

INTERNATIONAL ENERGY WORKSHOP 2008

How to assure an effective mitigation of GHG emissions through transport measures

Daniel Borrego
CCIAM

Climate Change Impacts, Adaptation and Mitigation Research Group

Overview

Complying with Kyoto

National plans, trends, transports importance

Measures

Reference and additional measures

Assessment scheme

How can we assure that mitigation potential of measures is achieved?

Evaluation performed

Approach used to perform the evaluation

Evaluation results

Is the assessment scheme working?

Discussion

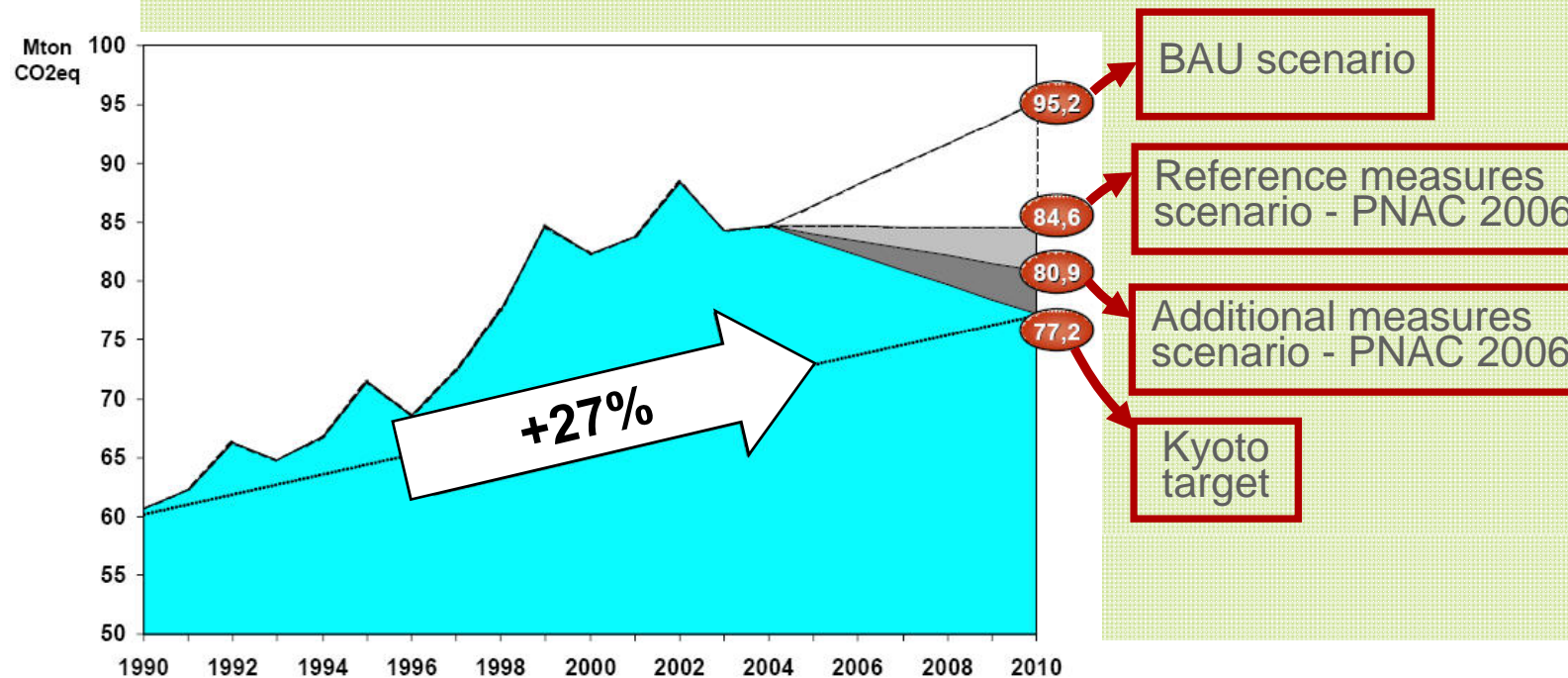
Lessons for the assessment schemes of further mitigation measures

