Title: Climate Co-benefits in Urban Areas
Date and time: 18 November 10:30am-11:30am
Venue: Japan Pavillion (Level 1 - D4)

Climate Co-Benefits and Cities: Assessment Approach, Cases and Tools

Jose A. Puppim de Oliveira
Assistant Director & Senior Research Fellow
United Nations University Institute of Advanced Studies (UNU-IAS)
Yokohama, Japan

UNITED NATIONS UNIVERSITY
UNU-IAS
Institute of Advanced Studies

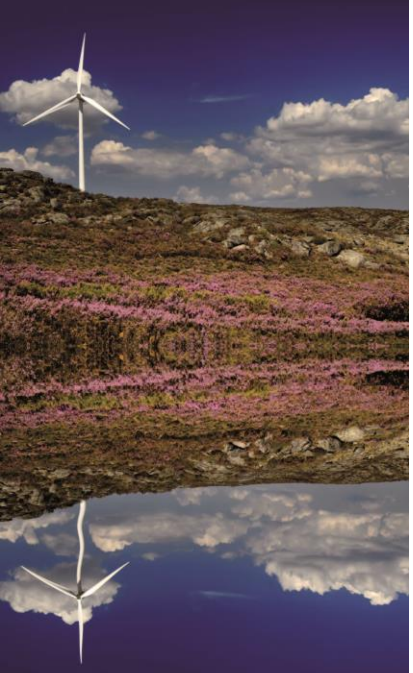
UNITED NATIONS UNIVERSITY
ACADEMIC ARM OF THE UNITED NATIONS

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

UNITED NATIONS UNIVERSITY

ACADEMIC ARM OF THE UNITED NATIONS

The UN University System

UNU-CRIS
[regional integration]
UNU-EHS
[environment & human security]
UNU-FLORES
[material fluxes & resources]
UNU-IAS
[advanced studies]

UNU-IIAOC
[alliance of civilizations]
UNU-IIGH
[global health]
UNU-IIST
[software technology]
UNU-INRA
[Africa's natural resources]

UNU-INWEH
[water, environment, health]
UNU-ISP
[sustainability & peace]
UNU-MERIT
[society, economy, innovation]
UNU-WIDER
[development economics]

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

The Sustainable Urban Futures Programme

Cities, Local Governance and Global Environmental Challenges

The Urban Sustainability Nexus: Our Main Challenges and Key Questions

Urbanisation Processes

Urbanisation takes many forms including new developments like Minato Mirai21 in Yokohama and redevelopment in Shanghai

For global issues, local governments are motivated to free-riding in a global public good (as climate stability). *How can cities move their interests and actions/policies beyond the strictly narrow local interests/issues?*

The Earth viewed at night reveals a large and converging level of urbanisation

City or local organizations may not have the institutional capacity or the financial resources necessary to implement effective environmental policies. *How can cities create the institutional capacity to implement effective environmental policies with social inclusion?*

Bicycles have always been a common means of transport in Tokyo. Recently they are being re-introduced in many cities in the developed world.

Extensive use of rapid bus transit is being used in Bogota to help manage the city's congestion with plans to cover the metropolitan area of some 500km^2

Cities may be overloaded with other local demands, and environmental policy may be the down on the list of priorities. *What processes are important to make environmental issues a policy priority for a city?*

Sustainability Stresses

Developing Countries are urbanising at a fast pace with several positive and negative consequences to the population and the environment. *How can we make urbanisation more sustainable?*

Planners face many challenges across all levels of development. Basic services like potable water in Accra, Ghana, the pressure of space in historical cities like Istanbul, meanwhile rapidly expanding affluence more than matches Shanghai's growing infrastructure

Some Tokyo metropolitan residents travel a long distance every week to volunteer at Adachi district organic agriculture park, the only of a kind in the city.

The city of Kanazawa has made efforts to rediscover the original elements of nature in its urban area

Local Governance Solutions

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

UNU-IAS Policy Report

Urban Development with Climate Co-Benefits: Aligning Climate, Environmental and Other Development Goals in Cities

