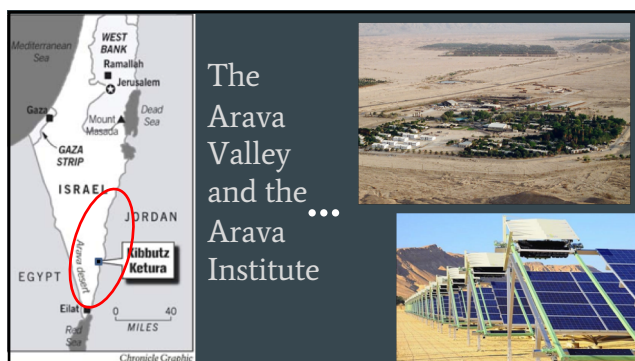
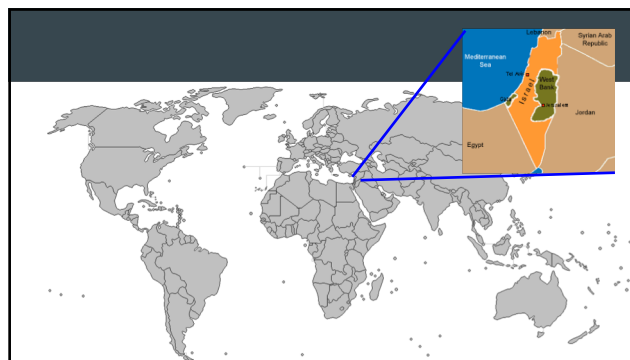


The Role of Renewable Energy Resources in Alleviating Energy Poverty in Palestine



Dead-Sea & Arava
Science Center

Tareq Abu Hamed
Kristiana Perić



The
Arava
Valley
and the
Arava
Institute



Goal:

- Understand:
 - Energy poverty in Palestine
 - Role of renewable energy in alleviating energy poverty
 - Role of politics in energy poverty within Palestine
 - Connection between energy poverty & economic growth



Basics on Palestine

- Population:
 - 4,684,777
- Annual GDP:
 - \$14,000,000
- Human Development Index (HDI)
 - 0.686
 - Romania- 0.811



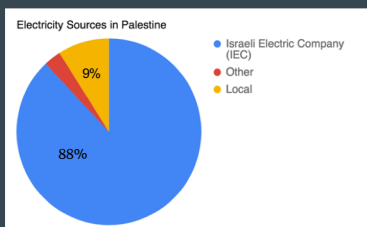
Palestinian Economy and its Development

- Imports
 - \$495B (2016)
 - 1. Electricity (10.1%)
 - \$498M
 - 2. Refined Petroleum (7.39%)
 - \$366M
 - Largest import source:
 - Israel- \$2.93B
- Exports
 - \$951M (2016)
 - Biggest Trade Partner
 - Israel- \$770M
- Trade Balance
 - Negative Balance of \$4B
- Consequences
 - Undeveloped Palestine



Energy Consumption in Palestine

- Cost of electricity
 - \$0.15 per KWh- \$0.35 per KWh
 - Romania- \$ 0.15 per KWh
- Energy Accessibility
 - 99.4% - West Bank
 - 3-4 hours per day- Gaza
- Population Growth:
- Consumption per capita:
 - 275 KWh (2009)
 - 306 KWh (2015)
- Romania: 2,465 KWh



Energy Poverty Drivers (and their implications)

- Political Aspects
 - Vulnerability
 - Prices and Supply Rates

- Result:
 - Gazan blackouts in a day- 85%
 - GPP- 16%

- Constraints:
 - Area C
 - Border Control
 - Wars and Military action



Energy Poverty Drivers (and their implications)... continued

- Socio-Economic Impacts
 - Lowest Consumption - Highest Price
- Fiscal challenges
 - Revenues from fuel excise duties
- Institutional and Regulatory Conditions
 - Lack of proper incentives
 - 1. Palestinian Government
 - 2. Palestinian Electricity Companies



Technical Potential for Renewable Energy

- High potential for development
 - 3,000 hours of sunlight per year
 - Bucharest: 2,112 hours
 - Average solar radiation: 5.4 kWh/m2/day
 - Bucharest: 3.8 kWh/m2/day
- 70% of homes use solar water heaters
- Important for:
 - Energy security
 - Fighting energy poverty
 - Economic growth



Challenges/Benefits to Renewable Energy

- Challenges:
 - Autonomy/ Policies
 - Institutions/ Infrastructure
 - Investors
 - Isolation
 - Area C
- Benefits:
 - Small-scale/ local
 - Individual/ Independent



Future Steps

- Strengthen politics
- Regulations and Provisions
- Establishing labs/ renewable energy systems
- Financial incentives

Benefits:

- Local products
- Economic Growth
- Pollution Reduction