Complying with Kyoto

- Portugal approved the first version of Portuguese national plan for climate change (PNAC 2004)
- PNAC 2004 was updated, originating the PNAC 2006
- Reference measures from 2004 were maintained in PNAC 2004
- To increase the potential of mitigation complementary measures were defined

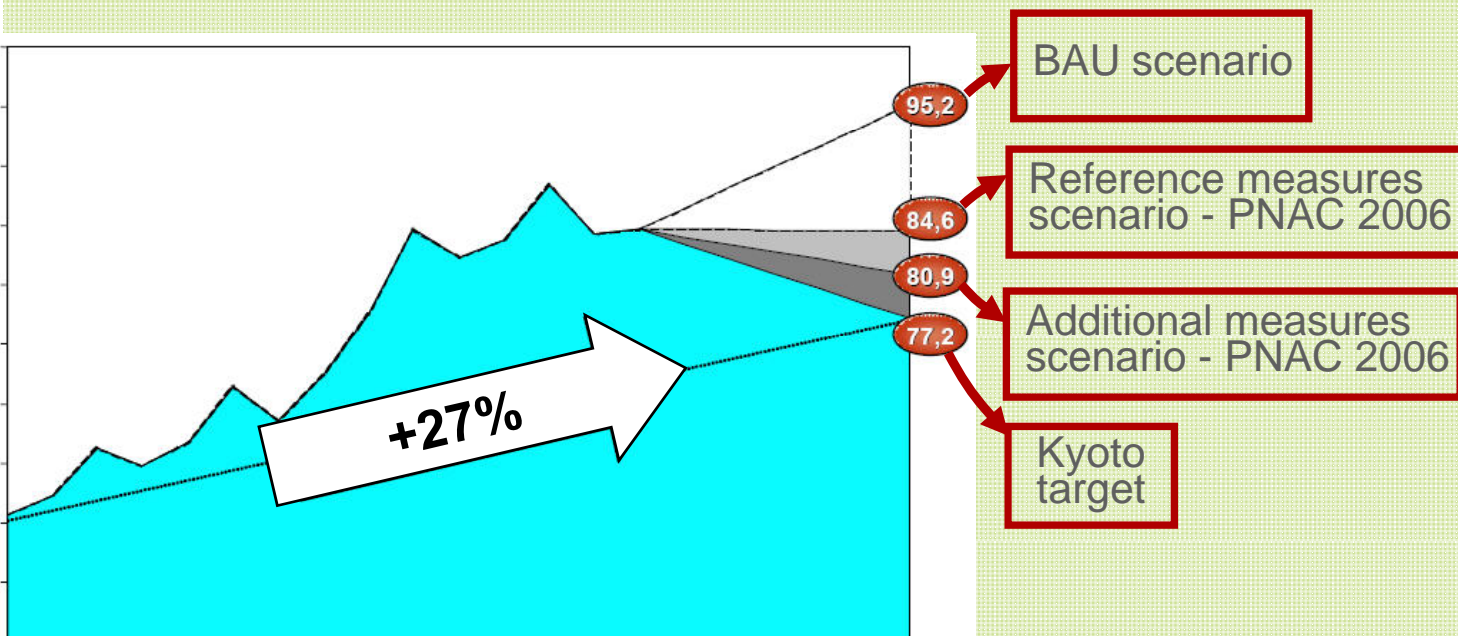
Complying with Kyoto

- Kyoto target allows Portugal to increase its GHG emissions 27% above 1990 levels
- With BAU scenario increasing rate don't slow down



