

**TWAS SCIENCE & DIPLOMACY  
WORKSHOP ON INNOVATIVE ENERGY  
POLICIES FOR SUSTAINABLE  
DEVELOPMENT**

**Trieste, Italy, December 2013**

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**LEAST DEVELOPED  
COUNTRY**

**Breakout Session III**

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## **Hypothetical Country 2**

- **a large and rapidly-growing population, below the age of 30 and many of whom still derive their living from agriculture.**
- **Quick Growing Economy (averaging 8-10% per year).**
- **has little in the area of trained human resources.**
- **The country has unexplored reserves of some fossil fuels, as well as the chance to exploiting geothermal or other sources of energy (solar, wind, biofuels, etc). At present, however, energy is either derived from burning biomass (wood, crop residues, etc) or imported oil and gas.**
- **Electricity supplies are often interrupted in the major cities, while many people in rural areas are not connected to the grid.**
- **The country's growing economy needs a cheap and secure source of energy to ensure that it can create jobs for the expanding workforce.**

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## **Policies Goals**

- **Energy provision/access**
- **Energy availability / security**
- **Make energy economically affordable**
- **Energy mix favouring renewables**
- **Increased energy efficiency**
- **Sustainable investments in energy sector**

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### **Energy Provision/Access**

- **Energy provision/access is aimed ensuring that the infrastructure for the provision of energy are available and consumers are connected to these infrastructures.**
- **These will include energy grid and off grid infrastructures.**
- **The country aims to have 100% of an energy access by 2050.**

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### **Energy Availability / Security**

- **In addition to developing the infrastructures, the energy to be conveyed by the infrastructures, must be available all the time as and when required.**
- **By this the country must have adequate local generating capacity.**
- **The country need to reduce the dependence on energy imports.**

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## **Make Energy Economically Affordable**

- **The country shall aim to make energy affordable to consumers. This means measures must be put in place to increase efficiency in the energy value chain.**
- **Governance structures in the energy sector must endeavour to aid this policy goal through efficient pricing mechanisms.**

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## **Energy Mix Favouring Renewables**

- **In ensuring energy security the country need to diversify the sources of energy.**
- **This means investment in the renewable energy sector shall be favoured.**
- **The country shall aim to exploit the following renewable energy sources such as solar, wind, hydropower and biofuels among others.**

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## **Increased Energy Efficiency**

- **In providing adequate energy the country must minimize losses due to consumer behaviour and technology limitations.**
- **This would require investment in R&D for the development of new efficient technologies as well as implementation of programs to sensitize consumers on efficient use of energy.**

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## **Sustainable Investments In Energy Sector**

- **For the ultimate attainment of energy provision to all the government can't do it alone.**
- **A multi-stakeholders approach that include government, private sector, community based organizations and international development partners is required.**

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## IMPLEMENTATION ACTIVITIES

- **Energy provision/access**
  - *Build new power generation units, Extend existing distribution grid, Upgrade grid management system.*
- **Energy availability / security**
  - *Set up a system to manage supply and demand so that installed and operating capacity meet minimum set threshold for national energy security.*
- **Make energy economically affordable**
  - *Put in place taxes incentives to lower the energy costs,*

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## IMPLEMENTATION ACTIVITIES

- **Energy mix favouring renewables**
  - *Develop an energy mix matrix with clear quantum targets,*
  - *Set up energy sub-sectors team responsible for each type of energy sector*
- **Increased energy efficiency**
  - *Upgrade infrastructures to latest and more efficient*
  - *Research and develop new technologies (implement sensors for energy use control..)*
  - *Develop and implement a national program on awareness and education on energy use (review curriculum to include issues on energy efficiency at all education level).*

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## **IMPLEMENTATION ACTIVITIES**

- **Sustainable investments in energy sector**
  - *Create an enabling environment to attract local and FDI in the energy sector.*
- **Increased public education & awareness in energy issues**
  - *Develop and implement a public awareness program with necessary incentives for energy efficiency*

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## **INSTITUTIONAL FRAMEWORK**

- **A National Energy Commission will be established to coordinate the energy related activities for the country.**
- **Roles will be assigned to various institutions as indicated below:**

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## INSTITUTIONAL RESPONSIBILITIES

	<b>ACTIVITY</b>	<b>INSTITUTION</b>
<b>1</b>	<b>Energy provision/access</b>	<b>Ministry of Energy</b>
<b>2</b>	<b>Energy availability / security</b>	<b>National Energy Commission</b>
<b>3</b>	<b>Make energy economically affordable</b>	<b>Ministry of Finance</b>
<b>4</b>	<b>Increased energy efficiency</b>	<b>Ministry of Science &amp; Technology</b>
<b>5</b>	<b>Energy mix favouring renewables</b>	<b>Ministry of Industry / Energy/Agriculture/Environment</b>
<b>6</b>	<b>Sustainable investment in energy sector</b>	<b>Ministry Finance/Trade &amp; Commerce</b>
<b>7</b>	<b>Increased public education &amp; awareness in energy issues</b>	<b>Ministry of Education/Science &amp; Technology</b>

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## BUDGET

	<b>BUDGET ITEMS</b>	<b>UNIT ALLOCATIONS</b>
<b>1</b>	<b>Upgrading of Existing Infrastructure</b>	<b>15%</b>
<b>2</b>	<b>Developing New Infrastructure</b>	<b>10%</b>
<b>3</b>	<b>Installation of New Generating Capacity</b>	<b>20%</b>
<b>4</b>	<b>Research &amp; Development</b>	<b>20%</b>
<b>5</b>	<b>Technology Transfer</b>	<b>10%</b>
<b>6</b>	<b>Energy Imports</b>	<b>15%</b>
<b>7</b>	<b>Energy Efficiency Incentives</b>	<b>10%</b>
	<b>TOTAL</b>	<b>100%</b>

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## **CONCLUSION**

- **Investment in Foreign Technologies, 45%;**
- **Research & Development, Technology Transfer, 30%;**
- **Energy Imports, 15%;**
- **Energy Efficiency Incentives, 10%**

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