

Exercise:

How to make a report on energy issue of your country

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Purpose

Each of students, who takes the subject “Green MOT”, tries to make a report on energy issues of his/her country in order to learn how to get the relevant information and analyze it.

This course material shows the process of exercise and provide a example of the report

Process of exercise

1. To obtain the data through the web sites
2. To make data tables and graphs by using PowerPoint or Excel (or similar application software)
3. To conduct some analysis based on the data
4. To describe some analytical results, implications, etc.
5. To give a short presentation (15 – 20 min.) in front of the participants (Day 3)

How to get economic data necessary for data analysis

Socio-economic data are provided by many sites

- Country overview
 - CIA World Factbook
<https://www.cia.gov/library/publications/the-world-factbook/>
- Socio-economic data
 - United Nations Statistics Division (UNSD)
<https://unstats.un.org/home/>
 - World Bank (WB)
<https://data.worldbank.org/>
 - Asian Development Bank (ADB)
<https://www.adb.org/data/main>
- Economic data
 - International Monetary Fund (IMF)
<http://www.imf.org/en/data>
- Energy data
 - International Energy Agency (IEA)
<http://www.iea.org/statistics/>

CIA World Factbook



The header of the CIA website features the Central Intelligence Agency logo on the left, which includes the text "CENTRAL INTELLIGENCE AGENCY" and "UNITED STATES OF AMERICA". To the right of the logo is the slogan "THE WORK OF A NATION. THE CENTER OF INTELLIGENCE." Further right, there are buttons for "Report Threats", "ر عربيي", and "Contact". Below these is a search bar labeled "Search CIA.gov..." with a "SEARCH" button. At the bottom of the header, there are language options: "عربي", "中文", "English", "Français", "Русский", "Español", and "More". A dark blue navigation bar contains the following menu items: "HOME", "ABOUT CIA", "CAREERS & INTERNSHIPS", "OFFICES OF CIA", "NEWS & INFORMATION", "LIBRARY", and "KIDS' ZONE". Below the navigation bar is a large banner for the "Library" section, featuring an image of an open book.

Library

Publications

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THE WORLD FACTBOOK

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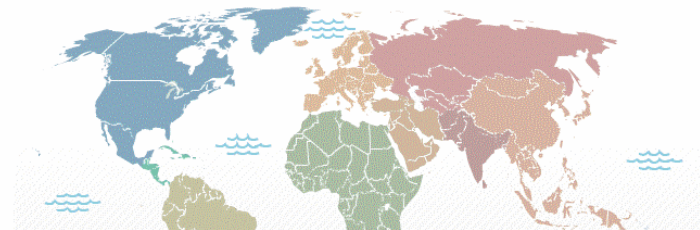
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WELCOME TO THE WORLD FACTBOOK

SELECT A REGION OR CONTINENT

The **World Factbook** provides information on the history, people, government, economy, geography, communications, transportation, military, and transnational issues for 267 world entities. Our Reference tab includes: maps of the major world regions, as well as Flags of the World, a Physical Map of the World, a Political Map of the World, a World Oceans map, and a



<https://www.cia.gov/library/publications/the-world-factbook/>

United Nations Statistics Division (UNSD)

