



partner for prosperity



**PARTNER FOR PROSPERITY**

# **What do people mean by indicators and how they use them in their work**

## *Energy Efficiency Indicators in UNIDO's technical cooperation projects*

**Bettina Schreck – Industrial Energy Efficiency Unit**

**IEA workshop on Energy Indicators**

**Paris, 6 June 2012**



## Topics

---

- 1. Brief introduction of UNIDO IEE programme**
- 2. Use of energy indicators in programme development**
  - Global trends
  - National level data
- 3. Methodologies and data collection**
- 4. Conclusions**



*PARTNER FOR PROSPERITY*

## UNIDO, a specialised agency in the UN System

UNIDO has the following mandate:

- Promote and develop **sustainable industrial development** in developing countries and transition economies;
- **Improve livelihoods** in the world's poorest countries by making use of global resources and experience

UNIDO focuses its activities on three thematic priorities



Poverty reduction through  
productive activities



Trade Capacity Building.

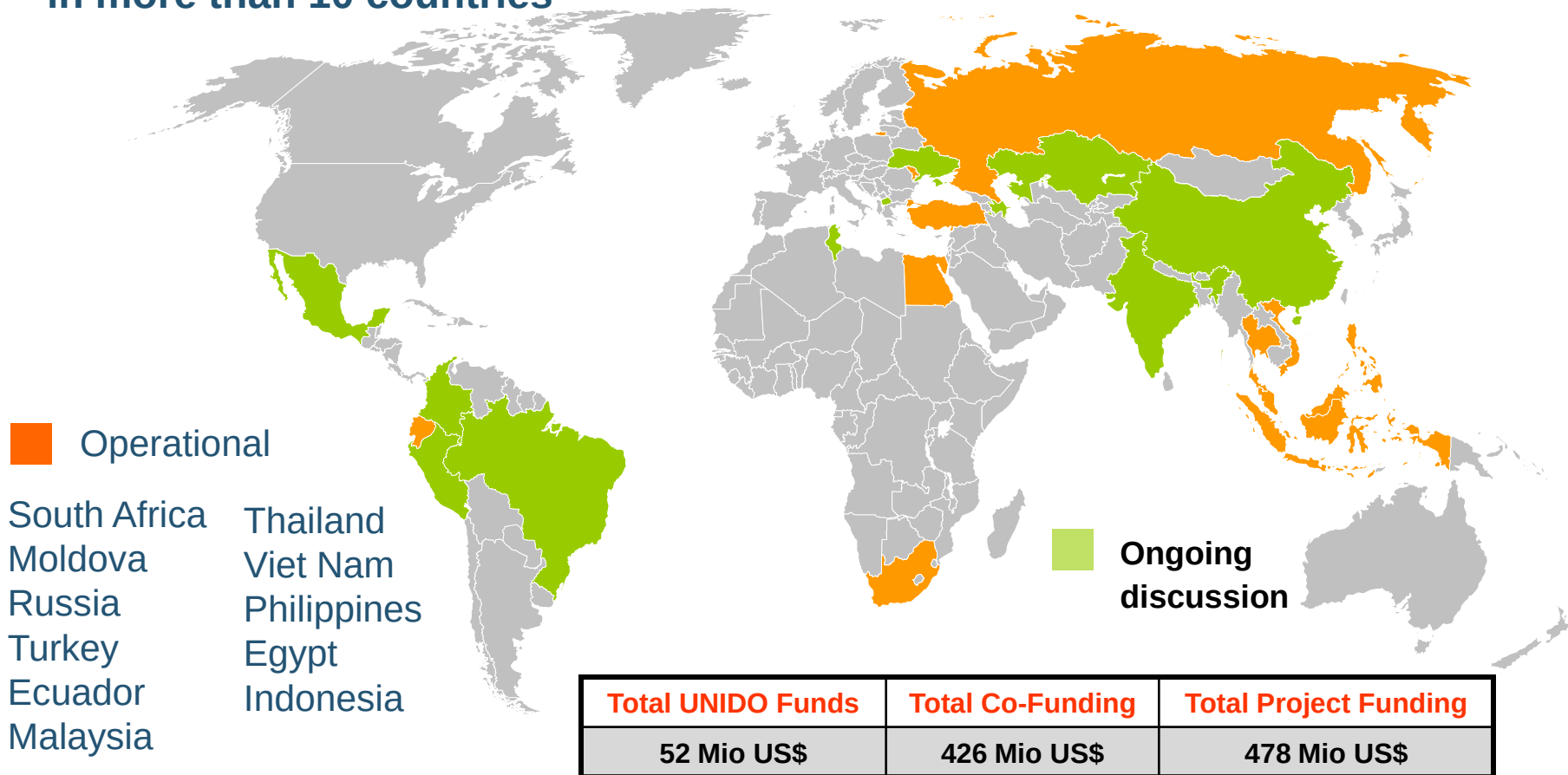


Energy and Environment

**Energy and Climate Change**  
“to promote access to energy  
for productive uses  
while at the same time  
supporting patterns of  
energy use by  
industry that mitigate  
climate change and are  
environmentally sustainable ”