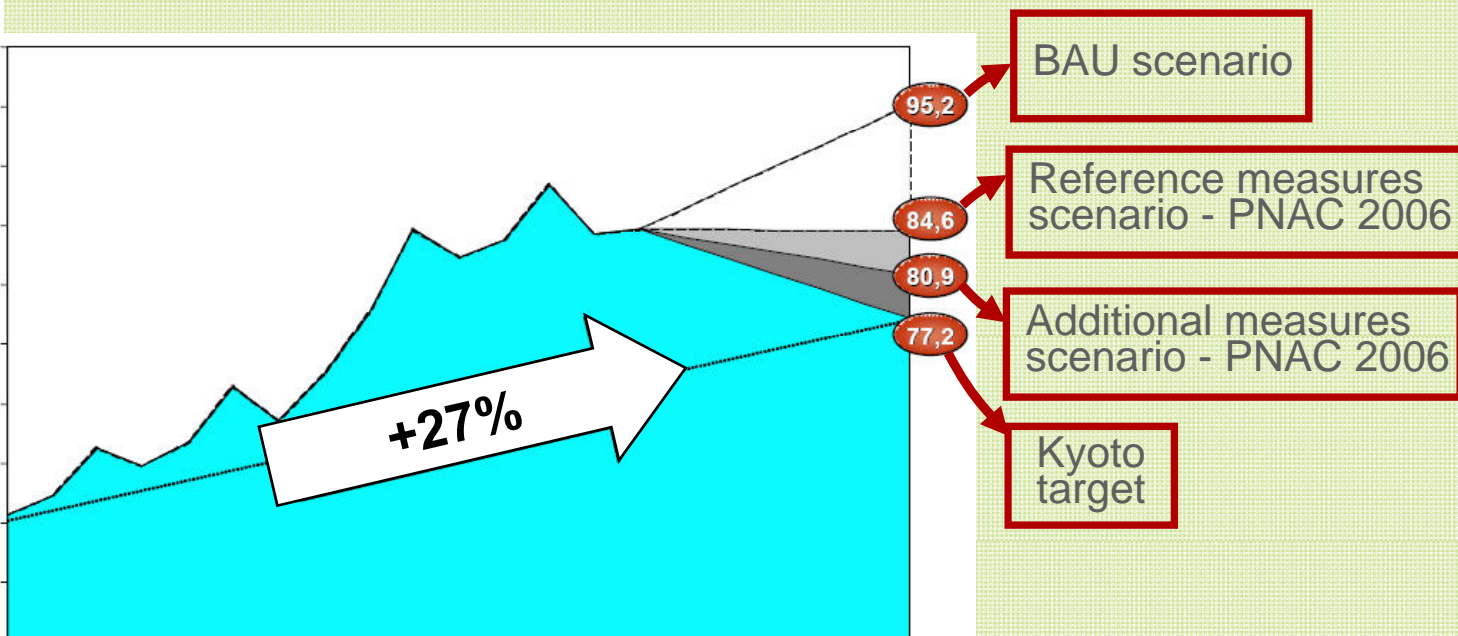
Complying with Kyoto

- Reference measures are expected to reduce 10,6 Mton and additional 3,7 Mton
- Kyoto mechanisms will be used to meet the difference to the target