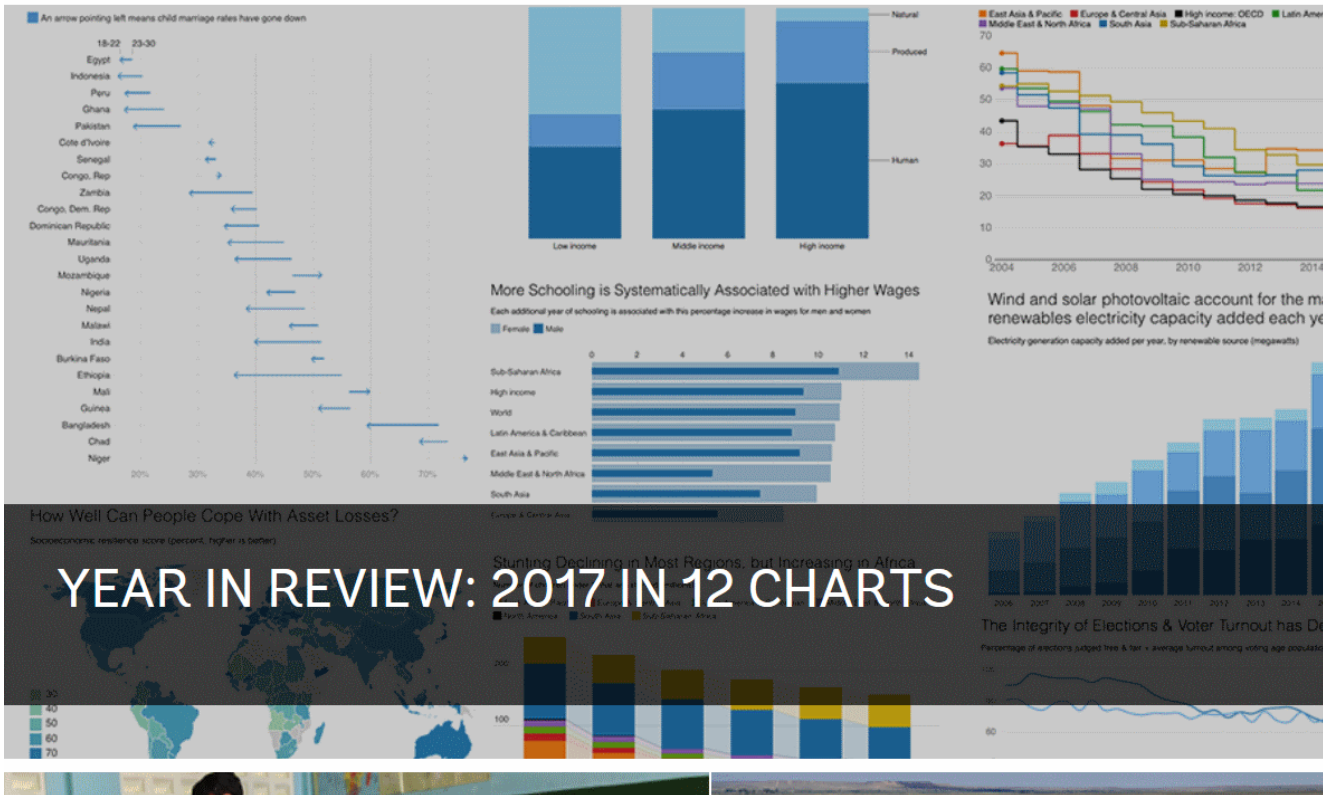
The screenshot shows the homepage of the United Nations Statistics Division (UNSD). At the top, there is a navigation bar with the URL unstats.un.org/home and breadcrumb links: United Nations > Department of Economic and Social Affairs > Statistics Division. Below the navigation bar, there is a blue header with the United Nations logo and the text "Statistics Division". To the right of the header, there are three menu items: "TOPICS", "DATA", and "METHODOLOG". A large red arrow points down from the "TOPICS" menu item to the "Welcome to UNSD" section. The main content area features a large blue circular graphic on the left with the text "United Nations Statistical Commission" and "ECONOMY · ENVIRONMENT · POPULATION · SOCIETY · TRADE". To the right of this graphic, there are two logos: "EDGE EVIDENCE AND DATA FOR GENDER EQUALITY" and "United Nations Co Global Geospatial". Below the main content, there are two sections: "News" and "Meetings and events". The "News" section has a "New" tag and a link to "The 49th Session of the Commission". The "Meetings and events" section has an "Upcoming" tag and a link to "OECD Conference Centre, Paris" for "15 - 16 January 2018".

