

Low carbon cities and behavioral change

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National Institute for
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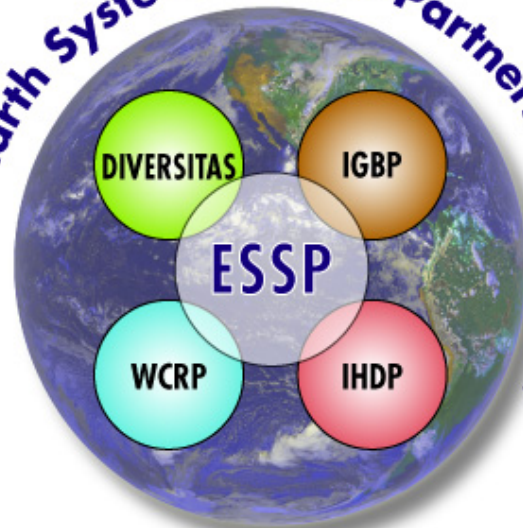
www.nies.go.jp

International Scientific Programs on Global Environmental Change Science



Amsterdam Declaration of 2001

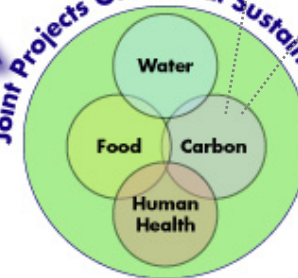
Earth System Science Partnership



International offices
NIES, Tsukuba
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Joint Projects On Global Sustainability

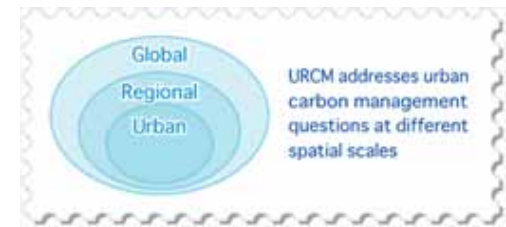
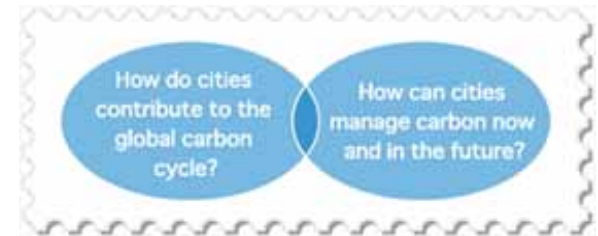


Urban and
Regional
carbon
Management
Initiative

ESSP 2006 Beijing Conference

Urban and Regional Carbon Management Initiative

- Mexico City Conference in September 2006
- Thematic workshops
 - Institutional dimensions (with IHDP) on 5th December 2006 in Bali
 - Urbanization and urban development pathways (with IIASA) on 28-30th March 2007 in Tsukuba
- Science Policy interfacing
 - UNFCCC COP-12 side-event (with ECN Policy Studies Netherlands) on 15th November 2006 in Nairobi
 - UNFCCC COP-13 side-event (with Asian Institute of Technology) on 6th December 2007 in Bali
- Urban energy-emission modeling
 - A workshop on modeling low-carbon society (with Asia Energy-Environment Modeling Forum) on 30-31 May 2007 in Beijing
 - A symposium and workshop on urban carbon modeling on Feb 4-6, 2008 at Bangkok.



“Carbon Neutral Event”

***International Symposium on
Urban Energy and Carbon Management: Challenges for
Science and Policy***

February 4, 2008, AIT Centre, Pathumthani, Thailand

***International Workshop on
Urban Energy and Carbon Modeling***

February 5-6, 2008, AIT Centre, Pathumthani, Thailand



National Institute for Environmental Studies

"The Nation" 5 Feb 2008 Thailand

Cities seen as key to curbing climate change

■ *Danielle Kirk
The Nation*

THE CLIMATE debate needs to shift its focus to cities, according to environmental experts meeting at the Asian Institute of Technology.

With urban areas using a large share of the world's energy, urban policy makers need to concentrate on saving energy and cutting carbon emissions, according to Dr Shobhakar Dhakal of the Global Carbon Project, an initiative to grow and share research in the field of urban energy and carbon management.

"We estimate that urban areas contribute between 70 to 80 per cent of global carbon dioxide emissions, and yet they are not the focus of the climate debate," Dr Dhakal said.

"By 2030, 1.6 billion people will move to cities and 1.1 billion of those will be in Asia

alone," said Dr Dhakal. "The scale of population is so huge that efficiency alone is not going to solve our problem."

