

**Closing Regional Workshop for the
United Nations Development Account
Project, Jakarta, Indonesia, 28-30
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Outline

- Overview of SEEA Bhutan
- Rational for SEEA Bhutan
- Annual Environmental Accounts Statistics
- Bhutan Integrated Energy Account
- Issues & Challenges

Overview of SEEA Bhutan

- One of the pilot countries in Asia and Pacific region under United Nations Development Account Project titled “*Supporting Developing Countries Measure Progress Towards Achieving a Green Economy*”, 2014-2015
- Country draft Assessment Report for Experimental Ecosystem of Bhutan in December, 2014
- Preliminary Assessment Report of Green Economy Indicator (GEI)
- Introduced chapter on Electricity Account in National Accounts Statistics 2014 based on Framework for Development of Environmental Statistics (FDES) of UNSD.
- Piloted Fossil Fuel (Diesel & Petrol) Account (Supply and Consumption) and introduced chapter in National Accounts Report, 2015

Rationale for SIEEA in Bhutan

- ❖ High regard for nature and environment.
- ❖ The Constitution of the kingdom of Bhutan
 - ✓ *Requires conserving natural resources and prevent degradation of ecosystem, and maintain at least 60% of forest cover for all times.*
- ❖ Gross National Happiness as development policy
 - ✓ *Environmental conservation as one of the pillars of GNH and it is integrated in every policy and development plans of the country.*
- ❖ The Forest and Nature Conservation Act, 1995
 - ✓ *Aims to strengthen and promote scientific management of forest resources and community forest.*

Rationale for SEEA Bhutan Contd...

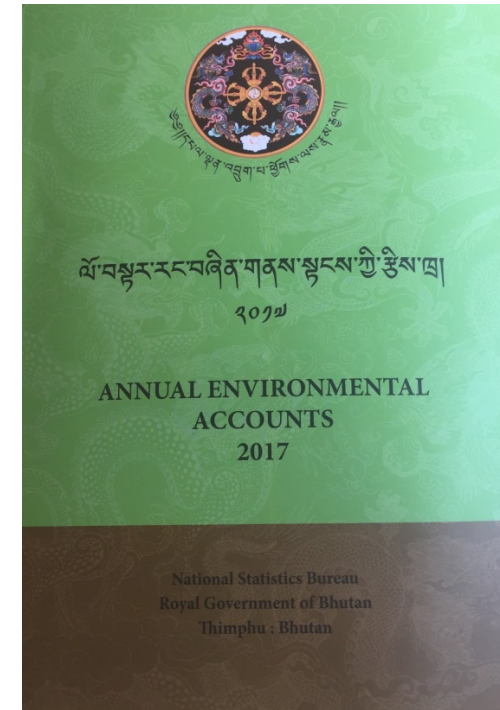
- ❖ National Forest Policy, 2010
 - ✓ *Adopts sustainable forest management practices*

 - ❖ The National Environment Protection Act, 2007
 - ✓ *Aims to provide an effective system to conserve and protect environment, so as to independently regulate and promote sustainable development in an equitable manner.*

 - ❖ The Five-Year Development Plans
 - ✓ *Bhutan's Eleventh Five-Year Plan (2013-2018) emphasizes to enhance sustainable land and biodiversity resource management*
- *All of these policy documents adopt and emphasize on the sustainable use of natural resources through proper resource management practices.*

Annual Environmental Accounts Statistics

- Published first ever publication on environmental accounts starting 2017. It will be a regular annual publication.
- Aims to provide foundations and development towards improved decision makings related to sustainable development and green economy.
- Focus more on Environmental related accounts
- Covers:
 1. Green Economy Indicators
 2. Electricity Account
 3. Fossil Fuel Account (Petrol & Diesel)
 4. Natural Asset Account (Timber, sand, stone, etc)
 5. Mineral Account (only non-metallic minerals)



- **In future, to extend the scope of the report with the availability of information based on policy and priority needs.**

Green Economy Indicators

- The Green Economy Indicators are compiled based on the framework of United Nations Statistics Division (UNSD).
- It consists of 44 core set of indicators (CS) and 53 indicators that are non-core (NCS). However, NSB developed these indicators with necessary adaptations to Bhutan.
- These indicators are compiled based on the scoping workshop organized by NSB with relevant stakeholders.
- GEI is one of the mechanisms to gauge the sustainability of developmental activities in the country