<https://unstats.un.org/home/>

World Bank (WB)



WHO WE ARE WHAT WE DO WHERE WE WORK



<https://data.worldbank.org/>

Asian Development Bank (ADB)



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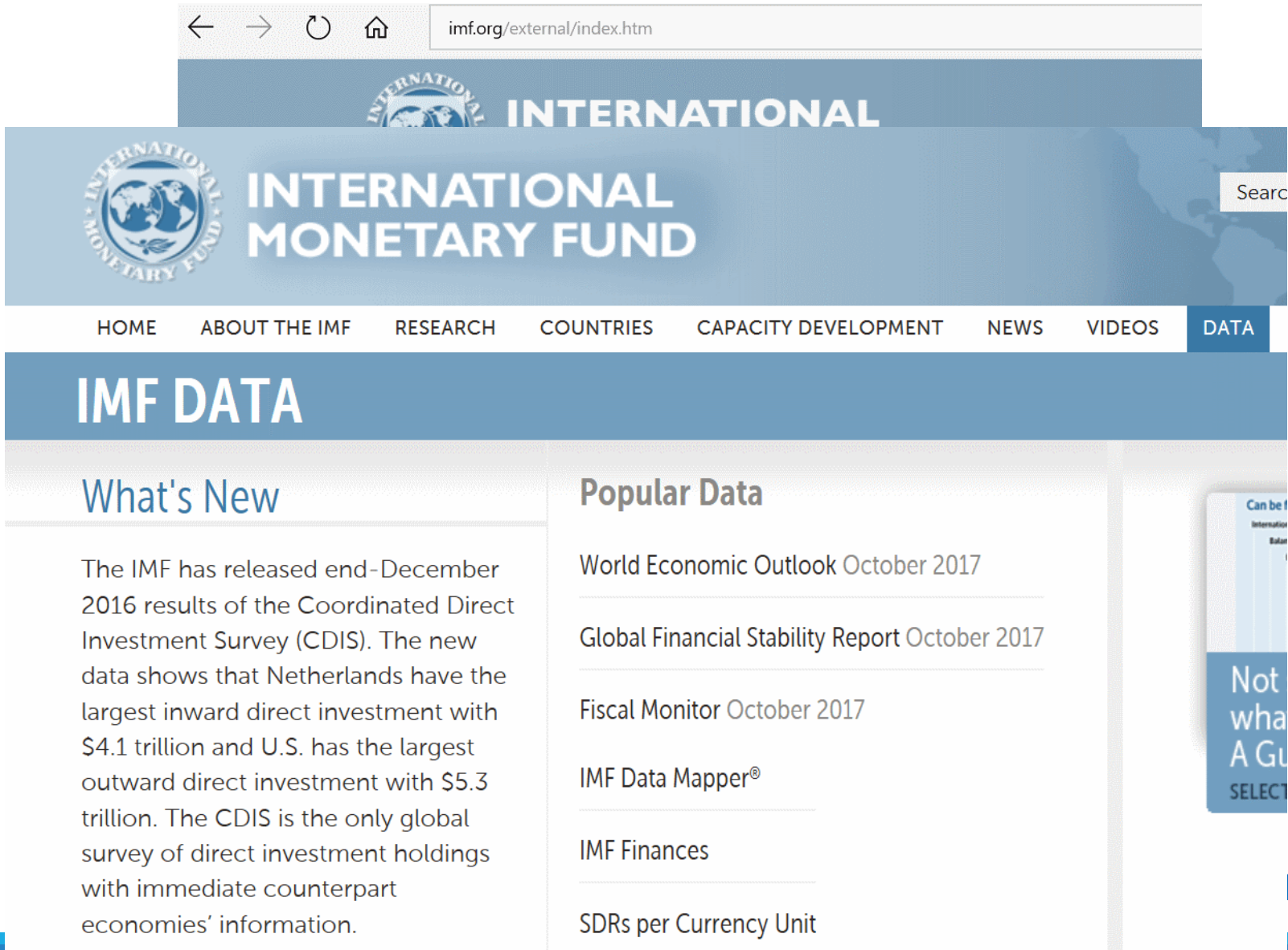


Trade Rebound Pushes Growth Higher

ADB raised its growth forecast for developing Regional GDP is expected to expand 5.9% in 2017 and 5.8% in 2018 on a recovery in global trade and growth in major industrial economies.