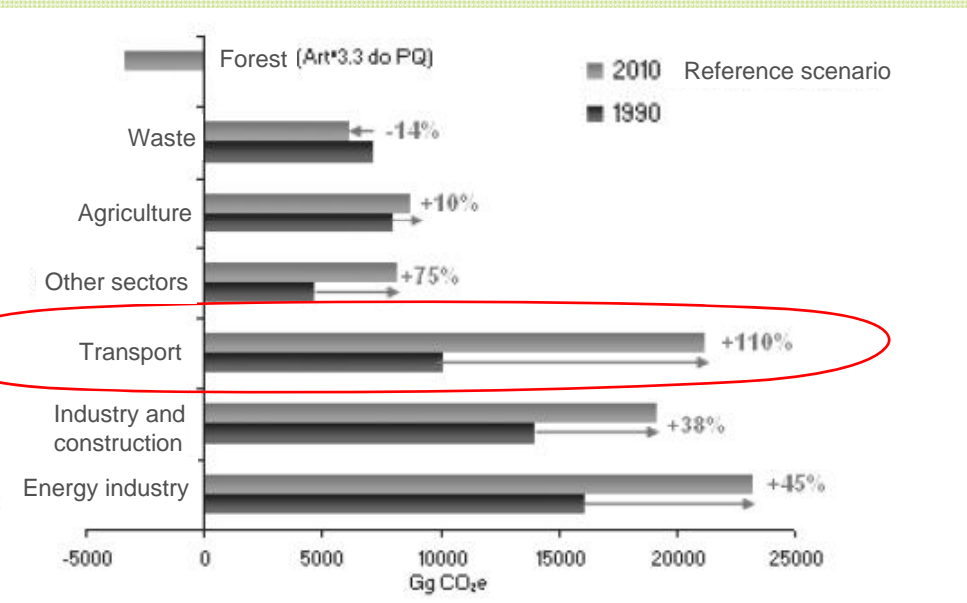


Complying with Kyoto

- What is the total amount of Mton that the Portuguese Carbon Fund will need to address?



