



Eco-efficiency of Consumption and Production Patterns
in Asia and the Pacific

STIMULATING ECO-EFFICIENCY IN ASIA AND THE
PACIFIC:
THE ROLE OF PUBLIC POLICY

A Presentation to the Second Green Growth Policy Dialogue
by

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Policy principles

- **Polluter pays principle**
 - Internalisation of external costs
- **Pollution prevention principle**
 - Prevention cheaper than clean-up
- **Precautionary principle**
 - Relation between uncertainty and action/inaction
 - Burden of proof
- **Life-cycle impact assessment**



Policy instruments

- **Market-based** (also called **economic**) instruments, which directly affect the price of the targeted activity
 - Emissions trading, environmental taxes and charges, deposit-refund systems, subsidies (including the removal of environmentally-harmful subsidies), green purchasing, liability and compensation
- **Regulatory** instruments, which seek to define legal standards in relation to environmental performance, pressures or outcomes
- **Voluntary** (also called **negotiated**) agreements between governments and producing organisations
- **Information-based** instruments (e.g. eco-labels), which may be mandatory or voluntary.
- Political importance of 'policy packages'



Conditions for Compatibility Between Growth and Environment

- Reduce resource use\ environmental impact per unit of production/consumption:
 - more efficient use of resources;
 - substitution between resources (abundant for scarce, renewable for non-renewable);
 - reduction of emissions or change from harmful to benign (end-of-pipe, change production process);
 - change structure of production or consumption.
- Rate of reduction must be greater than rate of economic growth

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Conditions for Compatibility (2)

- Problem sectors: energy, agriculture, transport, (some) industry, tourism, waste (for households: energy, water, personal mobility, tourism – 80% of impact)
- Need factor 16 reduction over 50 years: unprecedented, far faster rates of change than ever witnessed BUT unprecedented rates of current technological change
- There are many and substantial opportunities to reduce environmental impact with positive, zero or small negative impacts on economic growth in the short and medium term, i.e. there are many
 - inefficiencies in production, regulation, and consumption which can be rectified at zero or negative cost;
 - innovations which are cost-saving as well as environment-improving; and
 - new industries which can be stimulated through judicious investment in 'cleaner production' (e.g. NISP)

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Conditions for Compatibility (3)

- Change needs to be guided by public policy, market cannot deliver by itself (because of externalities)
- Markets are driven principally by prices (also by information, regulation, public perception/reputation etc.)
- Public policy must systematically use prices to drive markets in the desired direction (greater resource efficiency, reduced emissions, more dynamic innovation/new industries)
- Regulation is often necessary or complementary to policy based on market-incentives (e.g. demand-side management where markets fail) but do not achieve dynamic efficiency (innovation)
- A key public policy is green tax and budget reform

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Sustainable consumption and production

Products	Strengthening measures to improve the environmental performance of products and services, including improved product design
Production	Improve resource efficiency and reduce waste and harmful emissions across business sectors
Consumption	Influence consumption patterns, including information and advice for consumers
Procurement	Sustainable procurement in the public sector
Innovation	Support for innovation to bring through new products, materials and services
Sustainable business	Increase transparency, corporate responsibility and skill in business and other organisations
Waste	Increased emphasis on reducing waste at source and making use of it as a resource

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How to improve the eco-efficiency of consumption as income increases? How to facilitate the desired leapfrogging of the developing countries?

Sustainable infrastructure

- Transportation and energy; water supply and wastewater management; solid waste management; telecommunications; buildings; governance systems
- Principles
 - Minimizing the use of non-renewable resources
 - Minimizing impacts on the natural environment
 - Protecting biodiversity
 - Using renewable resources in a sustainable manner

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Sustainable infrastructure characteristics (1)

- Infrastructure maintenance, protection and renewal
- Long-term economic analysis of infrastructure, e.g. life-cycle analysis over life of infrastructure; material selection for sustainability - quality, durability and energy conservation
- Making better use of so-called 'waste' water and materials
- The remediation of environmentally damaged soils and water
- Assessment of transportation infrastructure for implications for land use, emissions, energy use and reduced infrastructure costs: car dependence is most expensive, most likely to lead to resource constraints.
- The redesign of infrastructure in light of global climate change

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Sustainable infrastructure characteristics (2)

- Markets will not provide public goods through infrastructure (e.g. urban density, energy security)
- Markets will not take into account externalities either caused by infrastructure (e.g. biodiversity loss through land-take) or facilitated through it (e.g. car traffic)
- Public sector always plays an important role as regulator or provider of infrastructure
- There is no 'right' model of infrastructure finance
- Infrastructure is difficult to maintain without realistic user fees