<https://www.adb.org/data/main>

International Monetary Fund (IMF)



← → ↻ 🏠 imf.org/external/index.htm

INTERNATIONAL MONETARY FUND

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IMF DATA

What's New

The IMF has released end-December 2016 results of the Coordinated Direct Investment Survey (CDIS). The new data shows that Netherlands have the largest inward direct investment with \$4.1 trillion and U.S. has the largest outward direct investment with \$5.3 trillion. The CDIS is the only global survey of direct investment holdings with immediate counterpart economies' information.


Popular Data

- World Economic Outlook October 2017
- Global Financial Stability Report October 2017
- Fiscal Monitor October 2017
- IMF Data Mapper®
- IMF Finances
- SDRs per Currency Unit

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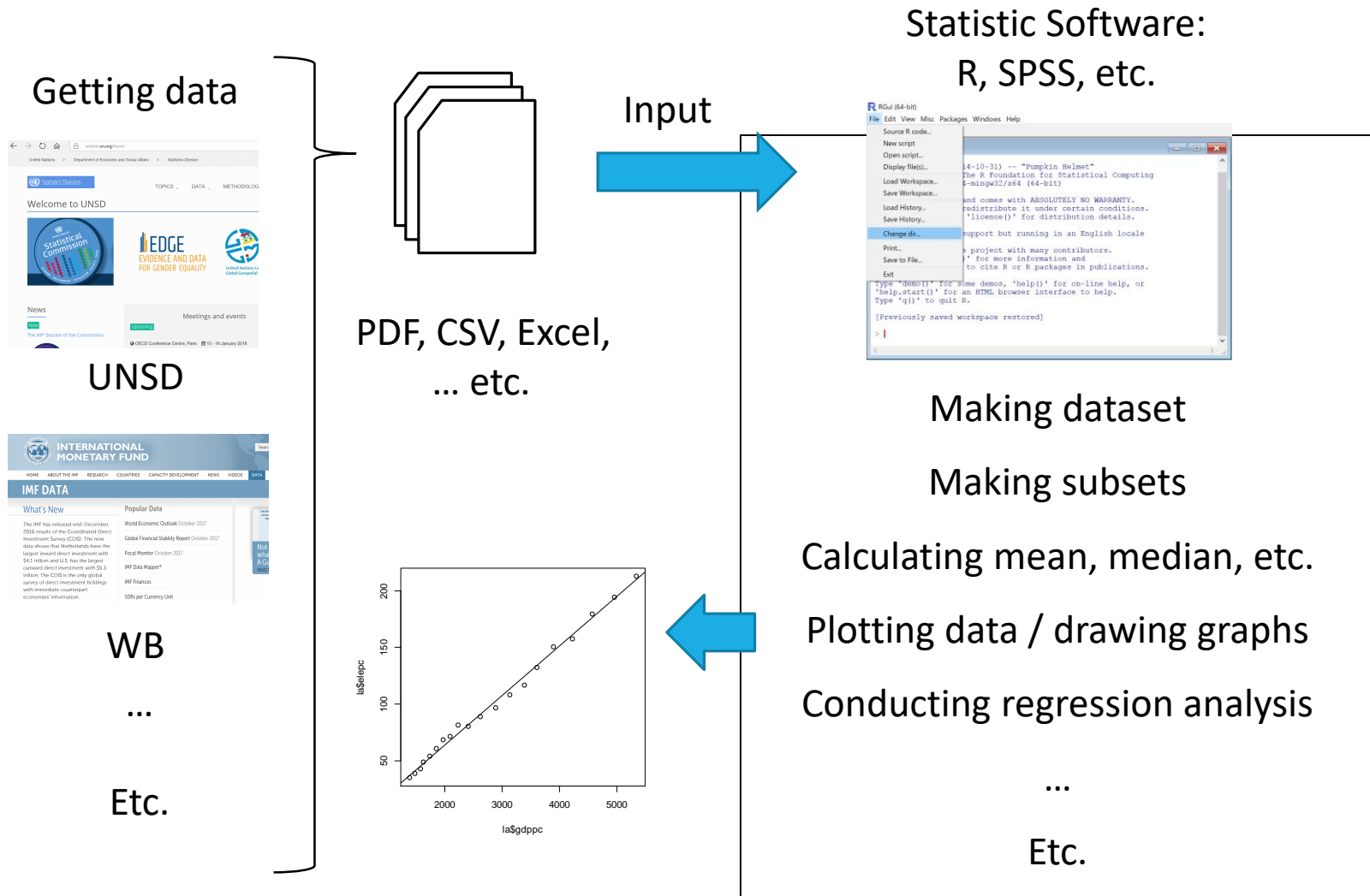
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Our online data services e-commerce portal is available at <http://data.iea.org> and you can purchase data (see list below) here using your credit card.