Electricity Accounts (Hydro only)

- ❖ Hydropower is major source of energy resource
- ❖ Total Supply= Domestic Production + Import
- ❖ Production (Supply) data is sourced from Druk Green Power Corporation (DGPC Annual Report)
- ❖ Total Use= Domestic Use + Transmission loss + Export
- ❖ Consumption (Use) data are sourced from Bhutan Power Corporation
- ❖ Both PSUT & MSUT

PSUT

(GWh)

SUPPLY				USE			
Year	Production	Imports	Total	Exports	Transmission Loss	Domestic Use	Total
2007	6,421.95	22.22	6,444.17	5,372.57	121.05	950.55	6,444.17
2008	7,158.17	9.38	7,167.55	5,922.38	150.59	1,094.58	7,167.55
2009	6,922.94	64.16	6,987.10	5,404.82	165.47	1,416.81	6,987.10
2010	7,327.73	131.56	7,459.29	5,579.49	166.99	1,712.81	7,459.29
2011	7,067.55	40.32	7,107.87	5,273.10	93.98	1,740.79	7,107.87
2012	6,826.48	59.36	6,885.84	4,895.67	84.17	1,738.98	6,718.82
2013	7,549.84	112.26	7,662.10	5,557.63	43.06	2,061.41	7,662.10
2014	7,163.79	191.83	7,355.62	5,044.33	90.90	2,220.39	7,355.62
2015	7,745.89	163.15	7,909.04	5,541.76	146.99	2,220.29	7,909.04
2016	7,959.29	113.11	8,072.40	5,779.32	115.80	2,177.28	8,072.40

MSUT

(Mill. Nu.)

SUPPLY				USE			
Year	Production	Imports	Total	Exports	Losses through transmission & distribution	Industries and households	Total
2007	10,962.37	37.73	11,000.10	10,034.33	91.71	874.06	11,000.10
2008	12,593.17	14.26	12,607.43	11,032.60	103.94	1,470.89	12,607.43
2009	10,889.85	111.03	11,000.88	10,071.00	111.57	818.31	11,000.88
2010	11,811.46	233.87	12,045.33	10,411.46	139.73	1,494.14	12,045.33
2011	10,948.33	67.18	11,015.51	9,839.21	162.12	1,014.18	11,015.51
2012	11,140.80	110.30	11,251.10	9,714.53	148.23	1,388.34	11,251.10
2013	13,051.66	214.93	13,266.59	11,013.99	149.96	2,102.64	13,266.59
2014	13,905.77	371.28	14,277.05	10,698.31	-	3,578.74	14,277.05
2015	14,258.09	341.51	14,599.60	10,991.32	-	3,608.28	14,599.60
2016	14,624.05	222.50	14,846.55	11,421.89	0.80	3,423.86	14,846.55

Fossil Fuel Accounts

PSUT for Fossil Fuel

Supply(in KL)	2012	2013	2014	2015	2016
Domestic Production	0.00	0.00	0.00	0.00	0.00
Import:					
1. Diesel	121,832.00	122,424.80	117,273.80	122,091.40	127,539.00
2. Petrol	29,094.00	30,195.20	31,289.20	33,880.60	35,960.00
Total Supply	150,926.00	152,620.00	148,563.00	155,972.00	163,499.00

