



Workshop

**“Investment climate for energy efficiency and renewable energy in  
selected Mediterranean countries”**

**Case of Palestine**

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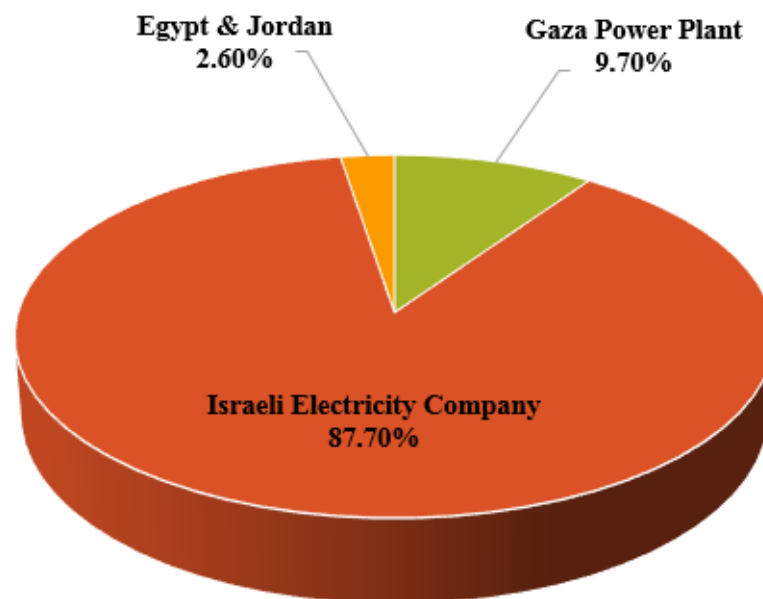
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## Overview of Palestine

- A developing country and unable to build their own energy resources
- They rely heavily on Israeli energy sources
- Israel controls the amount of energy exported to the Palestinians through:
  - ❖ Israelis control the entire Palestinian border,
  - ❖ Imposing prices and tariffs
  - ❖ Israeli threats to stop fuel supply to Palestinians and cut off electricity.

