# Compilation experience on Energy Accounts in Bhutan

12th April, 2023, SIAP, Chiba, Japan

National Statistics Bureau

# Legal and development policy context

- 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.

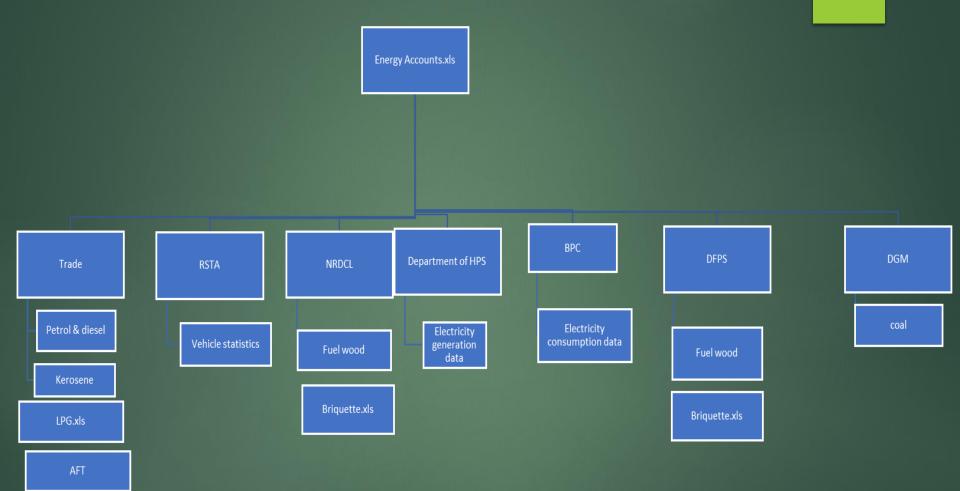
## Energy accounts

- Environmental Statistics and Accounts was first compiled and published in 2014 as part of the National Accounts report
- Following energy supply and Use Table were prepared:
  - ✓ Electricity Account
  - ✓ Fossil Fuel Account (Petrol & Diesel)
- The accounts were prepared both for volume and monetary values

## Energy accounts

- In 2018 experimental Energy Account developed
  - ✓ Limited energy products
  - ✓ Only for total industry and Household
- Beginning in 2021 Energy Account was developed and compiled following the PFEA

## Data Sources



### Physical Energy Flow Account (PEFA) Energy Classes

PEFA Code	Official Label	Adjusted code	Short label		
NOO	NATURAL ENERGY INPUTS				
N01	Fossil non-renewable natural energy inputs	N01	Fossil non-renewables		
N03	Hydro based renewable natural energy inputs	N03	Hydro based renewables		
N04	Wind based renewable natural energy inputs	N04	Wind based renewables		
N06	Biomass based renewable natural energy inputs	N06a	Biomass (Fuelwood)		
NOO	biolilass based reflewable flatural effetgy inputs	N06b	Biomass (Briquettes)		
P00	ENERGY PRODUCTS				
P08	Hard coal	P08a	Hard coal (Domestic)		
	Tida oodi	P08b	Hard coal (Imported)		
P11	Secondary coal products (coke, coal tar, patent fuel, BKB and peat products)	P11	Secondary coal (coke/semicoke)		
P14	Motor spirit (without bio)	P14	Motor spirit (petrol)		
P15	Kerosenes and jet fuels (without bio)	P15a	Kerosenes		
P15	refuseries and jet rueis (without bio)	P15b	Jet fuels		
P17	Transport diesel (without bio)	P17	Transport diesel		
P19	Residual fuel oil	P19	Residual fuel oil		
P20	Refinery gas, ethane and LPG	P20	Refinery gas, ethane and LPG		
P23	Wood wood waste and other calld biomage, shored	P23a	Biomass (Fuelwood)		
P23	Wood, wood waste and other solid biomass, charcoal	P23b	Biomass (Briquettes)		
P26	Electrical Energy	P26	Electrical Energy		
R00	ENERGY RESIDUALS				
R30	Energy losses all kinds of (during extraction, distribution, storage and transformation, and dissipative heat from end use)	R30a	Energy losses (Distribution)		

### Supply of Energy, 2020 (Mixed units)

					Industries								
		Α	В	С	D	н		Total					
<u>Code</u>	<u>Label</u>	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam	Transportation and storage	All other industries	Total Industries	Households	Imports	Ervironment	Total	Unit
NOO	NATURAL ENERGY INPUTS												
N01	Fossil non-renewables										72838		tonnes
NO3	Hydro based renewables										11389	11389	
NO4	Wind based renewables										1		GWh
NO6a	Biomass (Fuelwood)										86		tonnes
	Biomass (Briquettes)										180	180	tonnes
P00	ENERGY PRODUCTS												$\Box$
P08a	Hard coal (domestic)		72838					72838					tonnes
P08b	Hard coal (imported)									68639			tonnes
P11	Secondary coal (coke/semicoke)									72483			tonnes
P14	Motor spirit (petrol)									34291		34291	-
P15a	Kerosenes									1794		1794	KL
P15b	Jet fuels									1696		1696	KL
P17	Transport diesel									100836		100836	KL
P20	Refinery gas, ethane and LPG									9686		9686	tonnes
P23a	Biomass (Fuelwood)	86						86					tonnes
	Biomass (Briquettes)	180						180					tonnes
P26	Electrical Energy				11116			11116		82		11198	-
ROO	ENERGY RESIDUALS												
	Energy losses (Distribution)				274			274				274	Gwh
	Energy losses (Transformation)												
	01												