## UNIDO IEE Programme as of June 2012

Operational in 11 countries  
Ongoing & planned activities  
in more than 10 countries



## Typical example of UNIDO IEE country project

|                                         |                                                                                                                                                                                                |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project objective</b>                | To reduce GHG emissions and enhance competitiveness of industry through improved energy efficiency and the transformation of the market for industrial energy efficiency products and services |
| <b>Project components</b>               |                                                                                                                                                                                                |
| <b>Policy and institutional support</b> | ✓ Development and establishment of Standards, Benchmarking programmes and fiscal and other incentives for IEE                                                                                  |
| <b>Capacity-building</b>                | <ul style="list-style-type: none"> <li>✓ Energy Management Systems (EnMS) Expert Training</li> <li>✓ System Optimization (SO) Expert Training (steam, pumps, motors)</li> </ul>                |
| <b>Pilot IEE projects</b>               | ✓ Implementation of pilot EnMS and SO projects in selected enterprises                                                                                                                         |
| <b>Financing for IEE</b>                | ✓ Development of IEE investment supporting schemes in partnership with international as well as national financing institutions                                                                |

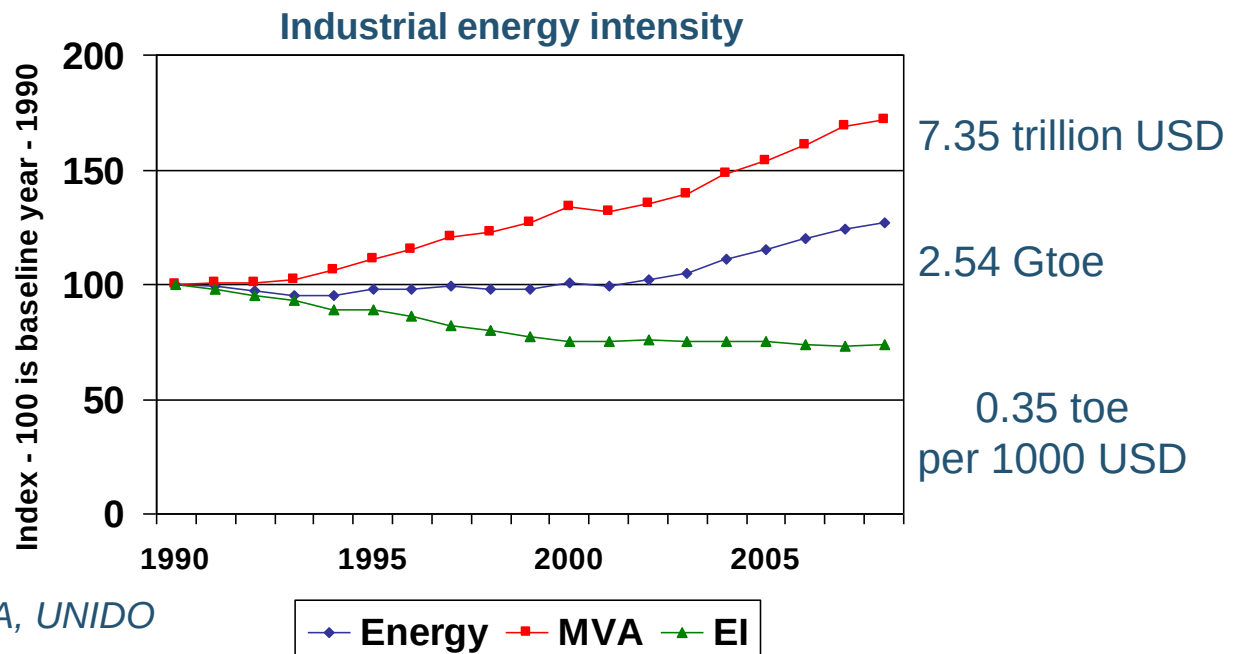
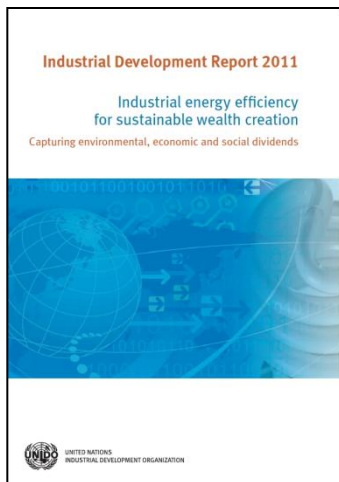


## Global trends: Indicators for priority setting



2012 INTERNATIONAL YEAR OF  
SUSTAINABLE ENERGY  
FOR ALL

1. Ensure universal access to modern energy services.
2. Double the global rate of improvement in energy efficiency
3. Double the share of renewable energy in the global energy mix