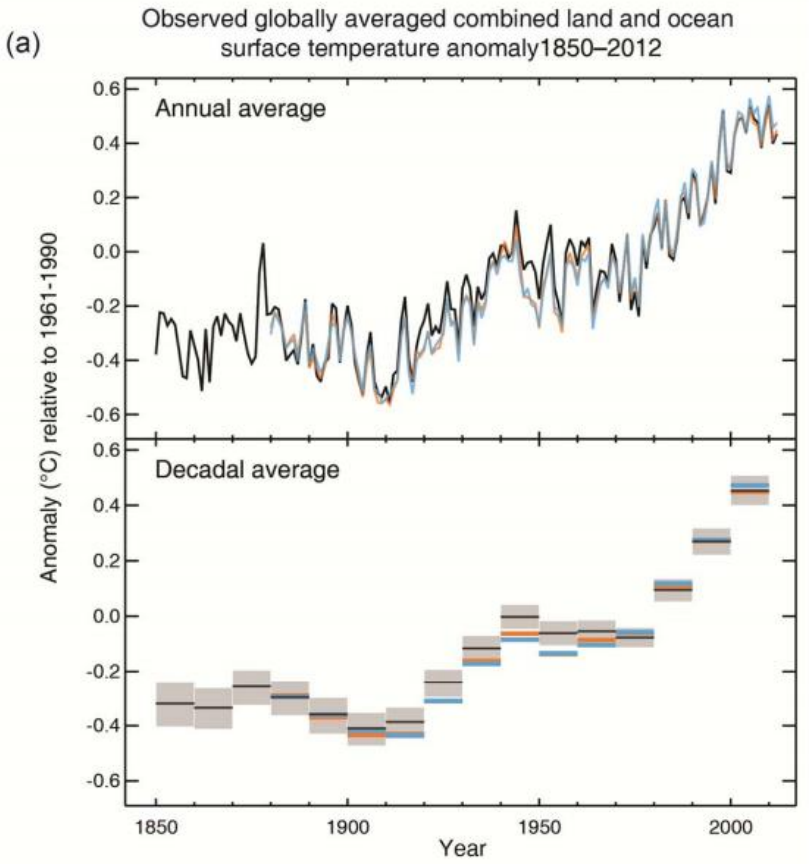
UNITED NATIONS UNIVERSITY

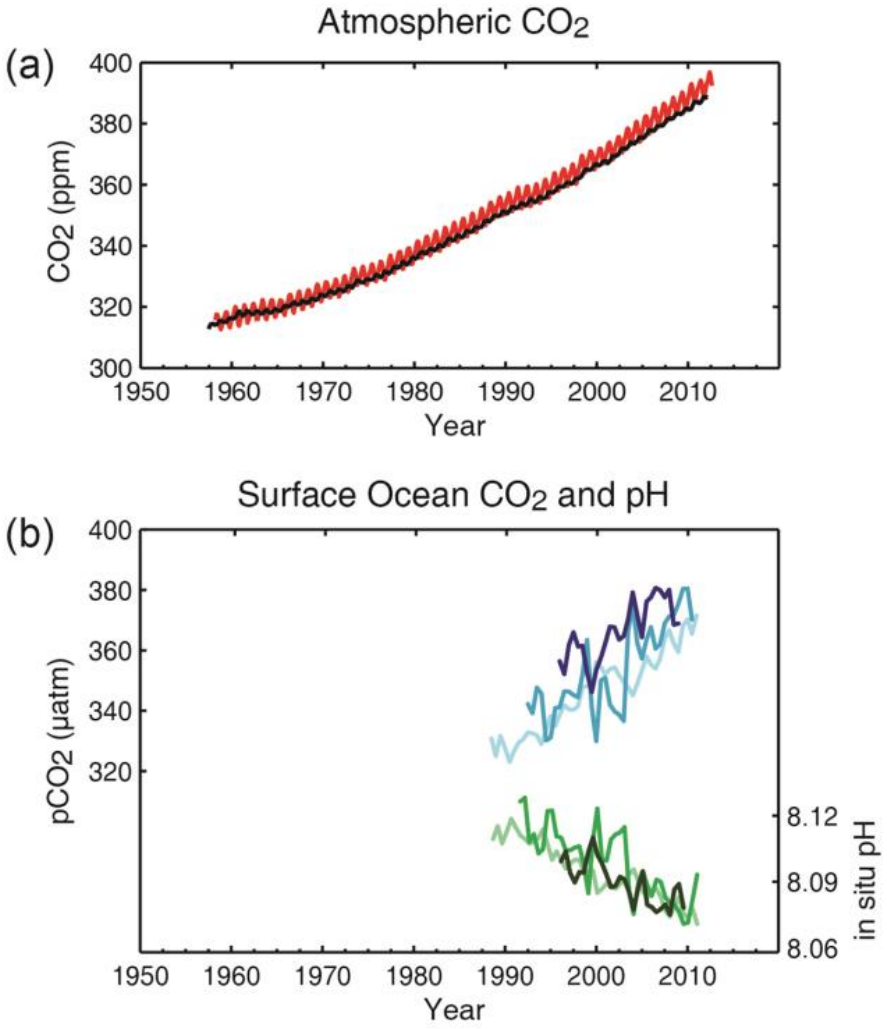
UNU-IAS

Institute of Advanced Studies

Key Messages of Urban Co-Benefits

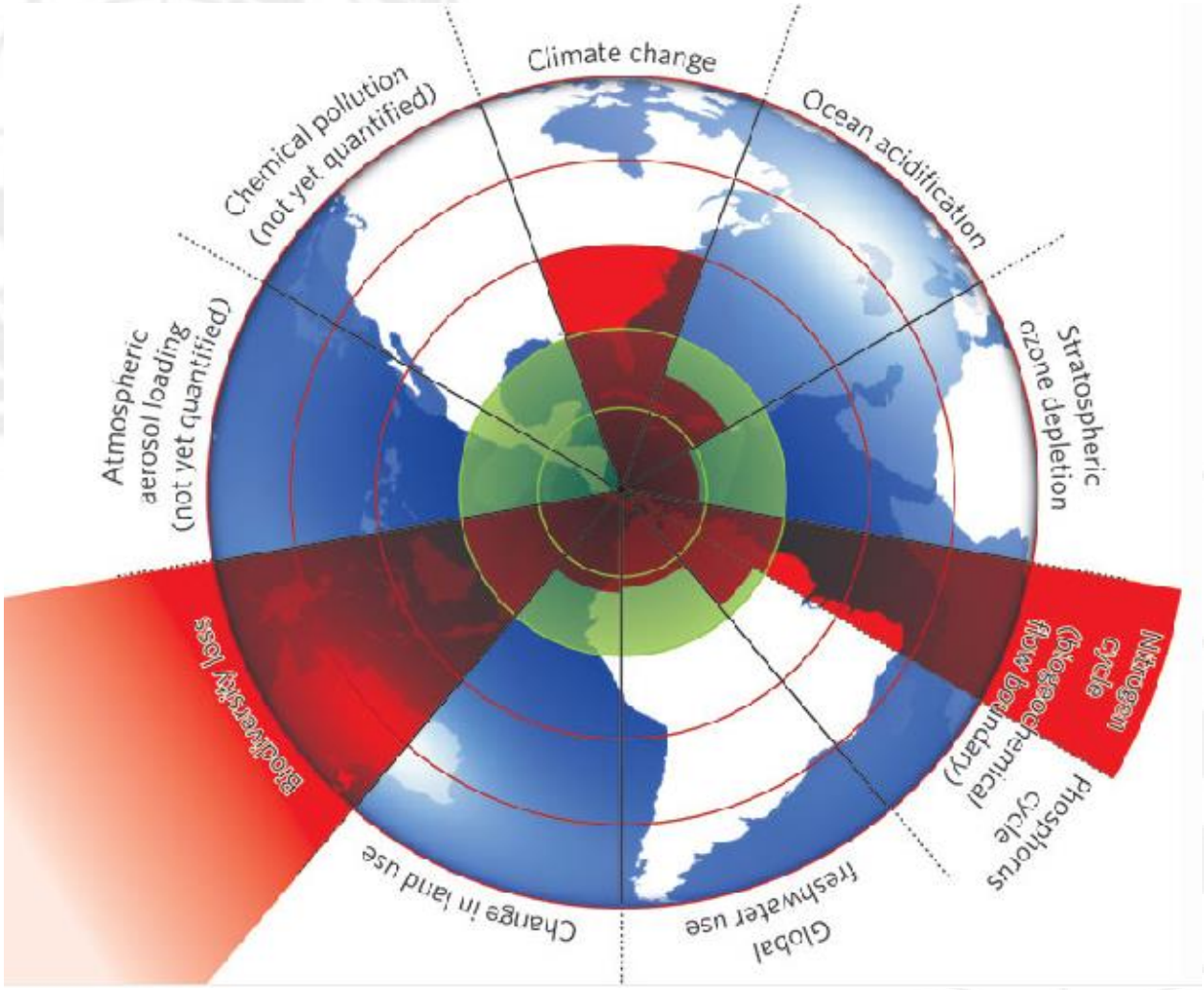
1) Goals: Sustainable Development
2) Links Global-Local
3) Importance of Cities
4) Concepts and Tools