Use

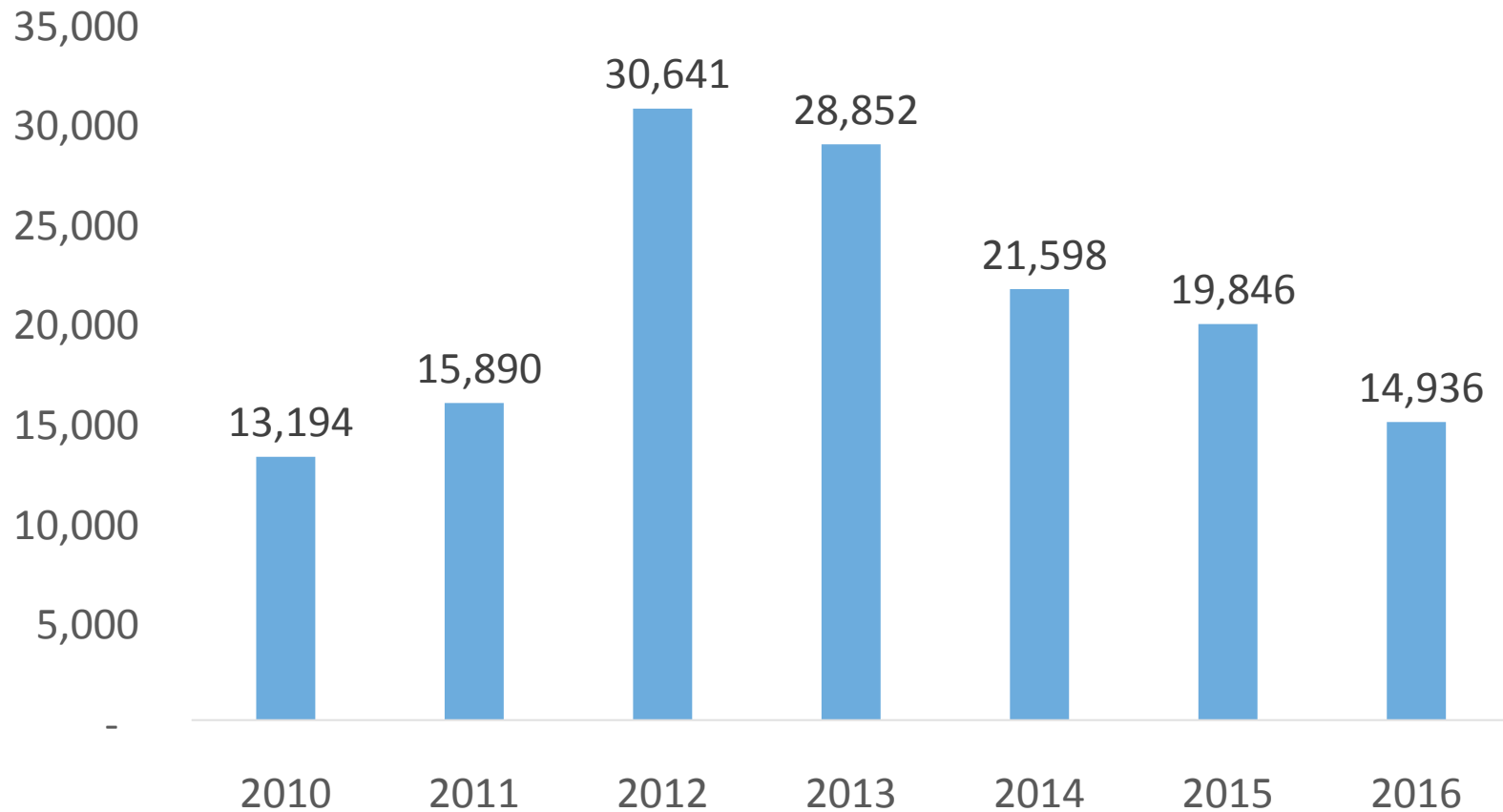
Major sectors	2012	2013	2014	2015	2016
1. Agriculture, Livestock & Forestry	11,269.47	11,676.31	12,810.17	16,838.55	19,541.30
Diesel	11,268.28	11,675.12	12,808.97	16,827.71	19,526.48
Petrol	1.19	1.20	1.19	10.85	14.82
2. Industry	24,450.98	24,934.18	25,751.13	26,626.96	31,898.70
Diesel	24,305.61	24,771.61	25,588.21	26,409.68	31,662.22
Petrol	145.37	162.57	162.92	217.28	236.48
3. Services	58,346.78	60,852.59	61,058.08	62,132.52	62,619.11
Diesel	57,652.61	60,079.95	60,285.98	61,149.61	61,761.89
Petrol	694.16	772.64	772.10	982.92	857.23
3. HH consumption	26,218.26	26,304.71	27,345.30	30,527.70	34,503.53
Diesel	4,000.95	4,033.25	4,166.79	4,719.66	6,674.08
Petrol	22,217.31	22,271.46	23,178.51	25,808.04	27,829.45
4. Re-Export	30,640.51	28,852.20	21,598.32	19,846.27	14,936.35
1. Diesel	24,604.55	21,864.87	14,423.84	12,984.75	7,914.33
2. Petrol	6,035.96	6,987.33	7,174.48	6,861.52	7,022.02
Total use of Diesel	121,832.00	122,424.80	117,273.80	122,091.40	127,539.00
Total use of Petrol	29,094.00	30,195.20	31,289.20	33,880.60	35,960.00
Total use	150,926.00	152,620.00	148,563.00	155,972.00	163,499.00