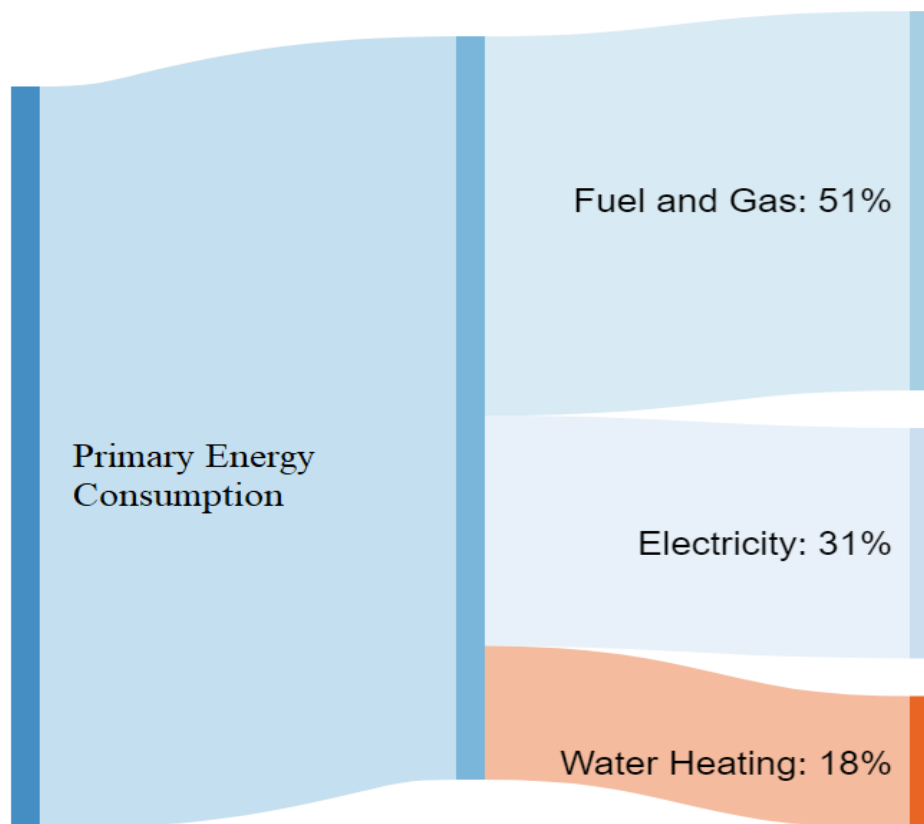
## Energy situation in Palestine

- Fully dependent on the IEC (88%).
- About 99.6% of population benefit from electricity.
- Around 58% of population use SWH on their own houses.
- High growth of electricity consumption 6-7%.
- Electricity and fuel prices in Palestine are the most expensive in Arab countries.
- High rate of electricity losses (26%).



# Energy Sector In Palestine

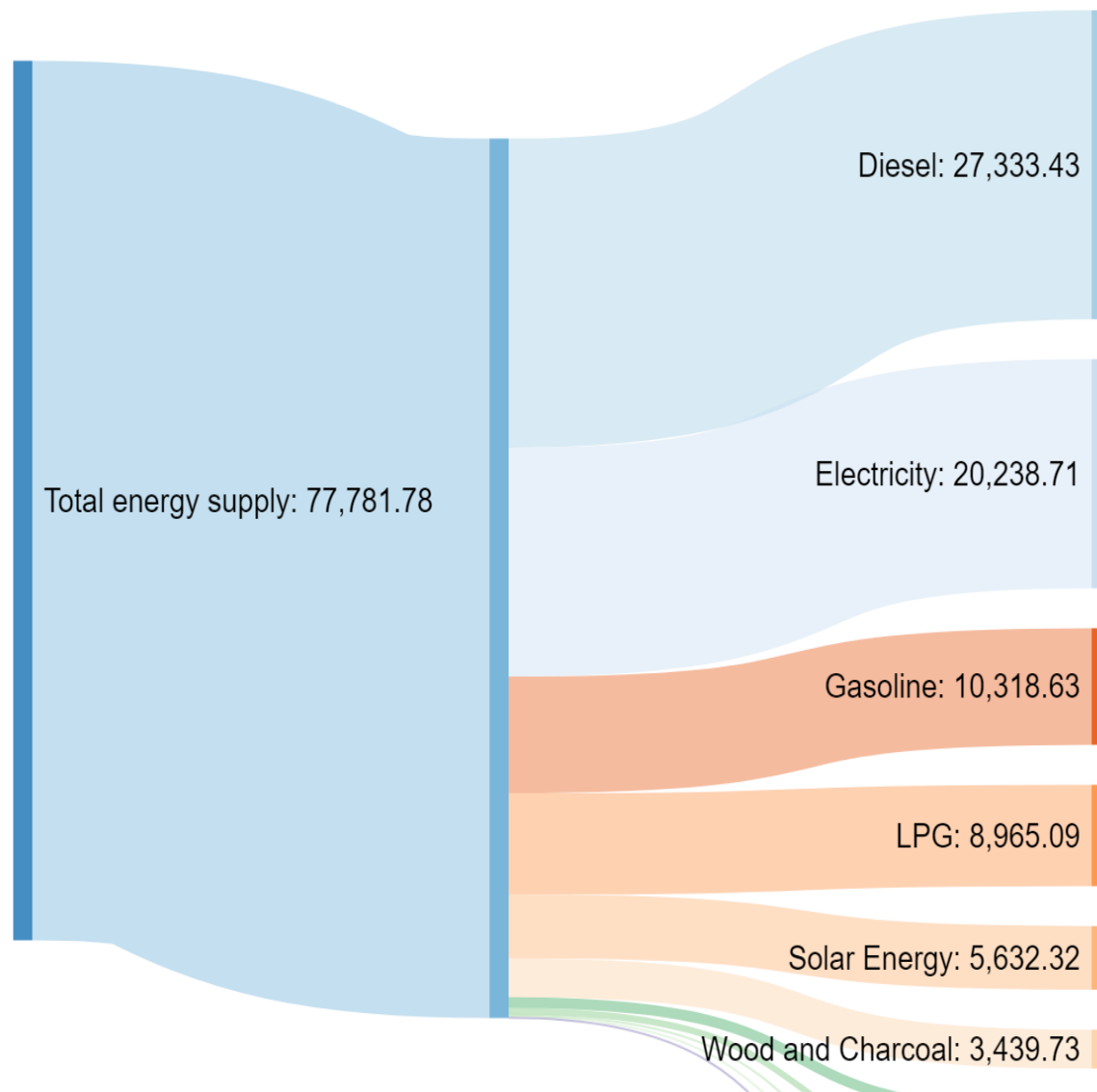
- Main Energy Consumption



*Fuel and gas consumes most of the energy which goes to residential and transportation sectors.*