(a)
Observed globally averaged combined land and ocean surface temperature anomaly1850–2012
Annual average
Decadal average
Anomaly (°C) relative to 1961-1990
Year
(b)
Observed change in average surface temperature 1901–2012
-0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1.0 1.25 1.5 1.75 2.5

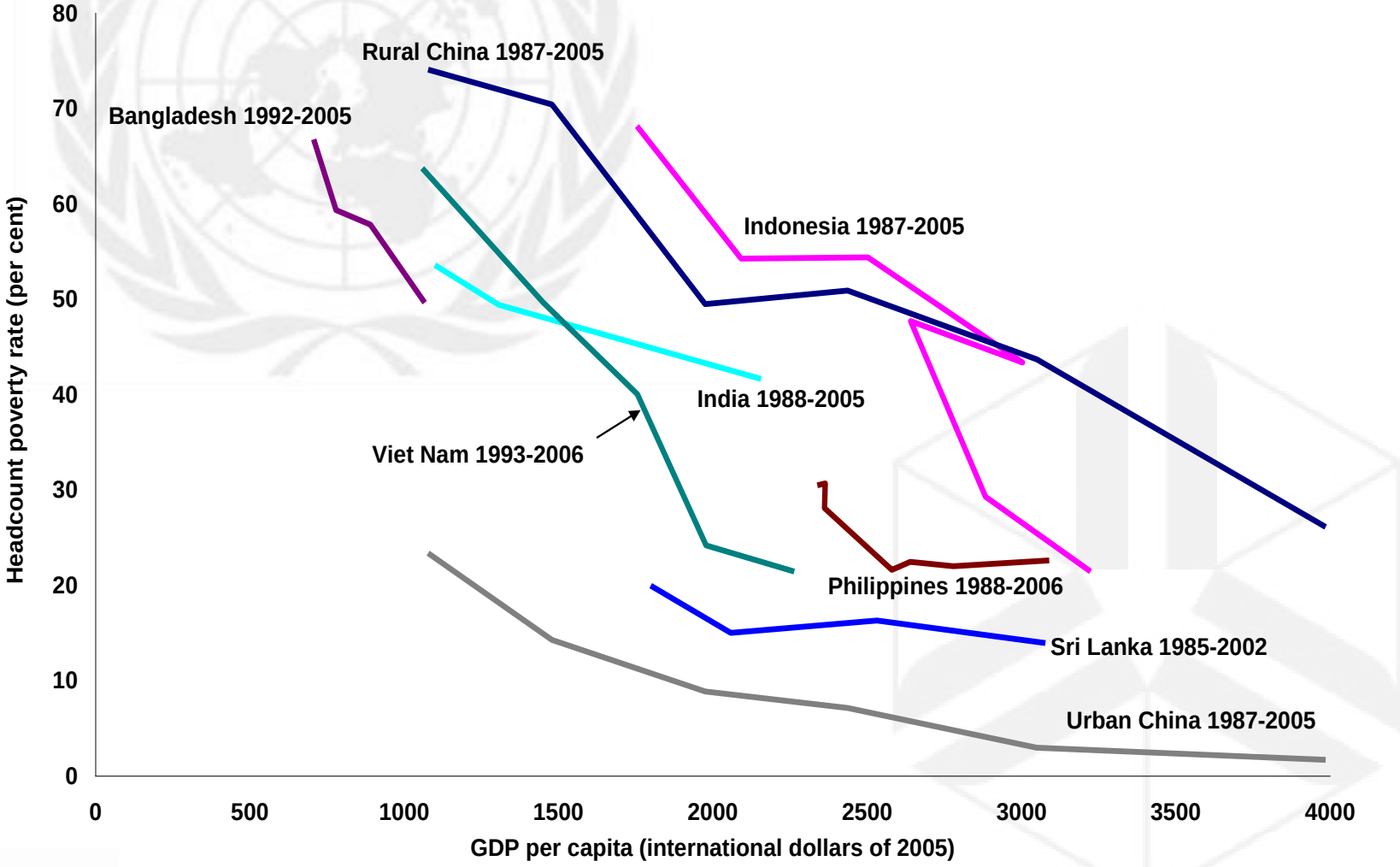

Atmospheric CO_2
(a)
CO_2 (ppm)
Year
Surface Ocean CO_2 and pH
(b)
pCO_2 (µatm)
in situ pH
Year