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Economic instruments in EU

Air/Energy

CO2	11
SO2	12
NOx	9
Fuels	27
Syn. Fuels	8

Transport

Car sales and use	23
Diff. annual car tax	4
Annual circulation tax	10

Water

Water effluents	20
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Waste

Waste/waste-end tax	17
Dangerous waste	4

Noise

Aviation noise	5
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Products

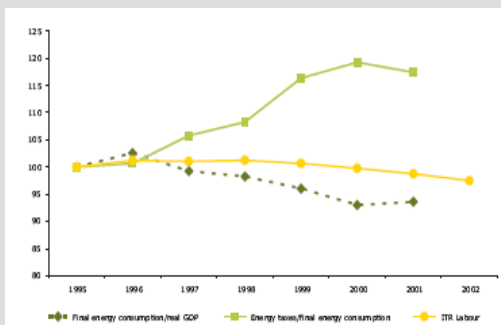
Beverage containers	7
Packaging	11
Plastic bags	4
Pesticides	5
Batteries	9
PVC/phthalates	2
Lubrication oil	7
Fertilisers	3
Paper, board	5
Solvents	2
Tyres	8
CFCs	6
Light bulbs	4

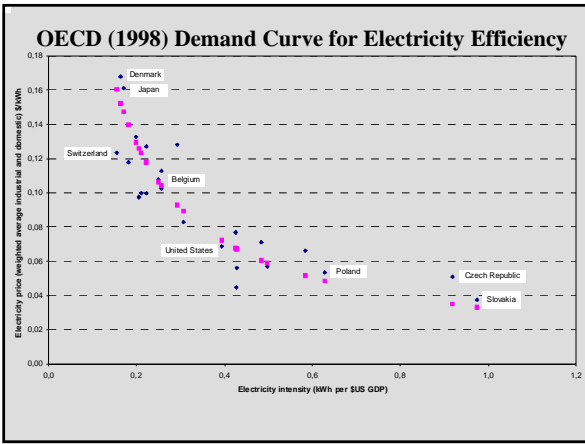
Resources

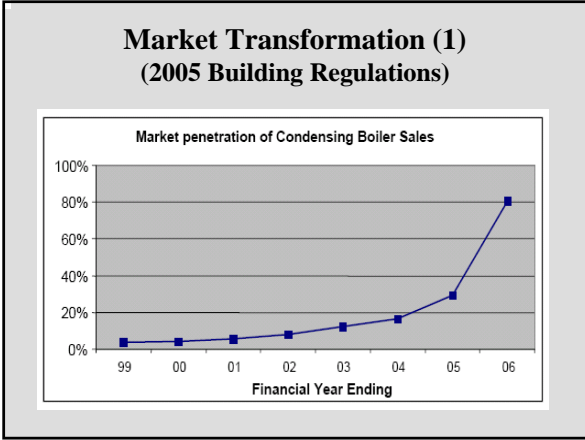
Raw materials	9
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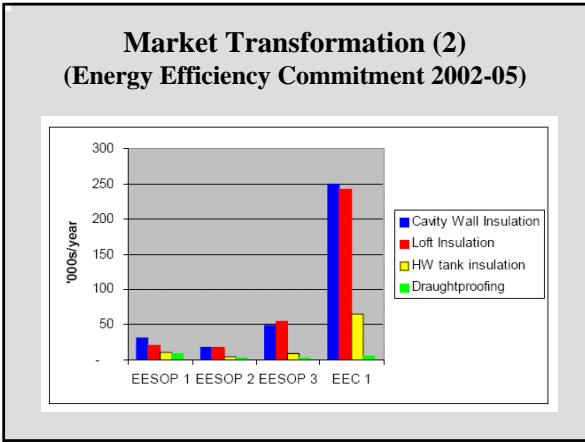
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Evolution of energy intensity (bottom), implicit tax rate on energy (top) and on labour (middle) in EU-15, 1995-2002

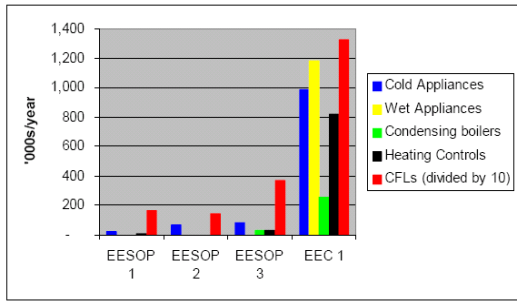




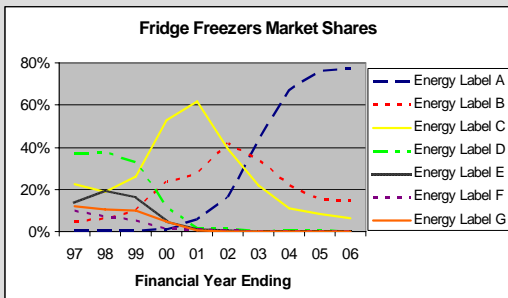




Market Transformation (3) (Energy Efficiency Commitment 2002-05)



Market Transformation (4) (Energy Labels)



Market Transformation (5) Key factors

- EU energy labelling
- EU Minimum Performance Standards
- Marketing campaigns by the Government and its agencies, like the Energy Saving Trust
- Consumer advice from the Energy Efficiency Advice Centres
- Media coverage on climate change
- Retail staff training and point of sale material from the Energy Saving Trust
- Energy Efficiency Recommended branding and advertising
- EESOP and EEC funding for incentives for consumers to purchase the energy-efficient models
- Uplift factor (and extra incentive) in EEC1 to encourage market transformation