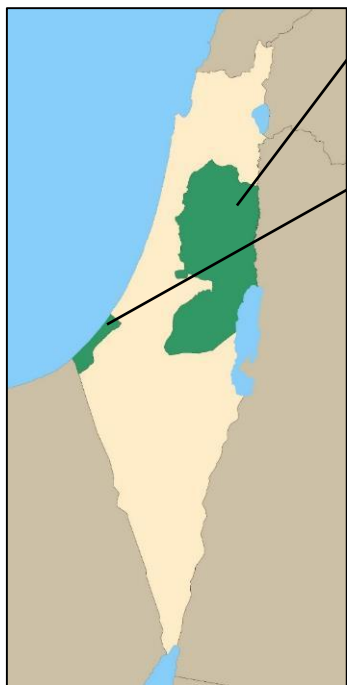
# Energy Sector In Palestine

Energy  
Balance  
(Terajouls)



# Energy Sector In Palestine

## Demand, Availability & Trend



### West Bank

Peak Demand  
930 Mwatt

Current available  
**890 Mwatt**

Estimated need in 2020  
1197 Mwatt

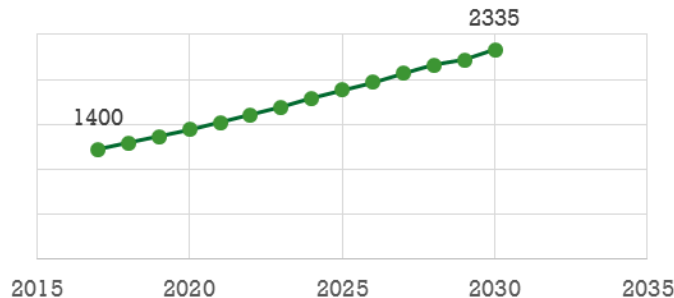
### Gaza Strip

Peak Demand  
470 Mwatt

Current available  