Complying with Kyoto

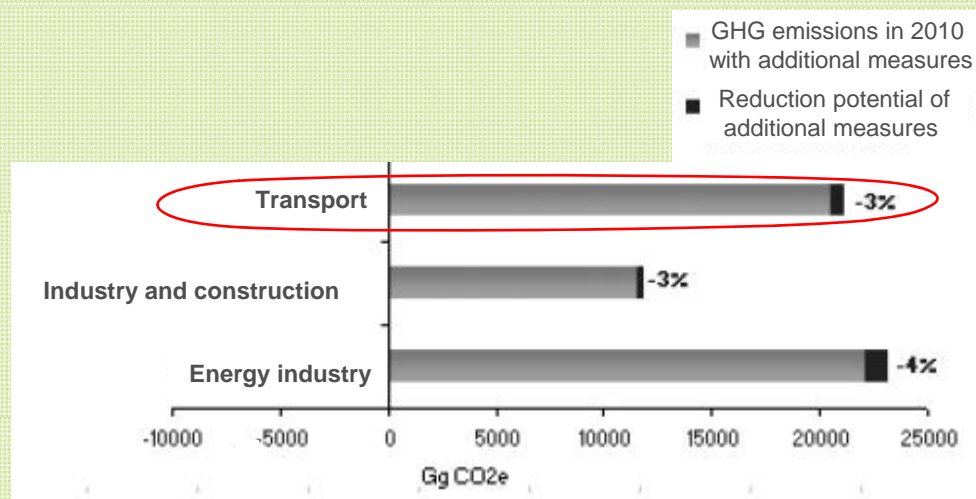


□ In 2010 transport's emission will double

□ Several reference measures

□ The potential of additional transport's mitigation measures is 3%

Source: adapted from PNAC 2006



Measures

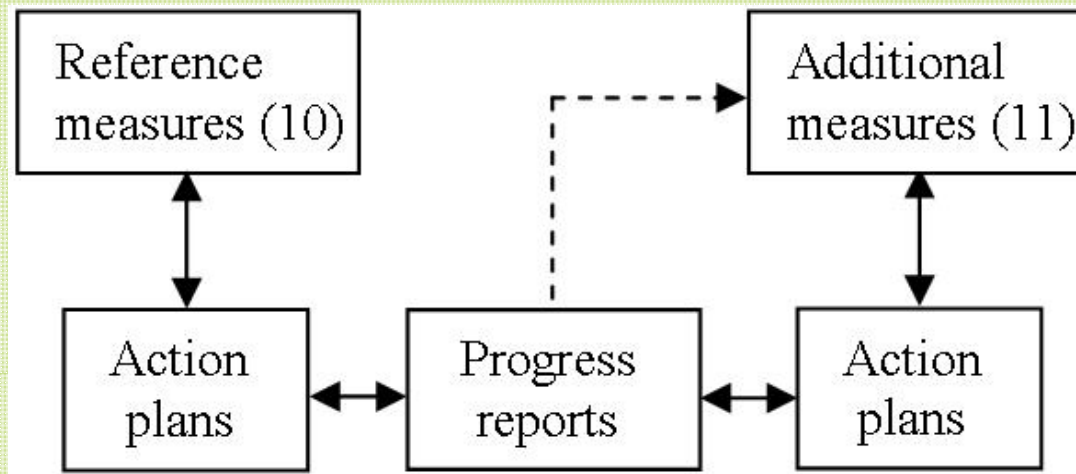
Reference

- 1 Auto-oil programme - voluntary agreement with the car manufacturing associations (ACEA, JAMA, KAMA)
- 2 Expansion of the Lisbon Metro - extension of the blue and yellow line; red line
- 3 Construction of the South of the Tagus River Metro
- 4 Construction of the Oporto Metro
- 5 Construction of the Mondego Light Metro
- 6 Supply changes (reduction in travel time) between Lisbon- Oporto; Lisbon- Castelo Branco; Lisbon-Algarve
- 7 Enlargement of the fleet of vehicles powered by natural gas of CARRIS and the STCP
- 8 Incentive Programme for the dismantling of End-of-Life Vehicles
- 9 Reduction of motorway speeds
- 10 Biofuels Directive

Additional

- 1 Reduction of Taxis' service days
- 2 Enlargement of the fleet of taxi vehicles powered by natural gas
- 3 Review of the current tax regime on private vehicles
- 4 Metropolitan Authority of Lisbon Transports
- 5 Metropolitan Authority of Oporto Transports
- 6 Incentive Programme for the dismantling of End-of-Life Vehicles (further objectives)
- 7 Regulation on Energy Management in the Transport Sector
- 8 Railway connection to Aveiro Sea Port
- 9 Shipping routes
- 10 Logistical Platforms
- 11 Restructuring of supply of CP (national railway) service

Assessment scheme



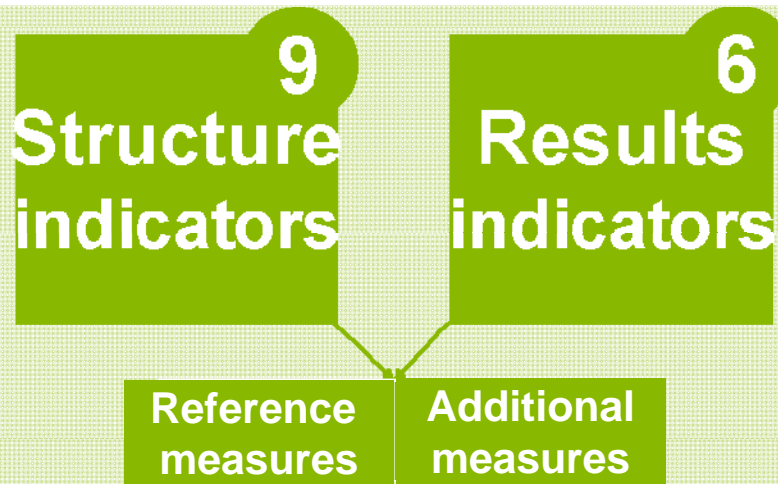
- ❑ Variables, indicators and methodologies
- ❑ Progress reports should be released every 6 months
- ❑ Interaction between scheme components

Evaluation performed to the

assessment scheme

- Why evaluate the assessment scheme?
 - Progress reports inconclusive or inexistent
 - Identify what could be compromising the reduction expected
 - Improve the quality of future assessment schemes
 - Provide information for decision making

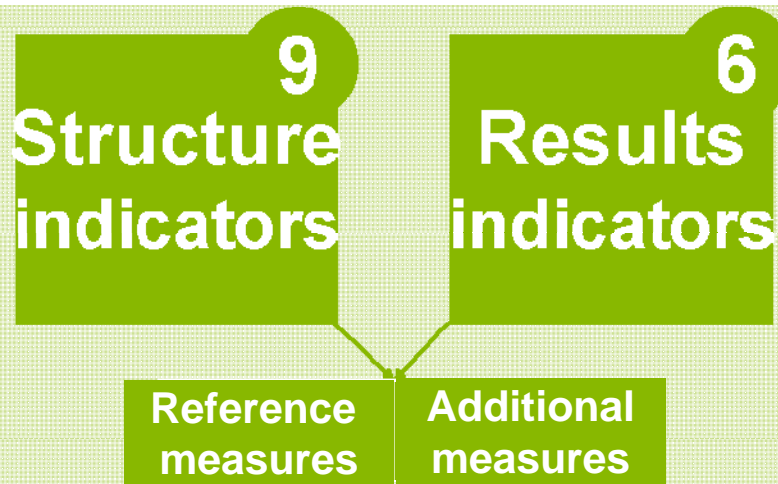
Evaluation performed to the



assessment scheme

- Application scope
- Rating system (Bad, reasonable, Good)