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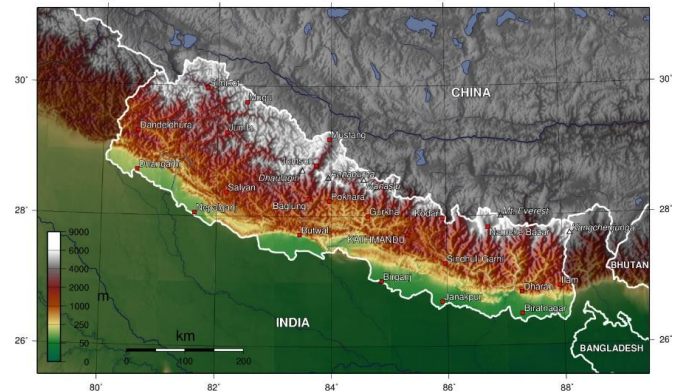
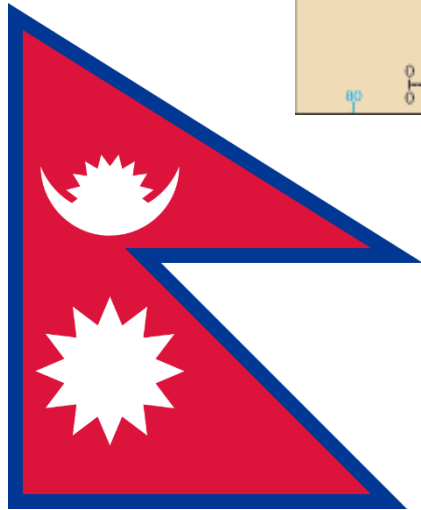
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Generalized procedure to analyze



Example

Nepal



Source: Wikipedia, CIA Factbook

Nepal | Demography

Population

- 30,327,877 (July 2020 est.)

Ethnic groups

- Chhettri 16.6%, Brahman-Hill 12.2%, Magar 7.1%, Tharu 6.6%, Tamang 5.8%, Newar 5%, Kami 4.8%, Muslim 4.4%, Yadav 4%, Rai 2.3%, Gurung 2%, Damai/Dholii 1.8%, Thakuri 1.6%, Limbu 1.5%, Sarki 1.4%, Teli 1.4%, Chamar/Harijan/Ram 1.3%, Koiri/Kushwaha 1.2%, other 19% (2011 est.)

Religion

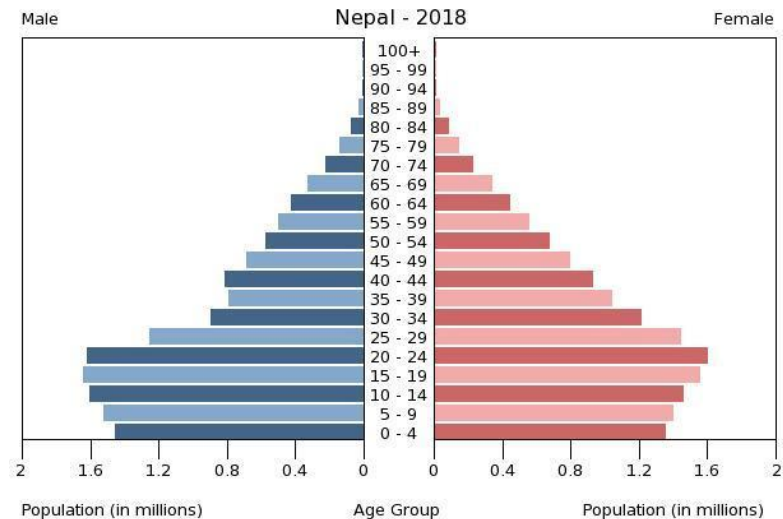
- Hindu 81.3%, Buddhist 9%, Muslim 4.4%, Kirant 3.1%, Christian 1.4%, other 0.5%, unspecified 0.2% (2011 est.)