**223 Mwatt**

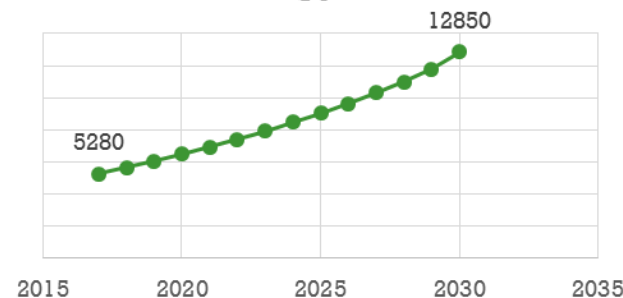
Estimated need in 2020  
688 Mwatt

Power Mw



Power demand increase trend

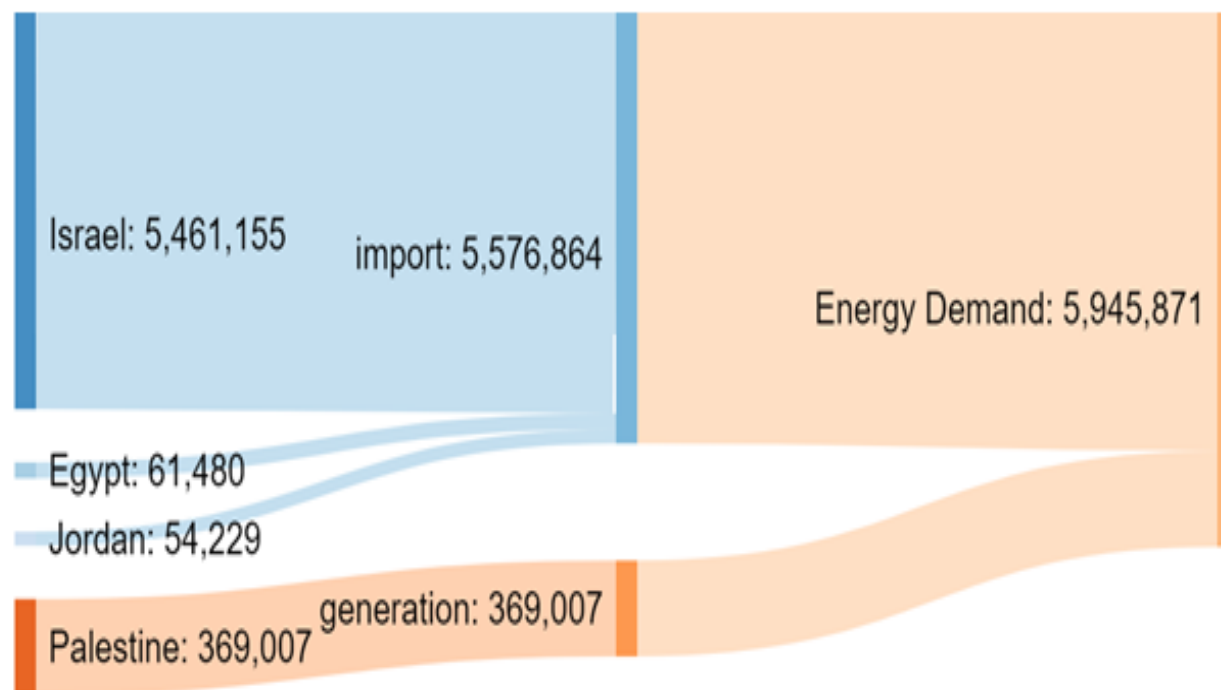
Energy Gwh



Energy consumption increase trend

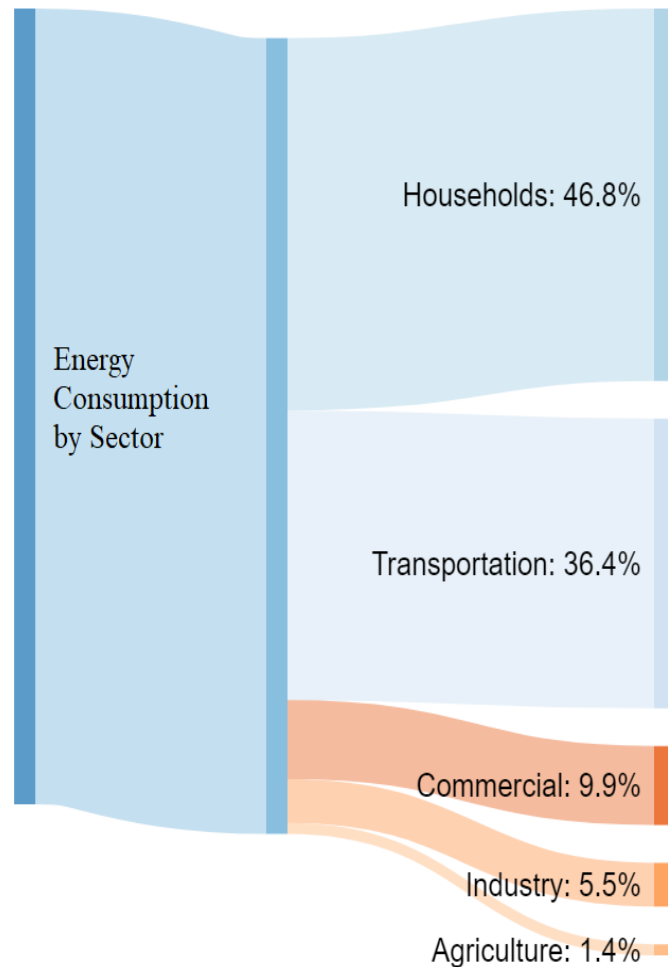
# Energy Sector In Palestine

Quantity of Electricity in MWh Imported and Purchased in Palestine by region and source in 2017