"There needs to be better understanding and coordination from science and policy to re-orient cities towards low carbon pathways."

Dr Dhakal was speaking at the recent International Symposium on Urban Energy and Carbon Management, a meeting of global researchers of urban energy and carbon modelling to discuss findings and share policy development trends.

Balancing environmental care with economic growth was particularly complicated in Asia, according to the director of the United Nations' Economic and Social Commission for Asia and the Pacific (UNESCAP), Rae Kwon-Chung.

"The Asia Pacific has the

most limited ecological carrying capacity, but we have to grow larger because we have a large population," Kwon-Chung said.

"We can't repeal the old paradigms - grow first, clean up later," he said. "We have to change to quality of growth based on ecological efficiency."

Ecological efficiency, he said, meant internalising ecological costs (for example through environmental taxation), maximising efficient resource use and minimising pollution.

Kwon-Chung said to make Asian cities more efficient, governments had to focus on controlling consumer demands, which could be done through ecological tax reforms.

Under this policy, which has been implemented in countries like Sweden and the United Kingdom, the amount of tax burden and revenue remains

the same but consumers pay less income tax and more pollution tax.

"This tax model has a double dividend - economic growth and environmental care," he said.

"Many people think if we have enough money, we can solve the problem. I disagree. It's not a matter of money - it's a matter of concept, of paradigm."

AIT Professor Ram M Shrestha highlighted concrete options for optimising urban carbon use through using emerging transport technology and managing transport demand.

"Tax incentives need to be given to people for buying environmentally-friendly vehicles, like hybrid cars, and for moving from private to public transport," said Prof Shrestha, an expert in the fields of energy and climate change.

He said while Thailand's public transport system was a good start, it needed to be expanded.

"In Bangkok we need to encourage people to use public transport, because now they can only take public transport part of the way and have to switch to taxis," he said.

"It took so long to construct the MRT. I'm glad we have it, but commuters need to be able to use it."

Prof Shrestha said while reducing carbon was an important goal, other environmental impacts of cars powered by alternative fuels, such as sulphur emissions, needed to be considered.

Other areas discussed included the need to shift responsibility for carbon management to multi-level rather than municipal governments, and ways to optimise city design.

The global “urban” challenge

- Present:
 - ~ 50% urban population, activities in cities generate large share of global GDP, consume a significant share of commercial energy and emit a large share of global CO2 emissions
- Next 3 decades:
 - CO2 per capita in cities of developed countries already high and will resist to decline
 - 1.8 billion added urban population in next 25 years mostly in developing countries where rate of energy/carbon growth will be at highest

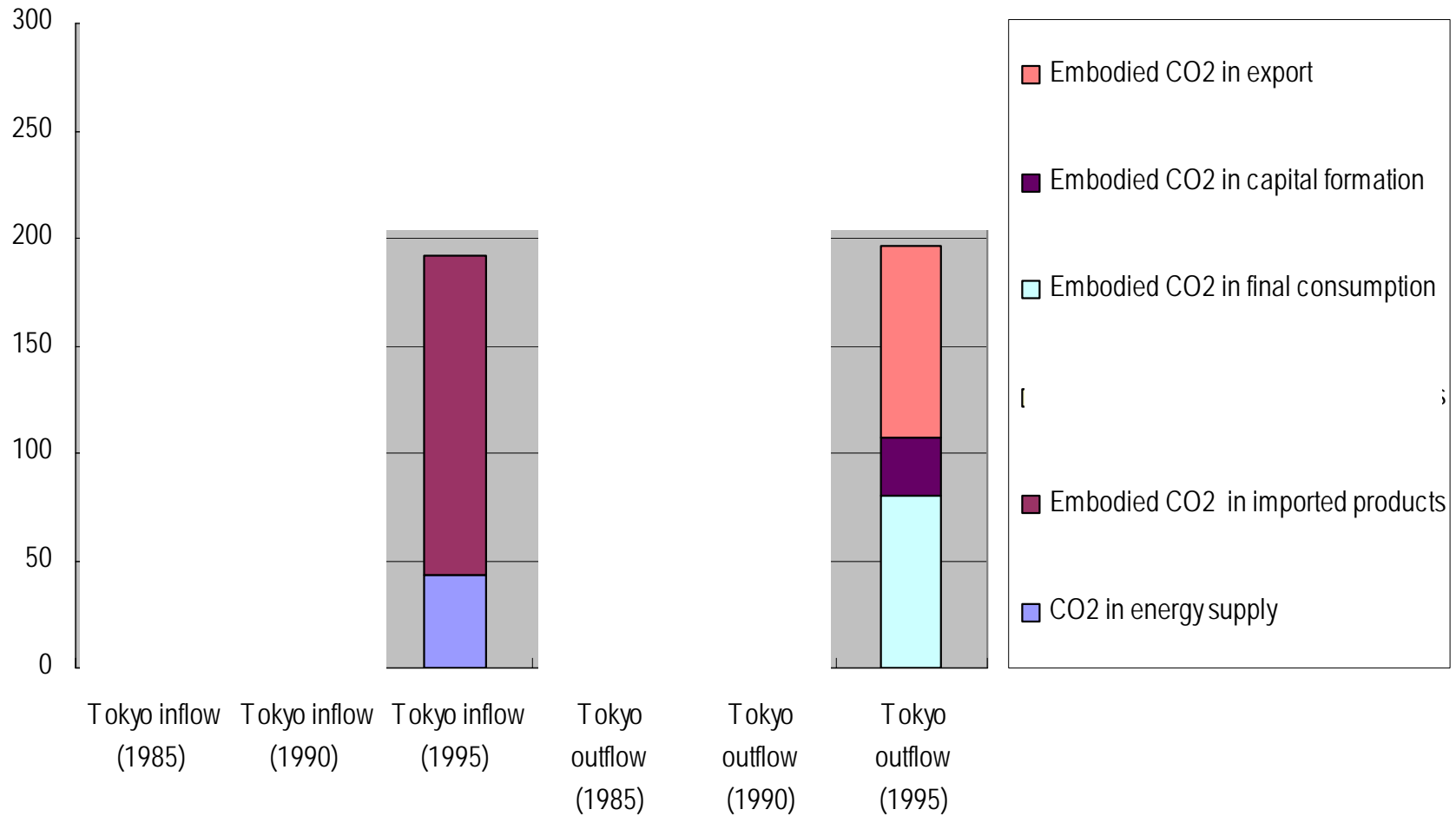
Scientific and policy response to urban energy and carbon challenges has been inadequate

