Assessment of Energy Saving Potentials

Component 2, Activity 2-3:

Methodology for Assessing energy saving potentials

Debriefing and Follow-up

Didier Bosseboeuf (ADEME)
Bruno Lapillonne (Enerdata)

Mission to Ankara: 28 May - 1 June 2006

INDUSTRY

Diagnosis

- On going detailed potential assessment studies in cement and steel industry (TOBB Univ.). No specific other studies for other sectors.
- No exhaustive database on demand side technologies and their characterisation (penetration rate, cost, energy saved...)
- Audits can detect only small part of the saving potential. Until now, no statistical treatment
- Need for representativity: → statistical treatment of national survey. Lack of physical output.
- Unit consumption dispersion available for cement only; awaited for iron&steel, textile and ceramic, possibly glass and paper (see table 1).

Follow up Actions in Industry (by??) (timing)

- Ask Statistical Office to perform unit consumption (physical output) from the 2003 survey for most relevant subsectors (EIE)
- To perform unit consumption dispersion graphs and analysis through statistical office data (2003) for energy intensive industries + sugar.... (EIE)
- To negociate with CEREN (consulting company) possible input for micro analysis of the potential (Bosseboeuf ADEME, April 06) particularly for sectors not covered by other surveys.
- To discuss with ADEME expert for industry (D.Bosseboeuf, ADEME)

Follow up Actions in industry, cont`d

- To sum up the results of audits (EIE) (April 06)
- Translation of methodologies of the TOBB Univ. studies (EIE, Twinning Project or TOBB Univ.) (April 06).
- Preparation of contract between CEREN (RTA, in consultation with EIE for priorities) and ADEME (July 06)
- First mission on potential for industry (Sept 06)
  - Organisation of a one day seminar on energy savings potential (Twinning Team, EIE)
  - Presentation of the TOBB Univ. studies in the next expert visit (EIE or TOBB)
  - Preparation of the TOR for the 4 surveys in industries (CEREN , EIE)
- Cost estimate to translate into Turkish a CEREN study on cement energy savings potential (RTA + assistant)

BUILDINGS (HOUSING & TERTIARY)

Diagnosis

- No specific study on E.E potential.
- Some knowledge on EE technologies caracterisation (but no penetration rate) for public buildings on thermal uses (for instance: K. Kavak thesis at SPO, 2005)
- Some information and statistical treatment on public building (EIE 2000 survey) but no measure caracterisation.
- No statistical treatment representative at national level about the link between EE works (insulation, double glazing etc..) and the energy consumption per dwelling from the 1998 SIS survey.
- No specific information on electrical appliances.

Follow-up Actions for building sector :

- Analysis of the BOTAŞ questionnary about EE works (EIE/ADEME)
- Search of statistics on stock of dwellings by age, heating fuel type and system (EIE)
- If not, possibly stock modelling from new households registration and rate of destruction (Mourtada)
- Sum up of technologies caracterisation, with cost (EIE)
- Questionnaire design for 2 field surveys (Housing & Tertiary separately); proposal of samplings (Mourtada, Bosseboeuf) (June 06)
- Identification of possible field survey consultants and cost estimate of the surveys (RTA + assistant, June 06).
- Preselection-Consultations (ADEME, sept. 06)
- Contacts between survey consultants and experts (Bosseboeuf, Mourtada)

Follow-up Actions for building (cont')

- Preparation of the survey for simulation of the energy saving options (Sept 06) (Mourtada, RTA Cornut, Bosseboeuf)
  - Typology of dwellings
  - Selection of towns (probably 4 to 6)
  - Preparation of questionnaire
  - Final Selection of surveyors
  - Treatment of results
- Introduction of output of surveys into the simulation tools, to assess the potential (Mourtada)

INDICATORS

Diagnosis :

- EIE staff has been trained (Grenoble, february 06)
- No specific work until training
- Excel sheet has been sent to EIE, end of April 06
- EIE has started the work. differently according to the sectors and data availability
- EIE presented the present state of the data collection : still a lot of inconsistencies and data gap to be filled to be checked and corrected.
- Enerdata makes recommendation

Follow-up Actions on indicators

- Additional search of data within ministries and statistical office.
  - Detailed energy balance by oil products
  - Transport activity data from Min. of transportation
- Revised version of the data base completed (EIE) to be send to Enerdata by July 06
- Comments from Enerdata (Aug 06)
- Next mission of Enerdata (Sept 06)
- Starting of the report (EIE), Nov 06