Data sources: Energy, IEA; MVA, UNIDO

## National level data: purpose of indicators

---

**National projects aim to improve Energy Efficiency holistically (policy, capacity building, enterprise demonstration), but how persuade stakeholders?**

**Quantitative targets are required for project design, to establish baselines and to set targets based on stakeholder needs**

- ✓ For UNIDO: programme monitoring project impacts, such as costs savings due to energy efficiency or improvement or GHGs abated
- ✓ For beneficiary enterprises: systems implementation and performance monitoring (i.e. energy performance monitoring as required by ISO 50001)
- ✓ For member states: policymaking, by benchmarking and setting sectorial targets

**Data collection required at different project stages**

1. Design: Setting quantifiable outputs “ex ante”
2. Implementation: Baseline definition
3. Post project: Impacts assessment



## Methodology: GEF Global Environment Benefits

- ✓ Manual for calculating GHG benefits of GEF projects: energy efficiency and renewable energy projects (GEF/C.33/Inf.18 - April 16, 2008)

GEBs = direct GHG reduction + direct post project GHG reductions + in-direct GHG reductions

Assumptions and baseline data for emission reduction calculation:

- Average consumption
- Typical EE savings
- National Emission Factors

| Typical EE savings   |             |           |
|----------------------|-------------|-----------|
| % Yearly Savings     | Power (MWh) | Heat (GJ) |
| Energy Mgmt Systems  | 5           | 7.5       |
| Systems optimization | 8           | 10        |

Local data to be collected: Average energy consumption, BAU economic assessment from statistics & surveys!

## Data collection: national level and project level

### Industrial Energy Efficiency in Ecuador

Surveys conducted at enterprise, electronically, web-based

ORGANIZACIÓN DE LAS NACIONES UNIDAS PARA EL DESARROLLO INDUSTRIAL



### PROYECTO DE EFICIENCIA ENERGÉTICA EN EL SECTOR INDUSTRIAL EN EL ECUADOR ENCUESTA DE INSTALACIONES INDUSTRIALES

Datos de contacto de la EMPRESA. Por favor llenar:

|                             |                                                                                                                                    |        |         |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------|---------|
| Persona de contacto         | FRANCISCO MAFLA (JEFE DE OPERACIONES)<br>ALFONSO ABDO (GERENTE DE DESARROLLO ESTRATÉGICO)                                          |        |         |
| Nombre de la empresa        | INDUSTRIA ACERO DE LOS ANDES S.A.                                                                                                  |        |         |
| Calle o apartado de correos | AV. ALOY ALFARO Y AV. AMAZONAS EDF. FINANDES 1er PISO                                                                              |        |         |
| Código Postal               |                                                                                                                                    | Ciudad | QUITO   |
| Provincia / Estado          | PICHINCHA                                                                                                                          | País   | ECUADOR |
| Correo electrónico          | <a href="mailto:fmafla@aceroandes.com">fmafla@aceroandes.com</a><br><a href="mailto:aabdo@aceroandes.com">aabdo@aceroandes.com</a> |        |         |

### Market Transformation Programme on Energy Efficiency in GHG-intensive industries in Russia

Data sources indicated:

1. Base year efficiencies (monitored for selected enterprises)
2. Historical annual efficiency gain trends (eg Dutch LTA savings ).
3. Business as usual, based on :
  - Monitored: comparison of samples of companies within and outside the programme
  - Calculated: extrapolated historical gain trends for participating companies

## Conclusions – Challenges and measures

---

- ✓ Priorities setting – international energy statistics, basis of the EE Indicators approach, subject to uncertainties in data collection
  - Closer collaboration between energy experts at enterprise and statistics offices level for improving the quality of data
  - Need for statistics offices training
  - Systematic data collection
  - Standards for Energy Performance Indicators at systems level
  
- ✓ Project Design - methodology are clear, the main challenge is the data collection process at enterprise level in the absence of good statistical sources. Surveys are undertaken but data consistency is an issue
  - Developing common methodologies with uncertainty tiers
  - Enterprise awareness raising
  - Mandatory reporting for high energy consuming sectors as a way to encourage performance improvements



*PARTNER FOR PROSPERITY*

# Thanks

[www.unido.org/energy](http://www.unido.org/energy)

<http://www.sustainableenergyforall.org/>



## Wrap up – GEF GEB methodology

---

- ✓ In UNIDO portfolio the current methodology is widely adopted
  - ex ante mandatory for all GEF funded climate change projects
  - ex post methodology is country specific with no particular regional trends
- ✓ Although same methodology is used, the comparison across projects shows inconsistency in results
- ✓ Projects are at an early stage as to assess trends
- ✓ Methodology provides guidance for sector wide interventions and might not be transferable to sub-sectors or project specificity (as pursued in the UNFCCC Tech Mechs)