# Energy Sector In Palestine

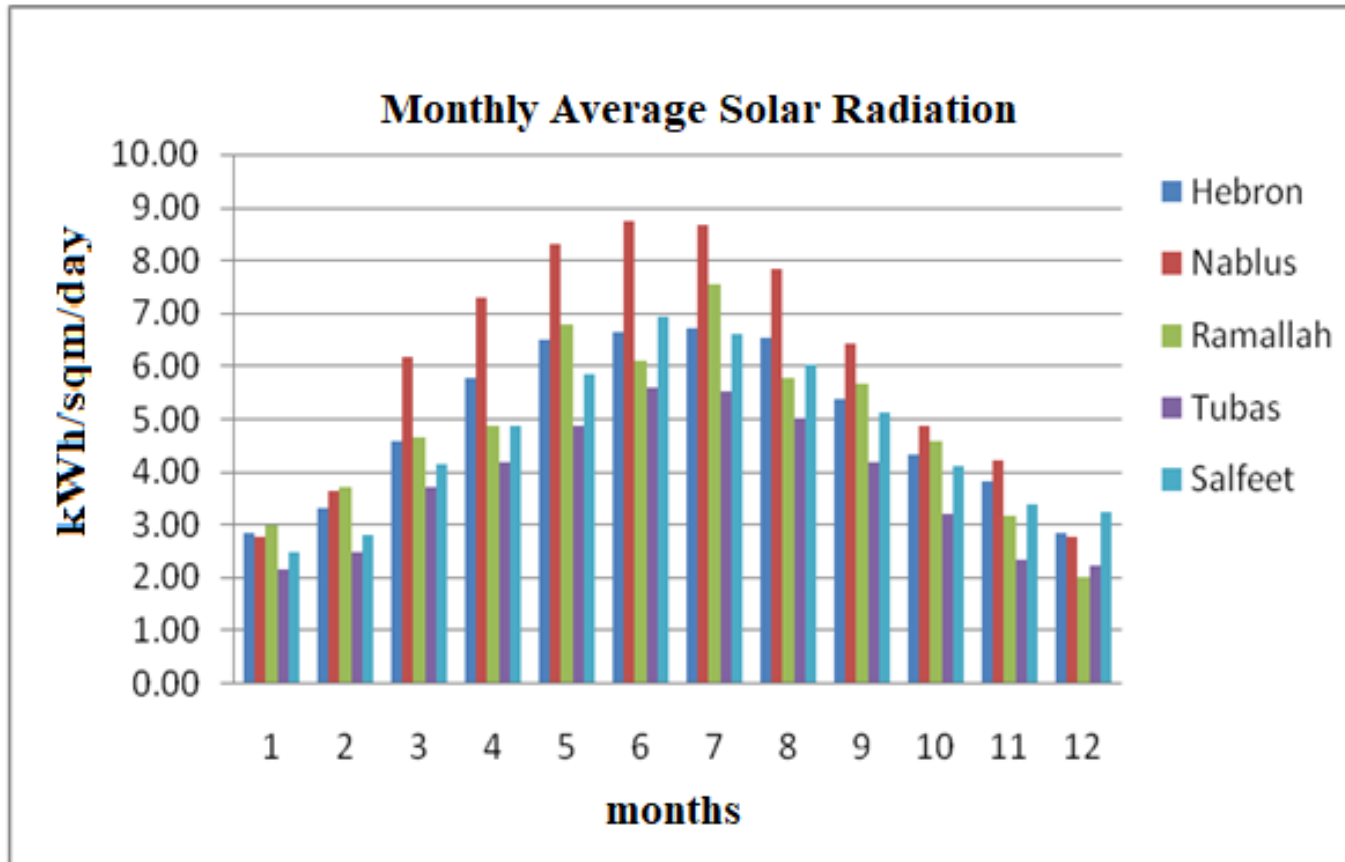
## Energy Consumption by sector





# Main RE Sources in Palestine - Real opportunities for commercial investment

## Solar Energy Potential in Palestine



3000 solar hours/y

5.4 kWh/sqm/day

# Main RE Sources in Palestine - Real opportunities for commercial investment

## Wind Energy Potential in Palestine

- Palestine is considered a country of moderate wind speeds.
- Gaza beach is classified as a low wind speed area: 2.5 -3.5 m/s.
- The mountainous areas of Nablus, Ramallah, Jerusalem, and Hebron have wind speeds ranging from 4 – 8m/s.
- Jericho and Jordan valley have low wind speeds: 2-3 m/s.

