Social & Economic Impacts of
SOUTH-EASTERN ANATOLIA INFRASTRUCTURE DEVELOPMENT PROJECT

G. Özdemir & T. Tankut

OUTLINE

* Note on Compliance
* Project
  - Region Concerned
  - Object & Scope
  - Progress
* Impacts
  - On economy
  - Social
* Concluding Remarks
COMPLIANCE WITH SESSION

* The title of the session is specific: “Effects of Infrastructure Development on the Building Market”

* Our interpretation is broader in scope: “Effects of Infrastructure Development on the Society in Every Respect”

* It should be noted that the presentation was prepared with this understanding.
PROJECT

**Overall Project**

* The largest, the most ambitious and the most daring project realised in Turkey.

* An integrated regional development project through sustainable development of the soil, water and human resources of the South-eastern Anatolia region.

PROJECT

**Engineering Dimension**

* A basin management project, unique in the sense that it involves Euphrates and Tigris basins as well as Harran plain all together.

* A basin management project to control 29% of the surface water of the country, when completed.
PROJECT

Time Table
* Planning started in the sixties,
* Engineering execution started in 1977,
* Expected completion in 2012.
* Social, industrial, educational etc. activities will naturally continue.

REGION CONCERNED
* Region covered by the project includes nine provinces out of 81 in the country which correspond approximately to
  - 10% of the land and
  - 10% of the population. However,
  - 29% of the surface water.
* Various figures to be given later should always be compared with this 10% share.
OBJECTIVES

* Improvement of the income level and
* The living conditions in the region;
* Elimination of inter-regional differences;
* Contribution to the national economy and
* To the stability in the region.

TARGETS

* Irrigation of 1.8M ha (18 000 km²) land (imagine a rectangular area, 90 km x 200 km)
* Hydro-power generation 27B kWh pa
* Increase of per capita income by 209%
* Employment for 3.8 million people
SCOPE

* Engineering aspect of the project involves
  - Construction of 22 dams
  - 19 hydro-power plants
  - 7 500 MW installed power capacity
  - A huge irrigation system (18 000 km²)
  - Two 8m dia 27 km long water tunnels

FINANCE

* Total cost of construction ~ USD 30Bil’n
  (~10% of total yearly GNP of Turkey)

* Share in the investment budget
  - Total ~ 7%
  - Energy ~30%
  - Irrigation ~15%
  - Agriculture ~18%
## PROGRESS (as of 2007)

<table>
<thead>
<tr>
<th></th>
<th>Planned</th>
<th>Realised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dams</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>Hydro-power plants</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Tunnels (8m dia 27 km)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Installed cap (GW)</td>
<td>7.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Power gen (Bil'n kWh pa)</td>
<td>27</td>
<td>13</td>
</tr>
<tr>
<td>Irrigation (x1000 km²)</td>
<td>18</td>
<td>2.7</td>
</tr>
<tr>
<td>Investment (Bil'n USD)</td>
<td>30</td>
<td>18</td>
</tr>
</tbody>
</table>
### Agriculture

- **Cultivable land**, 25,000 km²
- **Irrigable land**, 21,000 km² (25% of Turkey)
  - Project target, 18,000 km²
  - Progress 2007, 2,700 km² (15% of target)
- **Number of tractors in the region**,
  - 1989: ~31,000
  - 1999: ~47,000
  - 2005: ~49,000

### Effect of Irrigation in the Harran Plain

<table>
<thead>
<tr>
<th>Year</th>
<th>Irrigation</th>
<th>Added value pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>~300 km²</td>
<td>~USD 600</td>
</tr>
<tr>
<td>1995</td>
<td>~900 km²</td>
<td>~USD 1,600</td>
</tr>
<tr>
<td>2003</td>
<td>~1,200 km²</td>
<td>~USD 1,300</td>
</tr>
</tbody>
</table>
EFFECTS ON ECONOMY

Energy

* Energy generation in Turkey
  Thermo-       Hydro-       Others
  62%           37%           1%

* Project share (at ~70% completion)
  50% of hydro-power generation or
  20% of total energy generation.