Evaluation performed to the



assessment scheme

- Structure indicators evaluates the framework
- Results indicators evaluate the results achieved

Evaluation performed to the

assessment scheme

9

Structure indicators

Reference measures

Additional measures

- ❑ Look if action plan defined properly:
 - ❑ the variables defined within each action plan
 - ❑ assessment indicators
 - ❑ methodologies
- ❑ Some indicators criteria are binary and other are quantitative

Evaluation performed to the

assessment scheme

9

Structure indicators

Reference measures

Additional measures

□ Some indicators:

- Action schedule defined
- Action costs defined
- Action progress indicators defined
- Assessment methodology defined

Evaluation performed to the

assessment scheme

6

Results indicators

Reference measures

Additional measures

- ❑ Look if the progress reports:
 - ❑ are made
 - ❑ have information about elements defined in action plans
- ❑ The progress report evaluated is from the first semester of 2007
- ❑ Some indicators criteria are binary and other are quantitative

Evaluation performed to the

assessment scheme

6

Reference measures

Additional measures

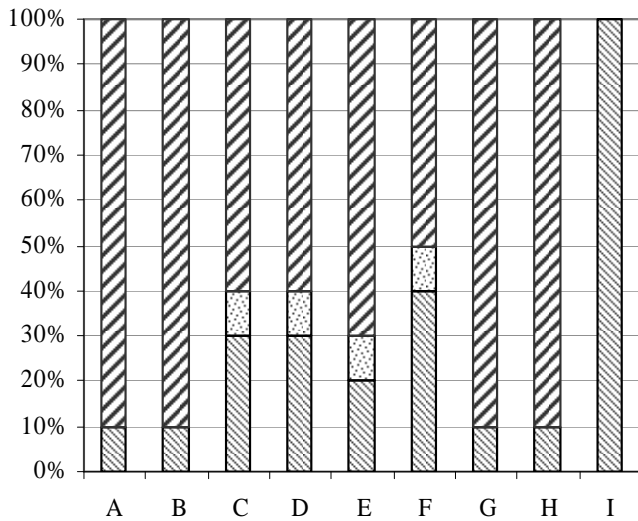
Results indicators

□ Some indicators:

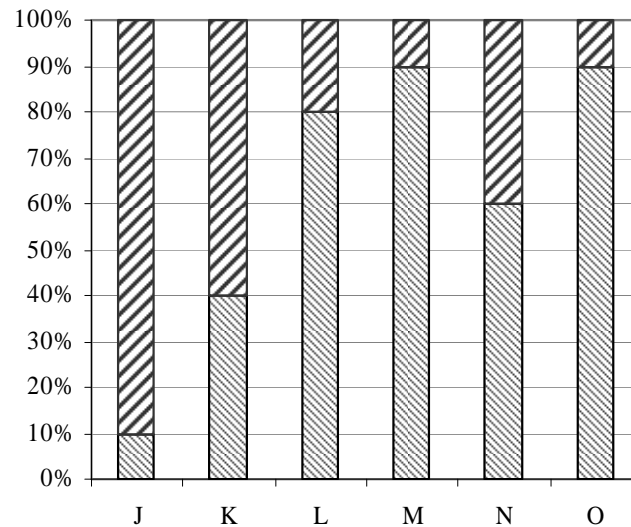
- Action schedule accomplished
- Action progress indicator presented
- Indicators of effectiveness presented
- Indicators of environmental effectiveness presented