# Main RE Sources in Palestine - Real opportunities for commercial investment

## Biomass Energy Potential In Palestine

- Peat : One of the most prominent residues of olive oil cake presses.
- Animal manures : may be used for biogas
- Three large landfills are existed in Palestine:

## Future Strategy for RE and EE in Palestine

The Palestinian Energy and Natural Resources Authority has developed a "Comprehensive Renewable Energy Strategy for Palestine", which was adopted by the Council of Ministers in 2012. It is as follows:

→ “In 2020, local energy sources should cover approximately 50% of the total electricity consumption and RE should be at least 10% of the electricity produced locally in 2020, which is 240 GWh.”

## Future Strategy for RE and EE in Palestine

Based on the RE assessment studies conducted by the Energy Authority, the technology required in terms of implementation and investment has been identified until 2020

Technology	2020 (MW)
PV system –Grid connected	25
Roof tops PV system (Palestinian Solar Initiative)	20
CSP	20
Bio gas from landfills	18
Biogas from manures	3
Small scale wind turbines	4
Large scale wind turbines	40
<b>Total</b>	<b>130</b>

## Future Strategy for RE and EE in Palestine

Phase II of the implementation of the Palestinian Renewable Energy Strategy 2016-2020:

The second phase of the renewable energy strategy began after evaluating the first phase and the Palestinian market in terms of the application and use of renewable energy technology.

This has been accompanied by a series of preferred tariffs and incentives approved by the Government, which in turn will help to some extent to reach the 2020 target.

## Purchase Prices of electricity generated by PV

Capacity of the plant and its type	Purchase price (NIS) (1USD = 3.8NIS)
Household (PSI) up to 5 KW for the first 1000 household	0.54
Net Metering (NM)	No purchase tariff but treated according to special instructions of NM
Direct bids with a capacity of 1 to 5 MW	90% at most of the average purchase price of different sources of traditional energy sources
Energy generating plants that won competitive bids	The least price among competitive projects and up to a ceiling of more than 90% of the average purchase price of traditional energy sources

# RE Incentives (Commercial Projects)

Tax and customs incentives for the purpose of promoting investment in the use of renewable energy technologies

- Incentives for power plants from RES in order to sell their production ( $\geq 1$  MWp)

**Phase 1:** income tax shall be imposed with (0%) for seven years, as of the date of operation of the power station.

**Phase 2:** income tax shall be imposed with (%5) for five years, starting from the end of Phase 1.

**Phase 3:** income tax shall be imposed with (%10) for three years, starting from the end of Phase 2.

After the end of phase 3, income tax shall be calculated based on the applicable and in effect rates.



## RE projects

Exploitation of solar energy sources - PV projects through:

- Palestinian Solar Energy Initiative - Energy Authority
- Net Metering projects : commercial and industrial enterprises“
- Investment projects - for the private sector

**More than 60MW has been installed through the above mechanisms**

# EE Projects and initiatives

National Energy Efficiency Action Plan (NEEAP).

- indicative target of 5% less electricity consumption in 2020 adopted in the Energy National Strategy. This means:
  - ❑ 384 GWh annually by 2020
  - ❑ \$55 M annual savings of the total electricity cost.
  - ❑ CO2 emissions reduction by 285,000 tons
- PENRA already started a pilot phase in 2010 – 2015, which included various activities in the field of energy efficiency and rationalizing consumption.

# Legislative framework of energy sector

## 1. Hydrocarbons law

No law addressing the hydrocarbon sector. A draft is under preparation considers the followings:

- Regulations to develop the Electricity Sector.
- Encourage local and foreign investment to achieve an adequate and reliable supply of electric power
- Promote utilizing RE and Conserve energy.

# Legislative framework of energy sector

## 2. Electricity, RE and EE laws

The electricity law addresses and organizes the operations of the following institutions:

- Palestinian Energy and Natural Resources Authority (PENRA);
- Palestinian Energy Regulatory Council (PERC);
- National Transmission Company, later renamed Palestinian Electricity Transmission Company (PETL); and Distribution companies.

While the RE and EE law promote the investment in RE and EE sources and identify the roles of the above institutions