Urban population

- 20.2% of total population (2019)

Capital city population

- 1.376 million KATHMANDU (capital) (2019)



Source: CIA The World Factbook

Nepal | Economy

GDP per capita

- USD 2,700 (2017 est.)

GDP composition (2017 est.)

- Agriculture
 - 27%
- Industry
 - 13.5%
- Service
 - 59.5%

Agricultural products

- pulses, rice, corn, wheat, sugarcane, jute, root crops; milk, water buffalo meat

Industrial products & service

- tourism, carpets, textiles; small rice, jute, sugar, and oilseed mills; cigarettes, cement and brick production

Labor force

- 16.81 million

Labor composition (2015 est.)

- Agriculture
 - 69%
- Industry
 - 12%
- Service
 - 19%

Source: CIA The World Factbook

Nepal | Current Energy Balance (2017, ktoe)

	Coal	Oil products	Hydro	Wind, solar, etc.	Biofuels, waste	Electricity	Total
Production	14		398	1	9778		10191
Imports	777	2466				222	3464
Int'l bunkers		-168					-168
TPES	791	2298	398	1	9778	222	13487
Electricity plants			-398	-1		399	
Differences & losses		61			-15	-130	-84
Total final con.	791	2359	0	0	9763	491	13404
Industry	788	23			62	173	1046
Transport		1566					1566
Residential	3	281			9640	229	10153
Other	0	489			61	89	639

1 ktoe = 41.868 TJ

Nepal | Current Energy Balance (2017, TJ)

	Coal	Oil products	Hydro	Wind, solar, etc.	Biofuels, waste	Electricity	Total
Production	586		16663	42	409385		426677
Imports	32531	103246				9295	145031
Int'l bunkers		-7034					-7034
TPES	33118	96213	16663	42	409385	9295	564674
Electricity plants			-16663	-42		16705	
Differences & losses		2554			-628	-5443	-3517
Total final con.	33118	98767			408757	20557	561199
Industry	32992	963			2596	7243	43794
Transport		65565					65565
Residential	126	11765			403608	9588	425086
Other		20473			2554	3726	26754

1 ktoe = 41.868 TJ

Commentary on the energy balance

Nepal heavily depends on biofuels (and waste)

- This may cause deforestation
- People, especially women and children, are forced to spend their time for collecting firewood

Electricity is imported or produced by hydroelectric dams

- Capacity of hydro dams remain insufficient compared with the electricity demand

Etc....