Evaluation results

Structure indicators



Results indicators



 Good  Reasonable  Bad

Reference measures

I – Assessment methodology defined

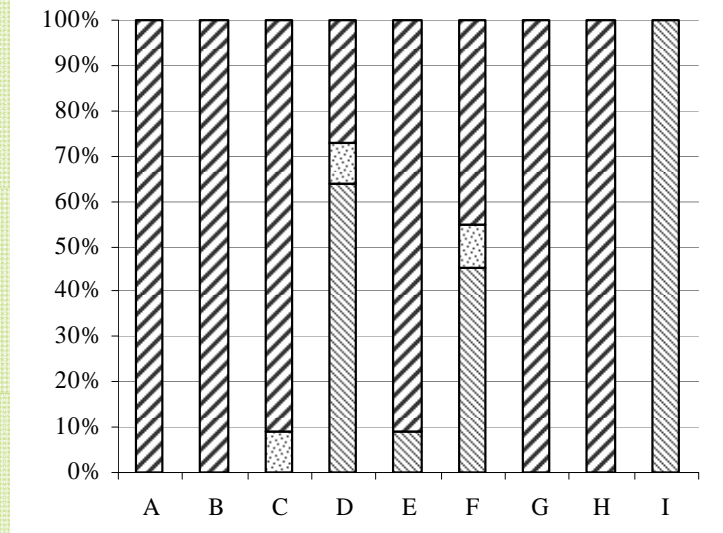
L – Action schedule accomplished

M – Action progress indicators presented

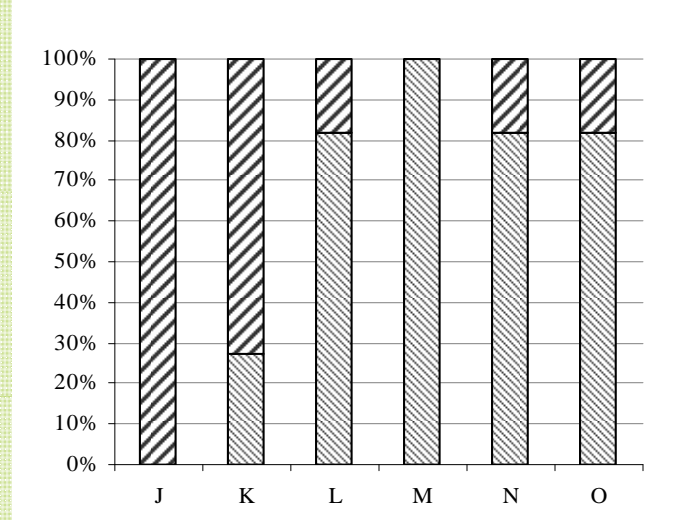
O – Environmental effectiveness indicators presented

Evaluation results

Structure indicators



Results indicators



 Good  Reasonable  Bad

D – Actions costs defined

I – Assessment methodology defined

L – Action schedule accomplished

M – Action progress indicators presented

N – Effectiveness

O – Environmental effectiveness indicators presented

Additional measures

Discussion

Structure indicators (SEI)

- ❑ SEI have 28% bad results for reference measures
- ❑ SEI have of bad results for 24% additional measures
- ❑ In all measures there are problems with the definition of an assessment methodology
- ❑ SEI have 63% good results for reference measures and 73% for additional

Discussion

Structure indicators (SEI)

- For 40% of reference measures and for 45% additional measures there are problems with the definition of action progress indicators
- 20% of reference measures have bad results regarding the definition of expected results

Discussion

Results indicators (REI)

- ❑ 62% bad results for REI for reference and additional measures
- ❑ There is a interdependence between some SEI and REI results
- ❑ Critical indicators as presentation of action progress indicators have bad results in almost 100% of the measures

Discussion

- The total amount of Mton that parties will need to address through Kyoto mechanisms depends on the success of mitigation measures
- Weak assessment processes don't maximize the mitigation potential
- Assessment should allow to correct deviations detected to targets early in time

Thank you!



Daniel Borrego

Researcher

dborrego@siam.fc.ul.pt

Faculdade de Ciências da Universidade de Lisboa—SIM,
Edifício C1, sala 1.4.21, Campo Grande, 1749—016 Lisboa, Portugal
Tel.: + 351 21 7500387; Fax: + 351 21 7500386
www.siam.fc.ul.pt/CCIAM