MODELLING

Diagnosis

- EIE staff trained on modelling but needs additional training on Med pro software.
- Need of coordination of modelling works between Administration and EIE.
- Need of some results of BOTAS study to build up the dynamic of consumption pattern

Actions on modelling :

- Proposition of work schedule by ADEME/Enerdata (June 06)
- Agreement from EIE (June 06)
- Enerdata send MEDPRO data sheet for the reference year setting up (Aug 06)
- EIE makes data collection based on indicator data base (Sept 06)
- First expert mission (BC, JMB, Oct 06)
  - Training
  - Contact with ministry (MAED) and SPO (economic scenario)
  - First expertise of the data collection

Action on modelling (cont')

- Constitution of sectoral WG (EIE, Ministries, academics..) for scenarios design.
- Presentation of modelling methodologies used by EU 25 members state for the 4th national communication (UNFCCC) (BC, JMB or DB ? (October 06)

Others

- Presentation of ex-post bottom-up evaluation study cases carried out at ADEME (DB Oct-Nov 06)
- Additional presentation on the ESD monitoring (DB Oct-Nov 06)
- Presentation of the MURE simulation tool (DB Oct-Nov t)

Data problems for data base on energy indicators for Turkey

B Lapillonne

June 2 2006

General data issues

- Data missing but available by additional personal contacts with Turkish statistics and administrations
- Data errors and inconsistencies

➔ important to check the controls and the order of magnitude of some important data/indicators

➔add additional graphs to check the indicators (energy intensity by industrial branch, specific consumption of steel, paper, cement, clinker)

- Data probably not available that will require some additional estimates ➔ methodology to be provided by Enerdata
- Need to well specify the source and exact reference (in a note on the right part of the file) and to mark data estimated in red
- Update all data to 2004 and complete data from 1990

Data missing to be completed

- Macro :
  - ✓Final and primary energy consumption to be corrected (some solid fuels missing)
  - ✓Value added of service sector
  - ✓Private consumption of households
- Industry :
  - ✓Production of steel to be completed
  - ✓ Production of paper to be checked
  - ✓Energy consumption by industrial branch to be completed for all years from data of TEADS/MNER (electricity), Botas/ MNER (Gas), and MNER (coal and oil)
  - ✓Specific consumption of steel by process (electric/arc and integrated) and specific consumption of cement and clinker from EIE benchmark studies
  - ✓Definition of equipment branches to be checked (need to have same breakdown for value added and energy consumption)

Data missing to be completed (cont'd)

- Households :
  - ✓Number of households for year available (Turkstat) (from annual household consumer survey)
  - ✓Sales of refrigerators and other appliances (SPO)
  - ✓Specific consumption of new dwellings built after 2000 for heating
  - ✓Number of households connected to gas (gas customers)
  - ✓Sales of refrigerator by label class A
  - ✓Data from BOTAS survey on equipment ownership (e.g. central heating/stove) ad consumption breakdown by use for gas and other fuels

Data missing to be completed (cont'd)

- Transport
  - ✓Oil consumption by type of product (petrol, diesel, LPG) for transport from MNER
  - ✓Complete energy consumption by mode of transport and by fuel type from MNER (energy balance)
  - ✓Stock of cars, minibus and "camionettes" by motor fuels (petrol, diesel, LPG)
  - ✓Traffic of passengers and goods by mode
- Services
  - ✓Energy consumption of service sector to be calculated by difference between consumption of "residential, services, agriculture and others " minus residential and agriculture
  - ✓Employment in service sector (SPO)