IPCC, 2013

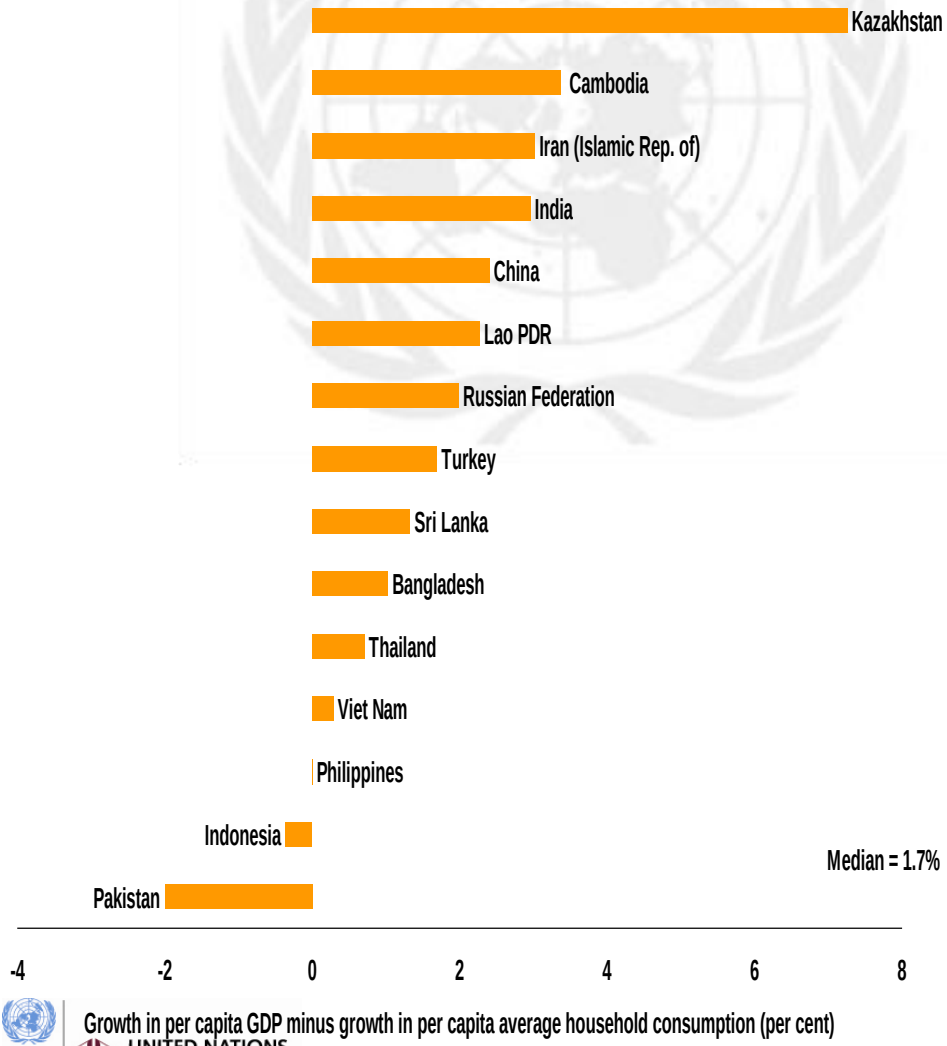
Planetary Boundaries

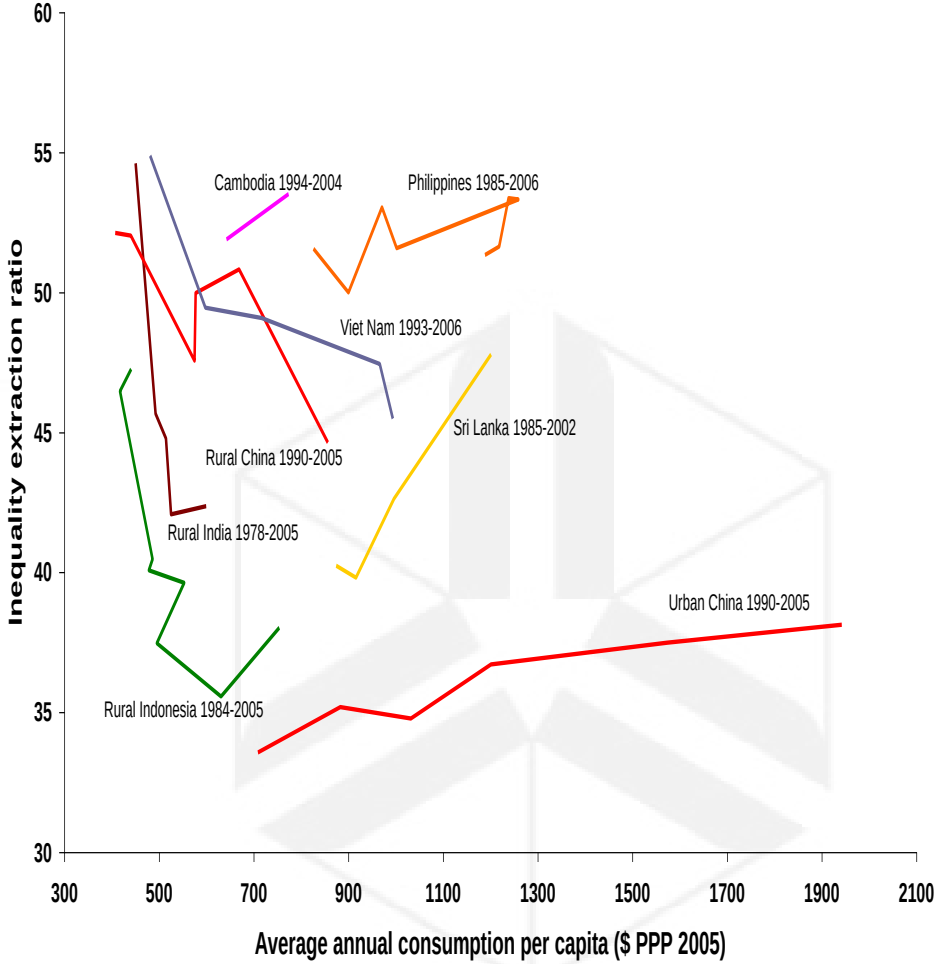


Asia: Economic growth impact on poverty reduction



But inequalities have risen





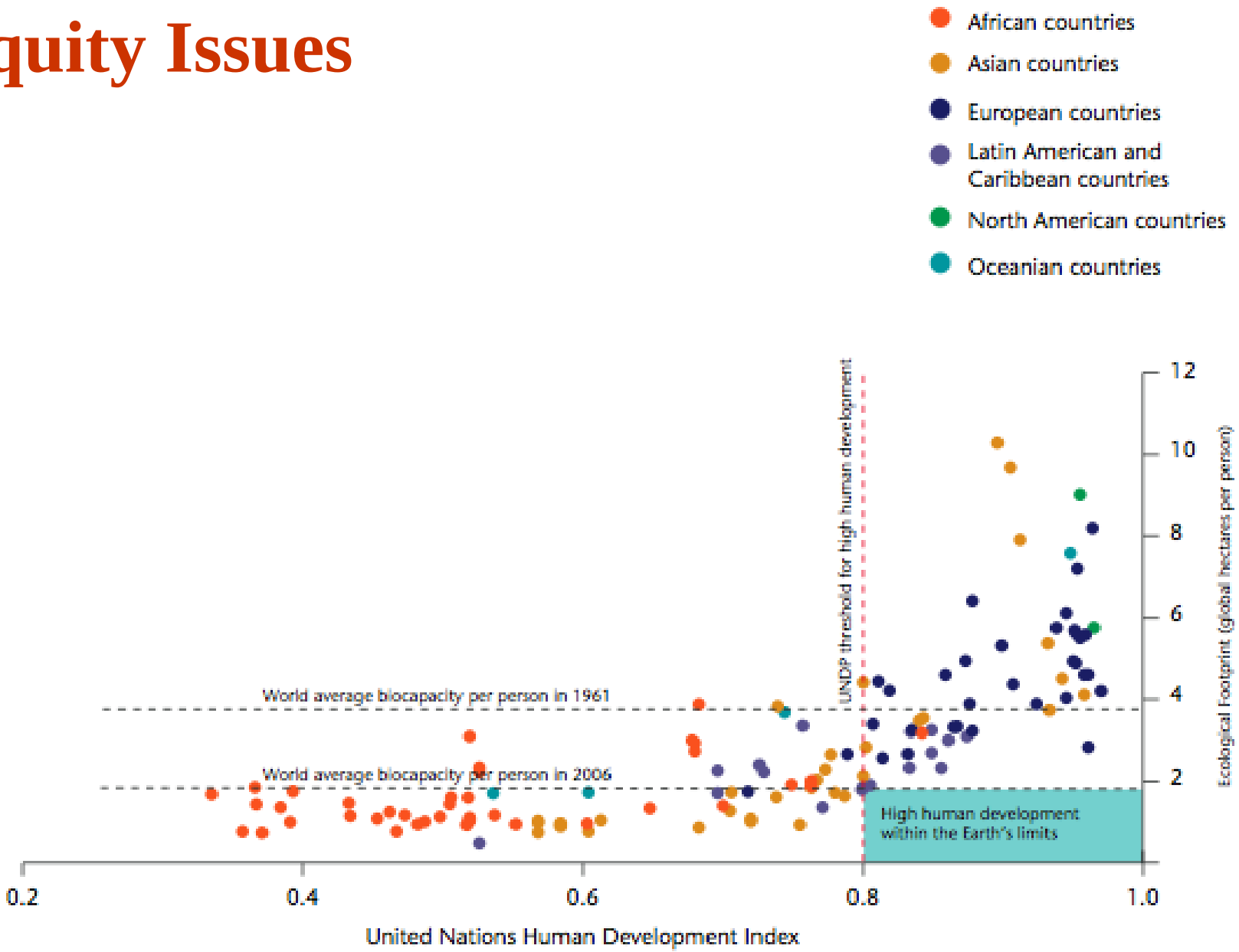
UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

