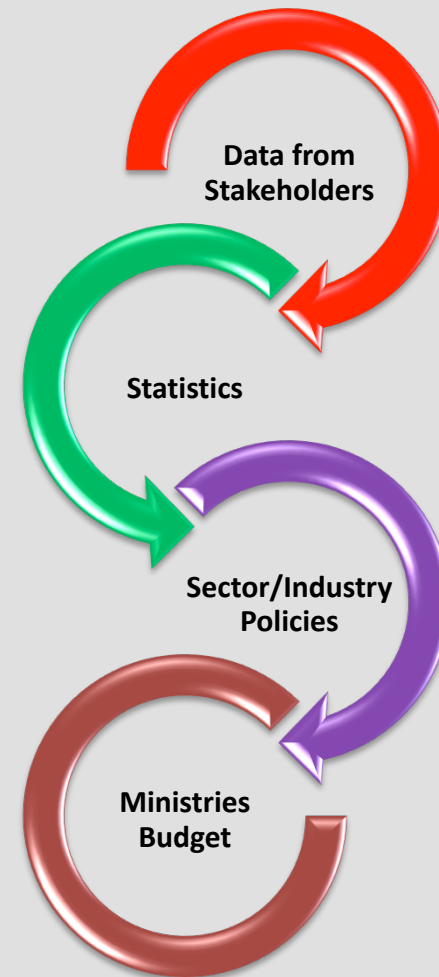
- ▶ Use the Energy Account
 - ▶ Additional data from other sectors
 - ▶ Opportunities for reducing consumption, managing energy, and renewable supply

What worked well?

Regular
Engagement with
Stakeholders

Linking Work to
Policies and
Ministerial Budgets

Being Transparent
on the processes
and output





Thank You

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<http://www.statsfiji.gov.fj/statistics/economic-statistics/national-accounts-gdp-2>