- Importance is well realized but not pursued
- Energy and carbon related research as well as existing policies have largely ignored “urban” as a unit of concern or analyses
- Reductionst approach-
 - Tackling the individual pieces (sectors or fuels)
 - No attentions to higher order “urban system integration” and potentials for optimization that are needed for “deep cut”
- Lack of mechanism to collect and develop information base at urban scale
- Weaker knowledge on linkages of past urban development pathways and carbon, and unclear visions of future urban carbon scenarios and pathways

Individual behavior matters.....

- Energy saving
 - Less material consumption
 - Public transport over private transport
 - Choice of how we like to live in physical space
-
- Do we really know what shapes our environmental behavior? A Nobel Prize question

CO₂ Balance, million t-CO₂ (2)



Carbon footprint: 4.44 for 1995

Limitation of current debate on behavioral change towards low carbon cities

- Unclear vision of low carbon city in next 100 year – that solely depend on our envisioned behavior
- Our discussion focus on Incremental change !!
Conventional way is not sufficient
- Behavioral change discussions are often technology dominated, price-tagged and top down and lacks psychology, various attributes of personal choice associated with individuals' irrationalities to price signals
- Behavior change process in cities will not be linear – there will be surprises, critical mass effect, and tipping points
- Behavioral shift and levers for change has to be dramatically different in post-modern nations and developing nations (generality vs. specificity)

Who to lead towards change?

- Current urban carbon management debate is largely municipal-centric which is “necessary” but not “sufficient”
 - Can influence only a small fraction of emissions from “city” even in developed countries
 - Cannot really address emissions from “city” in developing countries
- Who to lead towards low carbon cities?
 - Government at multiple levels are key actor
 - Local, state, national government educating people and setting operational framework (education, technology, economics and regulation)
 - Role of non-governmental actors
 - Business: shaping choice, provide alternatives and promoting green business
 - Citizen groups: campaign to make rational choices
 - Media: educate and inform public; put political pressure
 - Multi-scale governance is required based on who have what wedge of policy influence – national government needs to play their role and should be engaged in urban carbon management debate globally

No silver bullets !!

- Behavioral change is long process not well understood...but we need to start acting now
- Best first steps for behavioral change:
 - Shaping and framing the problem in relevance to society in-large addressing not “symptoms” but “underlying drivers”
 - Engage the public to know their visions for acceptable low carbon city scenario
 - Try with various price signals and test with various easy-to-do carbon friendly infrastructure that avoid “lock-in”
 - Is level of price that can affect behavior acceptable?
 - Political championship by developed world for speedy change and giving momentum