ESCAP Economic and Social Survey 2011

Box 1.1: Meeting the dual goals of sustainability – High human development and low ecological impact

Equity Issues



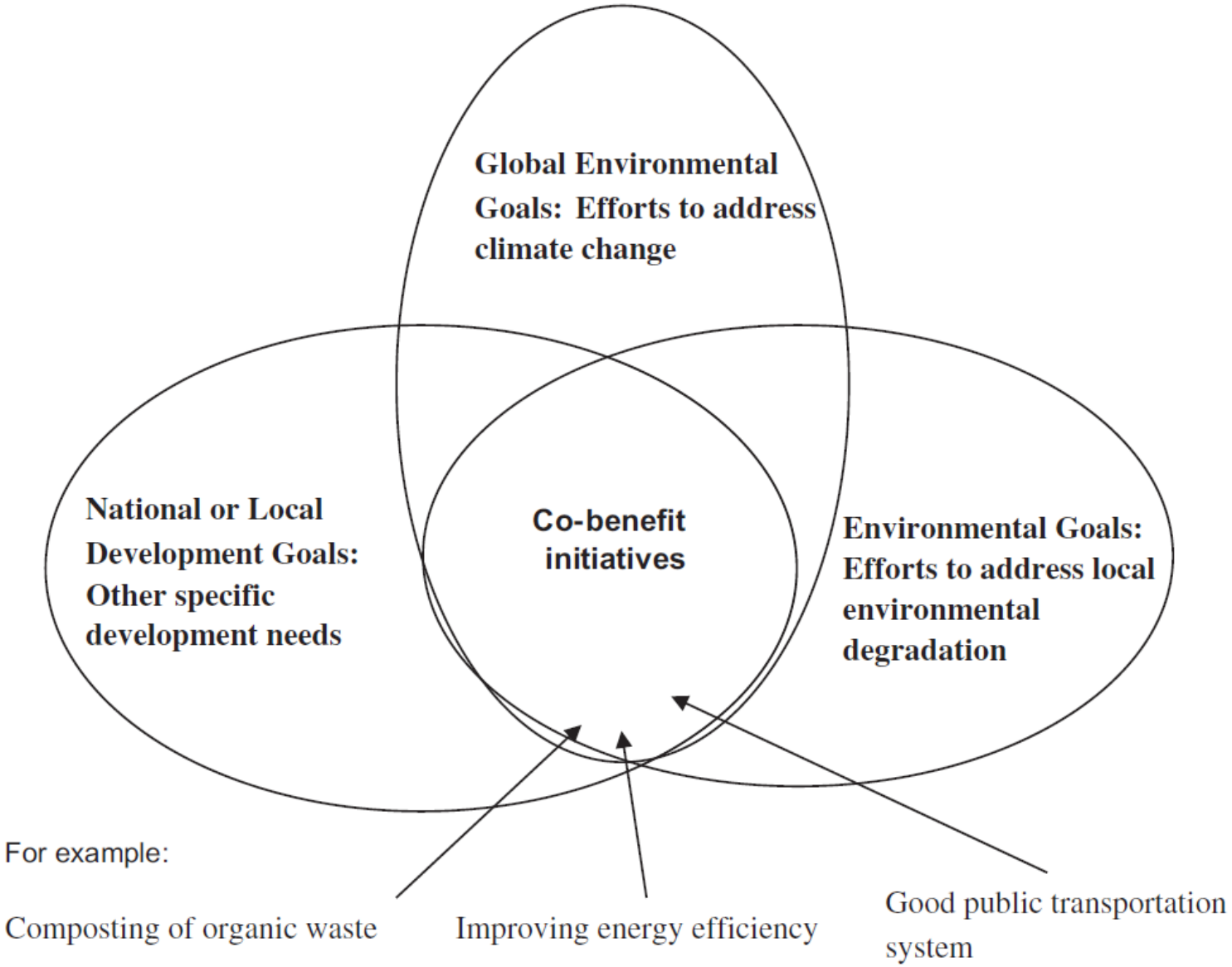
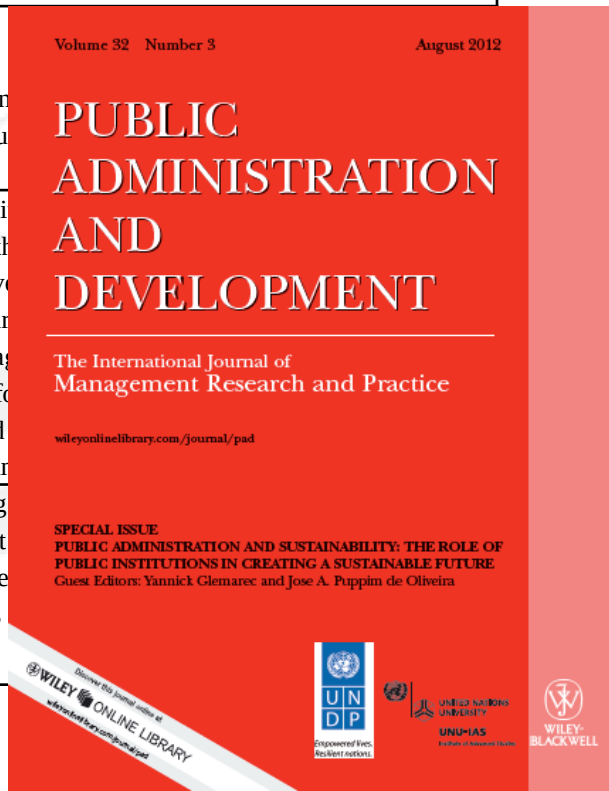