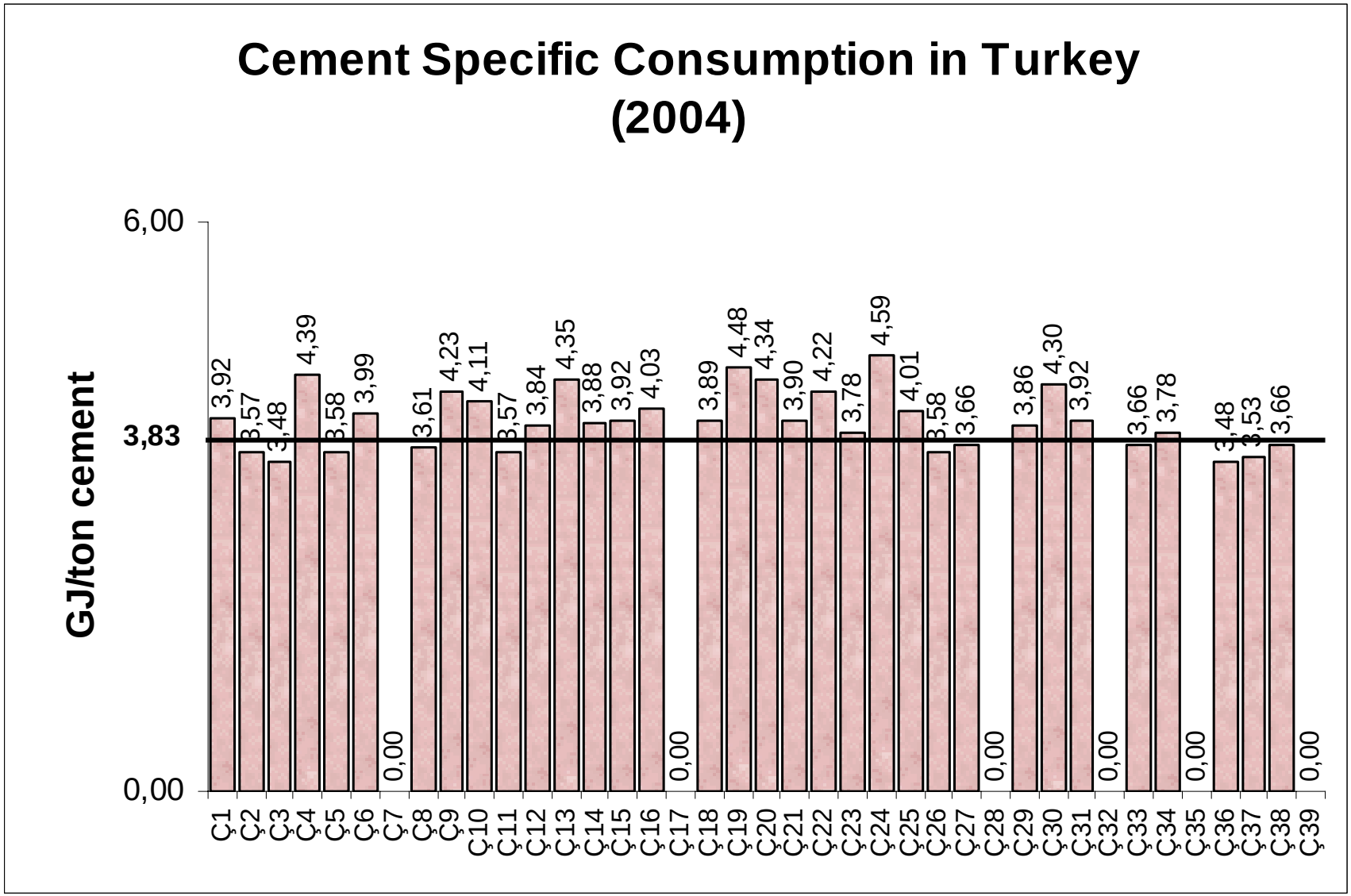
Data not available to be estimated

- Households :
  - ✓Energy consumption by end-use
  - ✓Number of households
  - ✓Population weighed degree-days to be calculated
- Industry :
  - ✓value added of manufacturing branches at 1987 prices
  - ✓Industrial production index to be calculated for some branches (weighted average from individual branch based on value added share for 2000 at current price)

Definition of equipment branches

- Equipment goods and fabricated metals (Nace 28 - 35)
  - Machinery equipment, fabricated metals (Nace 28 - 33)
    - ✓ Fabricated metals (Nace 28)
    - ✓ Machinery equipment, (Nace 29 - 33)
  - Transport equipment (Nace 34 - 35)

➔Energy consumption available➔ need to get value added with same detailed


Cement Specific Consumption in Turkey (2004)
GJ/ton cement
6,00
3,83
0,00
3,92
3,57
3,48
4,39
3,58
3,99
0,00
3,61
4,23
4,11
3,57
3,84
4,35
3,88
3,92
4,03
0,00
3,89
4,48
4,34
3,90
4,22
3,78
4,59
4,01
3,58
3,66
0,00
3,86
4,30
3,92
0,00
3,66
3,78
0,00
3,48
3,53
3,66
0,00
Ç1 Ç2 Ç3 Ç4 Ç5 Ç6 Ç7 Ç8 Ç9 Ç10 Ç11 Ç12 Ç13 Ç14 Ç15 Ç16 Ç17 Ç18 Ç19 Ç20 Ç21 Ç22 Ç23 Ç24 Ç25 Ç26 Ç27 Ç28 Ç29 Ç30 Ç31 Ç32 Ç33 Ç34 Ç35 Ç36 Ç37 Ç38 Ç39