#### Use of Energy, 2020 (Mixed units)

P15a

P15b

P17

P20

P23a

P23b

P26

R00

R30a R30b Kerosenes

Transport diesel

**Electrical Energy** 

**ENERGY RESIDUALS** 

Biomass (Fuelwood)

Biomass (Briquettes)

Refinery gas, ethane and LPG

Energy losses (Distribution)

Energy losses (Transformation)

Jet fuels

					ndustrie	5								
		A	В	С	D	н		Total						
<u>Code</u>	<u>Label</u>	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam	Transportation and storage	All other industries	Total Industries	Households	Accumulation	Exports	Environment	Total	Unit
NOO	NATURAL ENERGY INPUTS													
NO1	Fossil non-renewables		72838					72838					72838	tonnes
NO3	Hydro based renewables				11389			11389					11389	GWh
NO4	Wind based renewables				1			1					1	GWh
N06a	Biomass (Fuelwood)	86						86					86	tonnes
N06b	Biomass (Briquettes)	180						180					180	tonnes
P00	ENERGY PRODUCTS							0	,					
P08a	Hard coal (domestic)			72404				72404			434		72838	tonnes
P08b	Hard coal (imported)			68639				68639					68639	tonnes
P11	Secondary coal (coke/semicoke)			72483				72483					72483	tonnes
P14	Motor spirit (petrol)	11	1	148	57	10692	777	11686	22553		51		34291	KL

1696

20

39369

370

26

28892

154

676

1247

18876

12

1696

676

1664

39

94991

7479

39

210

1782

5839

9009

46

180

359

9176

273,96

1794 KL

1696 KL

9686 tonnes

86 tonnes

180 tonnes

11198 GWh

274 Gwh

100836 KL

### Use of Energy, 2020 (PJ)

				In								
		Α	В	С	D	Н		Tot				
<u>Code</u>	<u>Label</u>	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam	Transportation and storage	All other industries	Total Industries	Households	Imports	Environment	Total
NOO	NATURAL ENERGY INPUTS											
NO1	Fossil non-renewables										1020	1020
NO3	Hydro based renewables										41001	41001
NO4	Wind based renewables										4	4
N06a	Biomass (Fuelwood)										1	1
N06b	Biomass (Briquettes)										5	5
P00	ENERGY PRODUCTS											0
P08a	Hard coal (domestic)		1020					1020				1020
Р08ь	Hard coal (imported)									1771		1771
P11	Secondary coal (coke/semicoke)									2044		2044
P14	Motor spirit (petrol)									1120		1120
P15a	Kerosenes									64		64
P15b	Jet fuels									61		61
P17	Transport diesel									3837		3837
P20	Refinery gas, ethane and LPG									458		458
P23a	Biomass (Fuelwood)	1						1				1
P23b	Biomass (Briquettes)	5						5				5
P26	Electrical Energy				40019			40019		295		40314
R00	ENERGY RESIDUALS											0
R30a	Energy losses (Distribution)				986			986				986
R30b	Energy losses (Transformation)	743	553	10454	111	1981	1067	14908	2746			17654
	TOTAL	749			41116			56940		9650	42032	111367

## Use of Energy, 2020 (PJ)

**ENERGY RESIDUALS** 

TOTAL

R30a Energy losses (Distribution)

R30b Energy losses (Transformation)

R00

			В	С	D	н		Tot					
<u>Code</u>	<u>Label</u>	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gæ, steam	Transportation and storage	All other industries	Total Industries	Households	Accumulation	Exports	Environment	Total
N00	NATURAL ENERGY INPUTS												
NO1	Fossil non-renewables		1020					1020					1020
NO3	Hydro based renewables				41001			41001					41001
NO4	Wind based renewables				4			4					4
N06a	Biomass (Fuelwood)	1						1					1
N06b	Biomass (Briquettes)	5						5					5
P00	ENERGY PRODUCTS												
P08a	Hard coal (domestic)			1014				1014			6		1020
P08b	Hard coal (imported)			1771				1771					1771
P11	Secondary coal (coke/semicoke)			2044				2044					2044
P14	Motor spirit (petrol)	0	0	5	2	349	25	382	736		2		1120
P15a	Kerosenes			0				0	64				64
P15b	Jet fuels					61		61					61
P17	Transport diesel	718	0	1099	14	1498	285	3615	222		0		3837
P20	Refinery gas, ethane and LPG			32				32	426				458
P23a	Biomass (Fuelwood)						1	1	1				1
P23b	Biomass (Briquettes)								5				5
P26	Electrical Energy	24	553	4489	95	72	757	5989	1291		33033		40314

18640 111367

Industries

## Issues & Challenges

- Compilation issues
  - ✓ Data gaps
  - ✓ Industry Classification
  - ✓ Data consistency
- Resource issue
  - √ Financial Resources
  - Lack of Manpower and technical capacity

# Way forward

In future, to extend the scope of the report beyond Energy with the availability of information based on policy and priority needs of the government

# Thanks for your attention!