MSUT

	In million Nu				
Supply	2012	2013	2014	2015	2016
Production	0.00	0.00	0.00	0.00	0.00
Imports	6228.71	7218.10	7731.32	6730.68	7307.19
1. Diesel at basic price	4601.90	5471.94	5911.38	5024.82	5549.46
2. Petrol at basic price	1626.82	1746.16	1819.94	1705.86	1757.73
Total Margin	749.12	841.32	1035.00	1233.21	1669.84
Trade and Transport margin (Diesel)	571.09	637.05	760.59	966.20	1113.18
Trade and Transport margin (Petrol)	178.03	204.26	274.40	267.01	556.66
Supply at market price (Diesel)	5172.99	6108.99	6671.97	5991.02	6662.64
Supply at market price (Petrol)	1804.85	1950.42	2094.34	1972.87	2314.39
Total Supply at market Price	6977.83	8059.42	8766.32	7963.89	8977.02

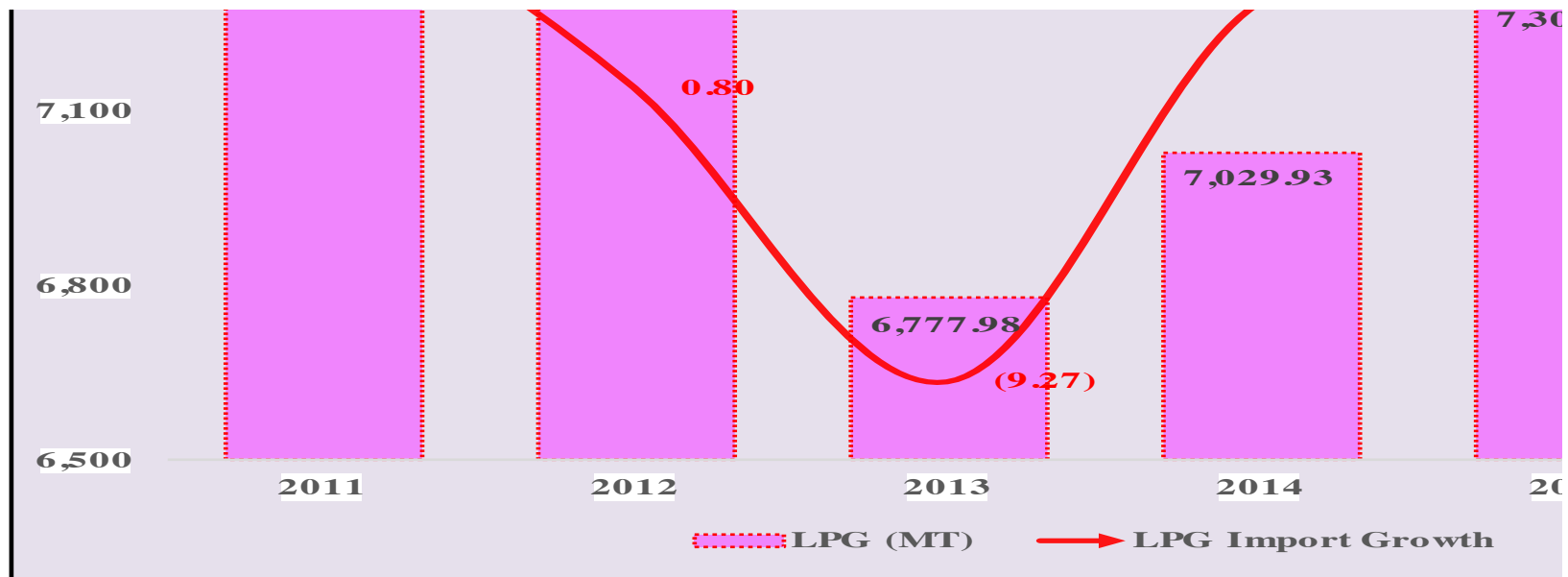
Re-export in KL

(Re-export is a term used for refueling of fuel by Indian vehicles plying in Bhutanese roads)