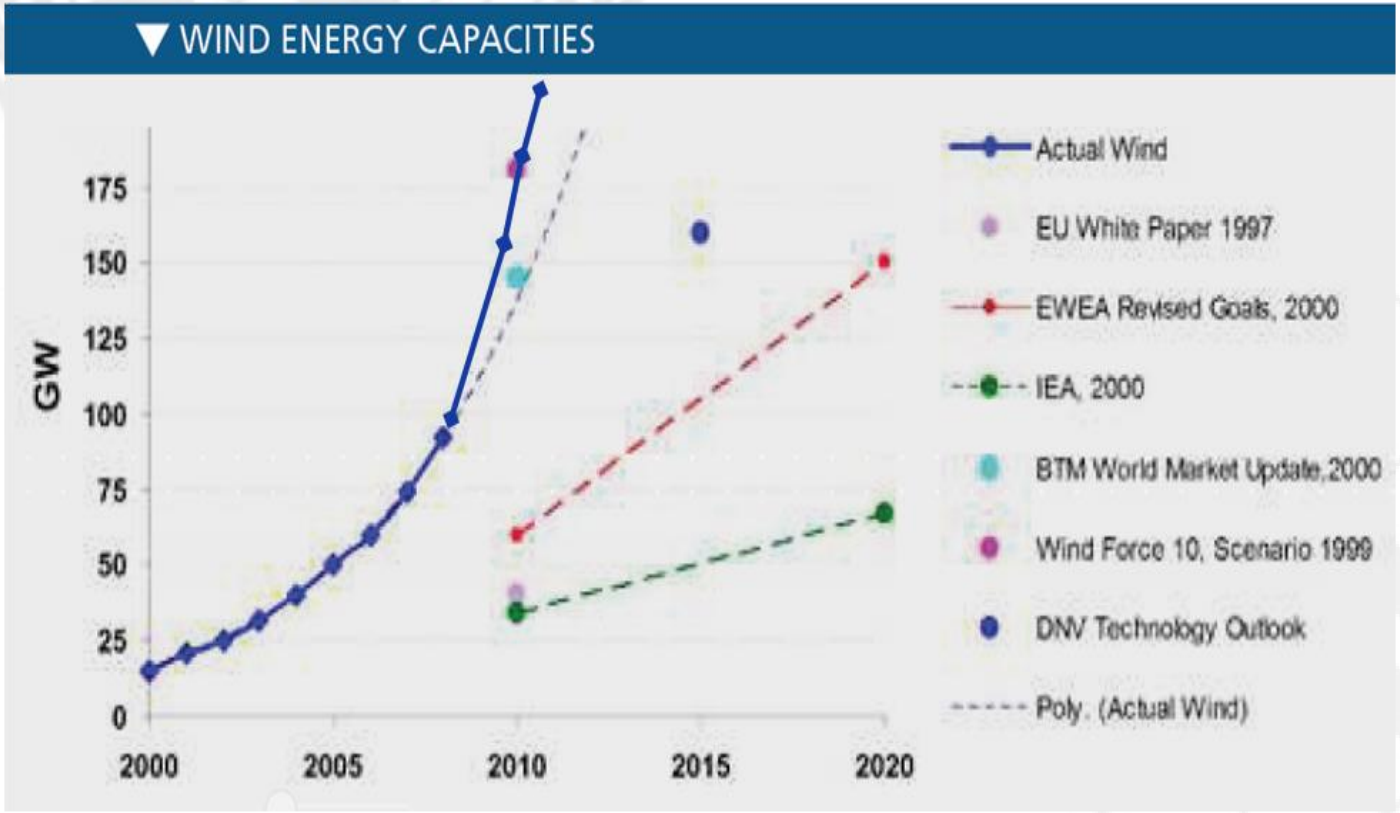
Fig. 1. Framework of co-benefits approach for cities utilized in the cases in this special volume.