(Extended) Producer Responsibility (EPR)

- Priority Waste Streams (PWS) (from perspective of sustainable development, preventive and precautionary action and shared responsibility):
 - Packaging of all kinds, used tyres, end-of-life vehicles, healthcare waste, construction and demolition waste and waste from electrical and electronic equipment (WEEE)
- EPR:
 - Companies are financially or physically responsible for their products after their useful life – move from goods to services
 - Companies must take back spent products and manage them through reuse, recycling, or remanufacturing, or delegate this responsibility to a third party, a so-called producer responsibility organization (PRO)
 - Schemes are strategically focused on the post-consumer phase of products; producers have physical and/or financial responsibility for product waste management; target quotas for waste reduction and recycling.
- EU Directives on packaging, ELVs, WEEE



Role of traditional lifestyles and cultural values

- **Sustainable use of natural resources:** common property institutions
- **Sustainable agriculture:** integration of economics, environment, health, traditional varieties
- **Frugality:** religious and cultural traditions
- **Sustainable design:** appropriate for natural conditions
- A code of practice covering the collection of WEEE from DCFs;
- **New crafts and old habits** to utilise ‘waste’ resources



Sustainable consumption policy and households: a difficult focus

- Households very numerous – regulatory enforcement difficult
- Households very heterogeneous – one-size-fits-all inappropriate/unfair for some, but difficult to discriminate between households
- Data on households difficult to collect
- Limits to individual choice (infrastructure, product design)
- Households resistant to information (lack of trust in government messages)
- Households resistant to (eco)taxes
- Households vote



General Conclusions (1)

- AP region as global production centre with 'Western' model of development will experience resource constraints and very high environmental impacts. Pollution control and the encouragement of eco-efficiency will have to be more determined if such effects are to be avoided.
- A new complementarity, and mutual reinforcement, between environmental policy and the market dynamics that drive innovation are required.
- Eco-innovation will be required in all areas of production and consumption, and in infrastructure provision. All four kinds of environmental policy (regulation, economic instruments, voluntary agreements and information provision) will be required to deliver this, often in 'policy packages'.



General Conclusions (2)

- Infrastructure is key to reducing long-term environmental impacts. Even environmentally motivated people find it hard to change lifestyles without appropriate infrastructural support.
- Transport infrastructure is an especially important area of decision-making. If the AP region becomes as car-dependent as the old industrial countries, which is inevitable unless it invests seriously in rail and bus infrastructure, global oil supplies and prices would soon make such dependence unviable even if there were no considerations of climate change to be taken into account.



General Conclusions: Households

- It is especially difficult to reduce the resource use and environmental impacts of households, especially in the particularly problematic areas of home energy use, food provision, personal transport and tourism. These areas particularly will require government to:
 - Provide information in new and attractive ways (e.g. meters for energy and water),
 - Mandate the design of environmentally sustainable products (e.g. homes, cars, electronic goods)
 - Ensure that price signals steer people towards these products and away from environmentally unsustainable behaviours
 - Set a good example through its own procurement and provision of public goods and services (e.g. in schools and hospitals)
- Individuals need the support of civil society, both in terms of informal civil society groups and local government, in order to affirm the legitimacy and value of environmentally sustainable lifestyles. Rediscovery of some traditional value systems may help with this.
- Many people in low-income countries need to substantially *increase* their use of resources of all kinds in order to live decent and fulfilling lives.





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Green Tax and Budget Reform (GTBR)

- Green taxes are levied on resource use or polluting environmental emissions
- For maximum effectiveness they should be levied as close to the resource use/emissions as possible (e.g. SO₂/CO₂ not energy)
- Revenues from green taxes allow other taxes to be reduced – revenue neutrality



Economic and environmental effects of GTBR

- Green taxes reduce environmental resource use
- Green taxes achieve environmental improvement at least cost by promoting
 - Static efficiency (equal abatement cost)
 - Dynamic efficiency (incentives for innovation)
 - Awareness of inefficient resource use
 - Abatement technologies can lead to new industries
- Reduction of other distorting taxes leads to increased output/reduced cost of abatement
- If innovation, awareness, industrial effects and reduced distortions are greater than abatement costs, then environmental improvement can be achieved at net gain to the economy – green economic growth



Difficulties with introducing green taxes/GTBR

- People have got used to cheap natural resources
- People do not believe that taxes will be reduced – think GTBR is net tax increase
- Winners and losers among firms – losers shout loudest about lost competitiveness, winners say nothing

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Experience with GTBR to date

- Limited reforms largely restricted to North European countries
- No evidence of any adverse economic effects
- Clear evidence of environmental improvement
- Theoretical and evidence-based arguments for their introduction

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Conclusions on GTBR

- In market economies any kind of reform is nearly impossible if it is working against market signals
- GTBR not only works with market signals, it achieves environmental improvement at least abatement cost and with most chance of economic benefit
- GTBR is environmental policy with best chance to achieve green growth

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