LPG Account

- The import of LPG gas has increased from 7,302.60 MT in 2015 to 7,593.23 MT in 2016.
- The import growth was about 4 percent as compared to 2015.
- It is estimated that around 3 nos. of cylinders are consumed by each household in a year.



PSUT For Kerosene

(in KL)							
Supply	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
<u>Domestic Production</u>	=	=	=	=	=	=	=
<u>Import</u>	<u>5,780.00</u>	<u>5,727.00</u>	<u>5,567.00</u>	<u>4,990.00</u>	<u>5,694.00</u>	<u>4,611.00</u>	<u>4,791.00</u>
<u>Total Supply</u>	<u>5,780.00</u>	<u>5,727.00</u>	<u>5,567.00</u>	<u>4,990.00</u>	<u>5,694.00</u>	<u>4,611.00</u>	<u>4,791.00</u>
<u>Use</u>							
<u>Household</u>	<u>5,540.00</u>	<u>5,607.00</u>	<u>5,547.00</u>	<u>4,978.00</u>	<u>5,673.00</u>	<u>4,599.00</u>	<u>4,755.00</u>
<u>Industries</u>	<u>240.00</u>	<u>120.00</u>	<u>20.00</u>	<u>12.00</u>	<u>21.00</u>	<u>12.00</u>	<u>36.00</u>
<u>Total Use</u>	<u>5,780.00</u>	<u>5,727.00</u>	<u>5,567.00</u>	<u>4,990.00</u>	<u>5,694.00</u>	<u>4,611.00</u>	<u>4,791.00</u>

MSUT For Kerosene

								(in Mil. Nu.)
Supply	2010	2011	2012	2013	2014	2015	2016	
Domestic Production	-	-	-	-	-	-	-	
Import (at basic price)	60.61	72.68	72.71	65.56	75.83	60.69	66.06	
Exports	-	-	-	-	-	-	-	
Changes in inventories	-	-	-	-	-	-	-	
Losses	-	-	-	-	-	-	-	
Trade and Transport margin (TTM)	37.65	36.13	33.06	30.98	11.18	11.77	11.61	
Total Supply (at market price)	98.26	108.81	105.77	96.54	87.01	72.46	77.67	
Use								
Household	94.18	106.53	105.39	96.30	86.69	72.27	77.09	
Industries	4.08	2.28	0.38	0.23	0.32	0.19	0.58	
Total use (3+4)	98.26	108.81	105.77	96.54	87.01	72.46	77.67	

Asset Account

- **Timber**
- **Sand**
- **Stone**
- **Stone Chips**
- **Minerals**

Mineral Accounts

- **Coal**
- **Dolomite**
- **Limestone**
- **Gypsum**
- **Quartzite**
- **Talc**
- **Iron-Ore**

Bhutan Integrated Energy Account

- Tentatively planned to published next year.
- Includes energy carrier products:
 - Coal & other derivatives (sub-bituminous, anthracite, coke/semi coke of coal, other coal)
 - Solid Biofuels (fuelwood, charcoal, briquettes, woodchips)
 - Biogas
 - Liquid & gaseous fossil fuel (LPG, ATF, kerosene, petrol, diesel, furnace oil)
 - Renewable Energy & Fuels (hydro electricity, wind & solar power)

Plans to develop Emission Account
(energy related based on energy
account)

Issues & Challenges

- Compilation issues (difficult to source information on use side)
- Obtaining timely environmental data
- Resource issue
- Different concepts and definitions
- Challenge to have a coherent, consistent and comprehensive environmental data
- Capacity development for officials working with environmental related accounts
- TA to review accounts

Thanks for your
attention!