Opportunities

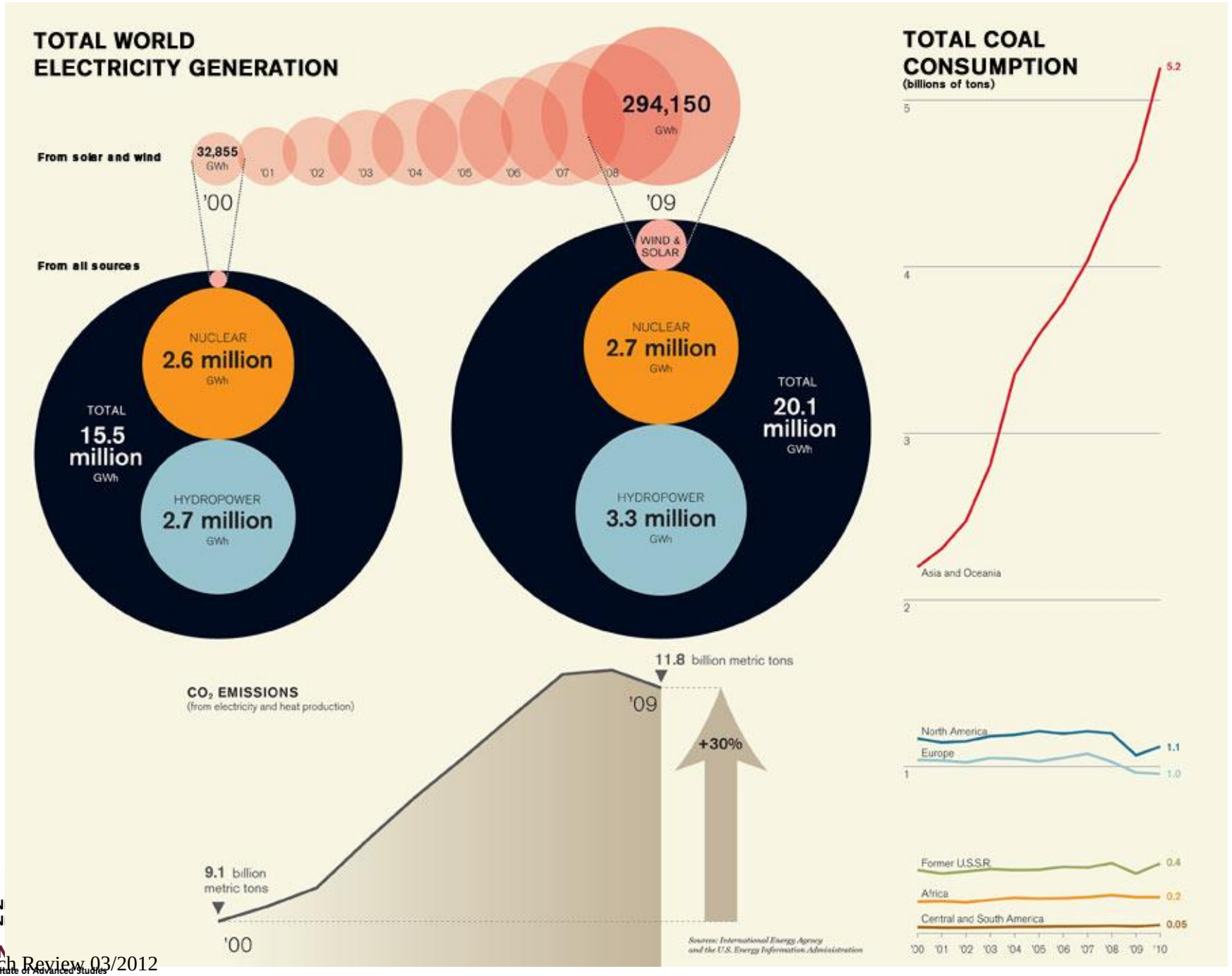
Green Markets	Market Description	Potential Multiple Wins
Inclusive, resilient green infrastructure	Roughly $6 trillion (about 10% of global GDP) is spent every year on infrastructure, which shapes future resource use patterns for decades). Infrastructure investment could reach$ 10 trillion by 2015.	Sound infrastructure can promote job creation, efficient use of resources and increase resilience to climate change.
Clean energy	The global energy bill for oil, electricity and natural gas amounts to about $5 trillion per year. Investment in clean energy amounted to $230 billion in 2011 and could reach $500 billion by 2020 .	1.3 billion people worldwide lack modern energy access, while 2.7 billion do not have clean and safe cooking facilities. Clean energy could: improve energy security; reduce energy bills; reduce local air pollution and associated health costs; provide affordable energy access for the poor; generate local employment and economic development; de-carbonize energy systems and reduce global climate change risks.
Waste management	An estimated 11.2 billion tonnes of solid wastes are collected worldwide each year, and decay of the organic portion is contributing to about 5% of global greenhouse gas emissions. The global waste market, from collection to recycling, is conservatively estimated at $410 billion per year.	Sustainable waste management could: increase energy an employment; and redu
Green commodities	Agricultural commodities account for 10% of developing countries' GDP. Food production will need to double by 2050. The present market for biodiversity-friendly commodities (e.g., certified coffee) is estimated at $60 billion/year and could exceed $200 billion/year by 2020.	Agricultural commodi of deforestation, with hectares of forest cov include: reduced natur biodiversity within a markets and income f change and increased gas emissions by comm
Tourism	The tourism industry represents about 5% of global GDP ($3 trillion). Global spending on ecotourism is increasing by 20 percent a year, about six times the industry-wide rate of growth, and could be as high as $240 billion in developing countries.	The greening improvement positive pove communities conservation



Glemarec and Puppim de Oliveira, 2012



(Source: Updated from DNV Technology Outlook 2020 [2011])



Source: Tech Review 03/2012

Linking Global and Local

PROBLEMS (Global):

- Cities and climate change: cities are affected by and coping with climate change
- Cities and Biodiversity: urbanization processes compete with ecosystems, looking at the institutional, economic and social dimensions

SOLUTIONS (Local):

- Local governance: local governance structures emerge and change, and how they affect the environment and development
- Old problems, new agendas for implementation: global environmental policy implementation more effective at the local level by integrating with other policies
- **Develop Tools to plan and implement changes**

The World Today: Cities

- Human population growing

(2011~ 7 bi, 1911~1.75 bi)

- More than half-of the world population live in cities
- Asia added 754 million people in cities between 1990-2010
- The trend will continue in the next decades

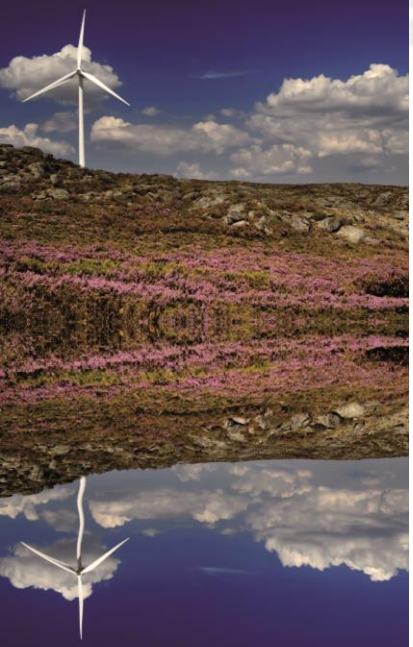
Scale of Cities' Impacts

- Local (within the city)
- Regional (in the immediate boundaries of the city)
- Global (in far away places).