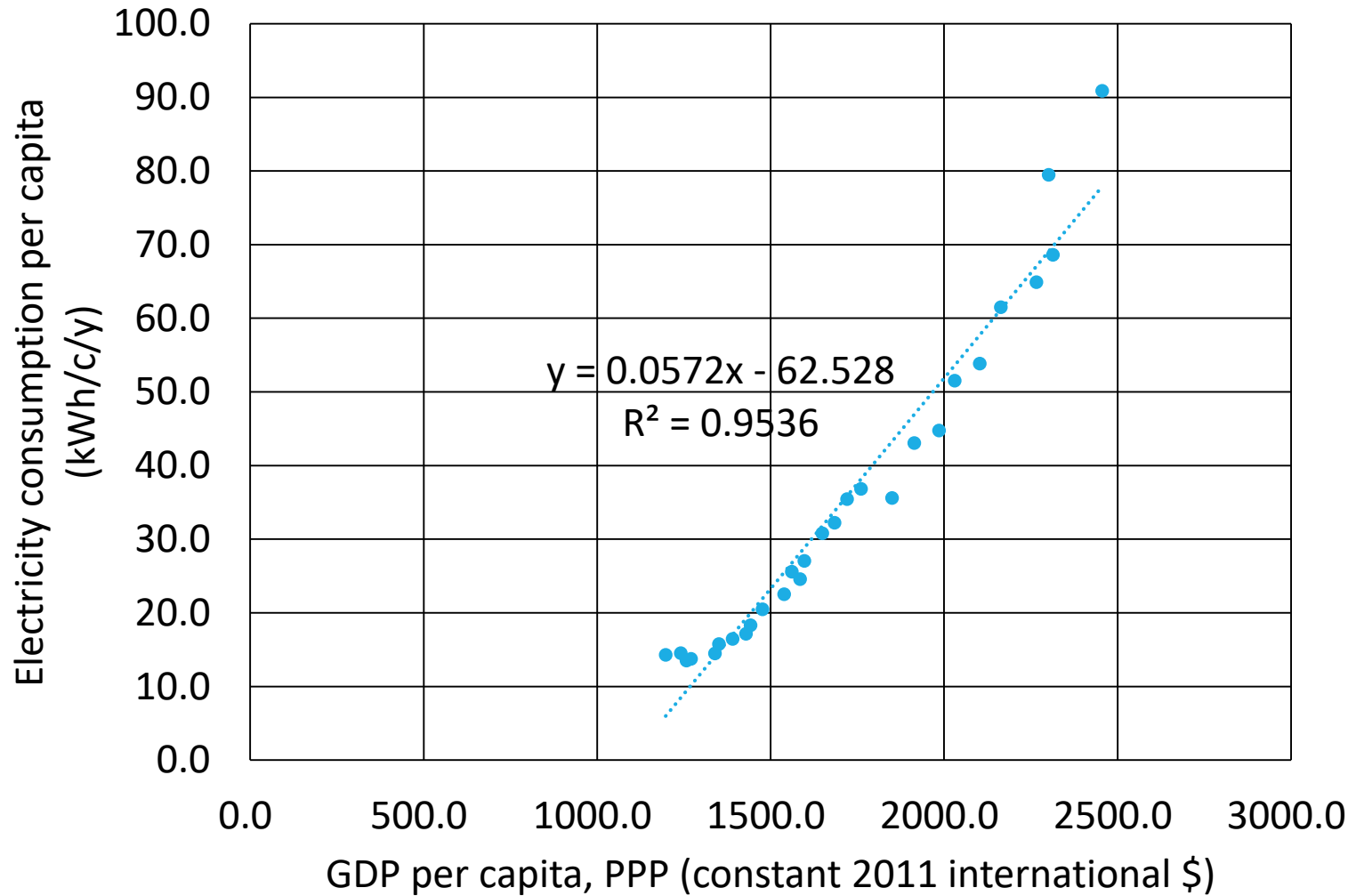
Nepal | Residential electricity consumption

Year	Residential electricity consumption (Total, ktoe/y)	Residential electricity consumption (Total, TJ/y)	Population (by World Bank)	Electricity consumption per capita (MJ/c/y)	Electricity consumption per capita (kWh/c/y)
1990	23	963.0	18749406	51.4	14.3
1991	24	1004.8	19245054	52.2	14.5
1992	23	963.0	19773772	48.7	13.5
...
2015	169	7075.7	28656282	246.9	68.6
2016	198	8289.9	28982771	286.0	79.5
2017	229	9587.8	29304998	327.2	90.9

1 ktoe = 41.868 TJ

1 kWh = 3.6 MJ

Nepal | Residential electricity consumption



Analytical result

There is a strong relationship between the GDP per capita and residential electricity consumption

Of course, it is not clear yet whether the GDP per capita increases the residential electricity consumption or vice versa

Etc....