EFFECTS ON ECONOMY

Energy

* Energy generation within project, 2006
  Energy,       21.4 Billion kWh (77% of target)
  Equivalent,   1.3 Billion USD

* Energy consumption in the region (GWh)
  2002       2006
  ~ 6 600     ~ 8 900
Industry

* Org'd Ind Districts (OID) in the region
  - 8 in operation, 4 partly in operation
  - Housing and serving ~ 1 000 SME's

* Small Ind Sites (SIS) in the region
  - 25 in operation, 12 partly in operation
  - Housing ~ 10 000 workshops

Industry

* Enterprises in the region,
  1997 2004 2006
  ~ 830 ~ 1 610 ~ 1 840

* Employment in these enterprises,
  1997 2004 2006
  ~ 45 000 ~ 69 000 ~ 81 000
EFFECTS ON ECONOMY

Industry

* Export share of the region,  
  2003  2005  2007  
  2.1%  3.0%  2.9%

* Import share of the region,  
  2003  2005  2007  
  1.7%  1.6%  1.6%

SOCIAL EFFECTS

Demography

Region  Turkey

* Population, 2000  6.6 M  67.8 M
* Population, 2006  7.3 M  72.9 M
* Pop density (per km²)  88  88
* Urban population  62.7%  64.9%
* Rural population  37.3%  35.1%
* Avr household pop  7  5
* Children per family  5  3
* Infant fatality,  4.8%  4.3%
## Social Effects

### Literacy

<table>
<thead>
<tr>
<th></th>
<th>Region</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Total, 1985</td>
<td>56%</td>
<td>73%</td>
</tr>
<tr>
<td>* Total, 2000</td>
<td>77%</td>
<td>88%</td>
</tr>
<tr>
<td>* Female, 1985</td>
<td>40%</td>
<td>68%</td>
</tr>
<tr>
<td>* Female, 2000</td>
<td>60%</td>
<td>81%</td>
</tr>
</tbody>
</table>

### Education

<table>
<thead>
<tr>
<th></th>
<th>Region</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>* 1997</td>
<td>0.91M</td>
<td>8.37M</td>
</tr>
<tr>
<td>* 2006</td>
<td>1.51M</td>
<td>10.85M</td>
</tr>
</tbody>
</table>
## SOCIAL EFFECTS

### Education

#### Pre-School Level (2006)

<table>
<thead>
<tr>
<th>Region</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>2,000 (9.8%)</td>
</tr>
<tr>
<td>Students</td>
<td>75,000 (11.7%)</td>
</tr>
<tr>
<td>Teachers</td>
<td>1,700 (6.7%)</td>
</tr>
</tbody>
</table>

#### Primary School Level (2006)

<table>
<thead>
<tr>
<th>Region</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>5,500 (15.9%)</td>
</tr>
<tr>
<td>Students</td>
<td>1.51M (13.9%)</td>
</tr>
<tr>
<td>Teachers</td>
<td>42,800 (10.6%)</td>
</tr>
</tbody>
</table>
## SOCIAL EFFECTS

### Education


<table>
<thead>
<tr>
<th>Region</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>500 (6.4%)</td>
</tr>
<tr>
<td>Students</td>
<td>0.30M (8.6%)</td>
</tr>
<tr>
<td>Teachers</td>
<td>11,400 (6.0%)</td>
</tr>
</tbody>
</table>

### Health

(2006)

<table>
<thead>
<tr>
<th>Region</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>75 (6.5%)</td>
</tr>
<tr>
<td>Hospital beds</td>
<td>9,400 (5.3%)</td>
</tr>
<tr>
<td>Beds per 10000 pop</td>
<td>13.9</td>
</tr>
</tbody>
</table>
CONCLUDING REMARKS

* The present presentation was prepared by two amateurs in a short time on the basis of a limited literature survey.

* They realise, indicators of especially the social impact are far from being comprehensive and satisfactory.

* However, they hope to be tolerated, since the aim of the presentation is no more than to give just an impression.
ECCE General Assembly Meeting
Riga, May 24, 2008

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