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

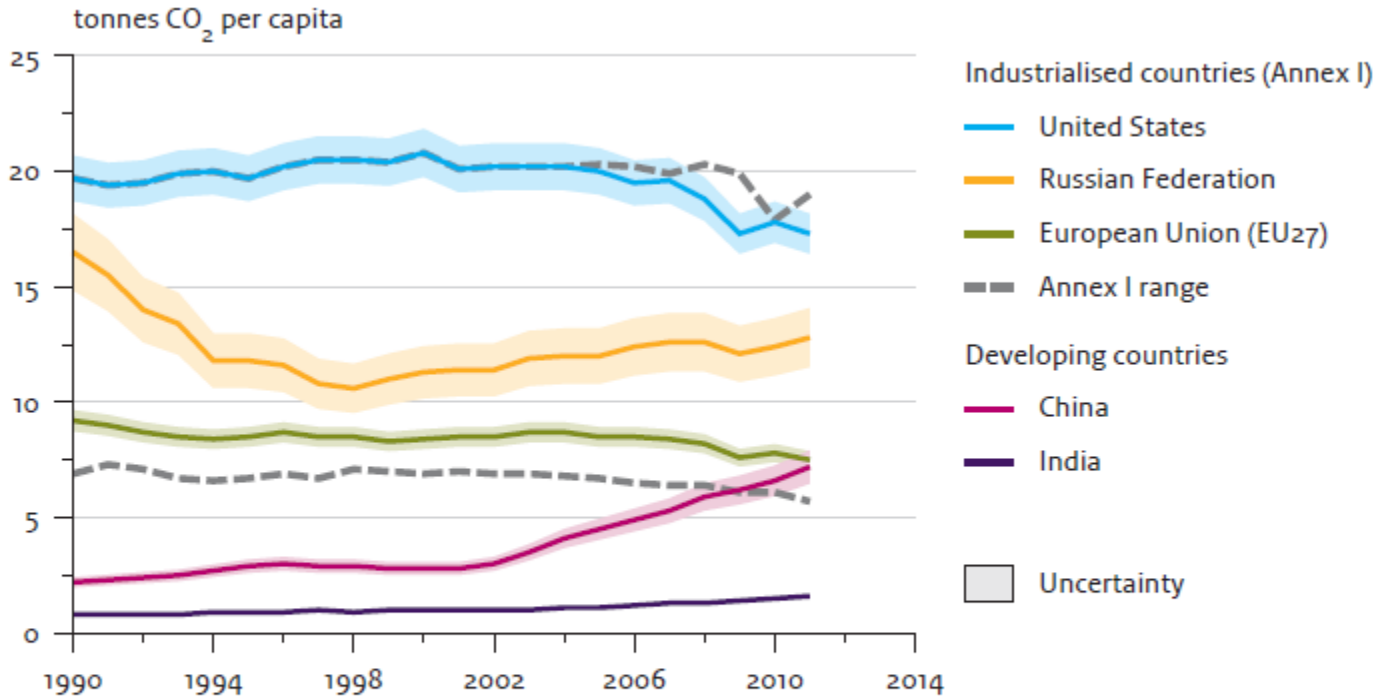
Cities, economy and environment

- The economic activities located in cities account for approximately 55% of GNP in least developed countries, 73% in middle income countries, and 85% in the most developed countries
- 75% of the global economic production takes place in cities
- 67% of total global energy consumption
- More than 70% of greenhouse gas emissions
- Challenges, but opportunities as cities concentrate in terms of knowledge, resources and social capital

Importance of Cities in Emerging Economies

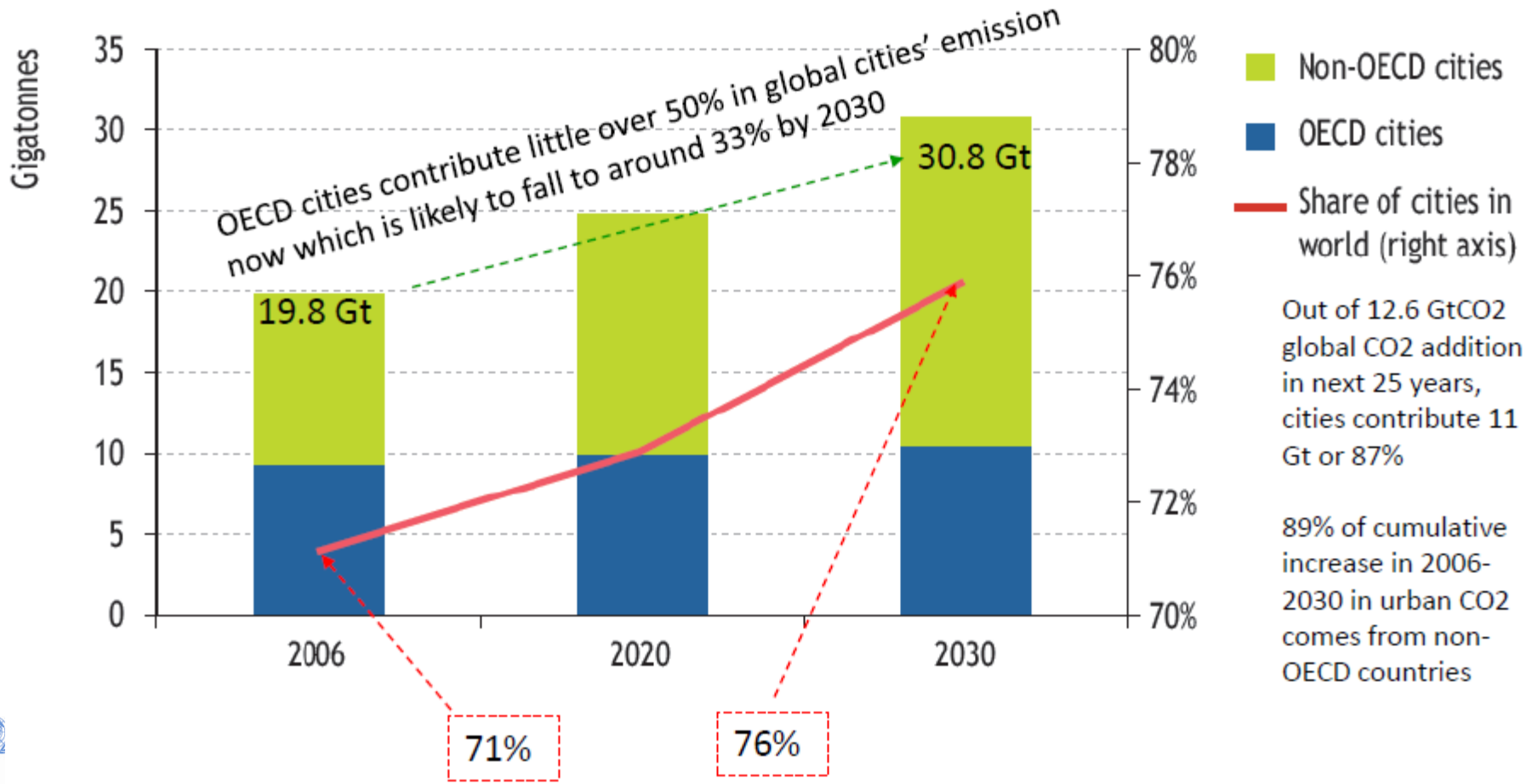
UNITED NATIONS UNIVERSITY
UNU-IAS
Institute of Advanced Studies

Per Capita Emissions



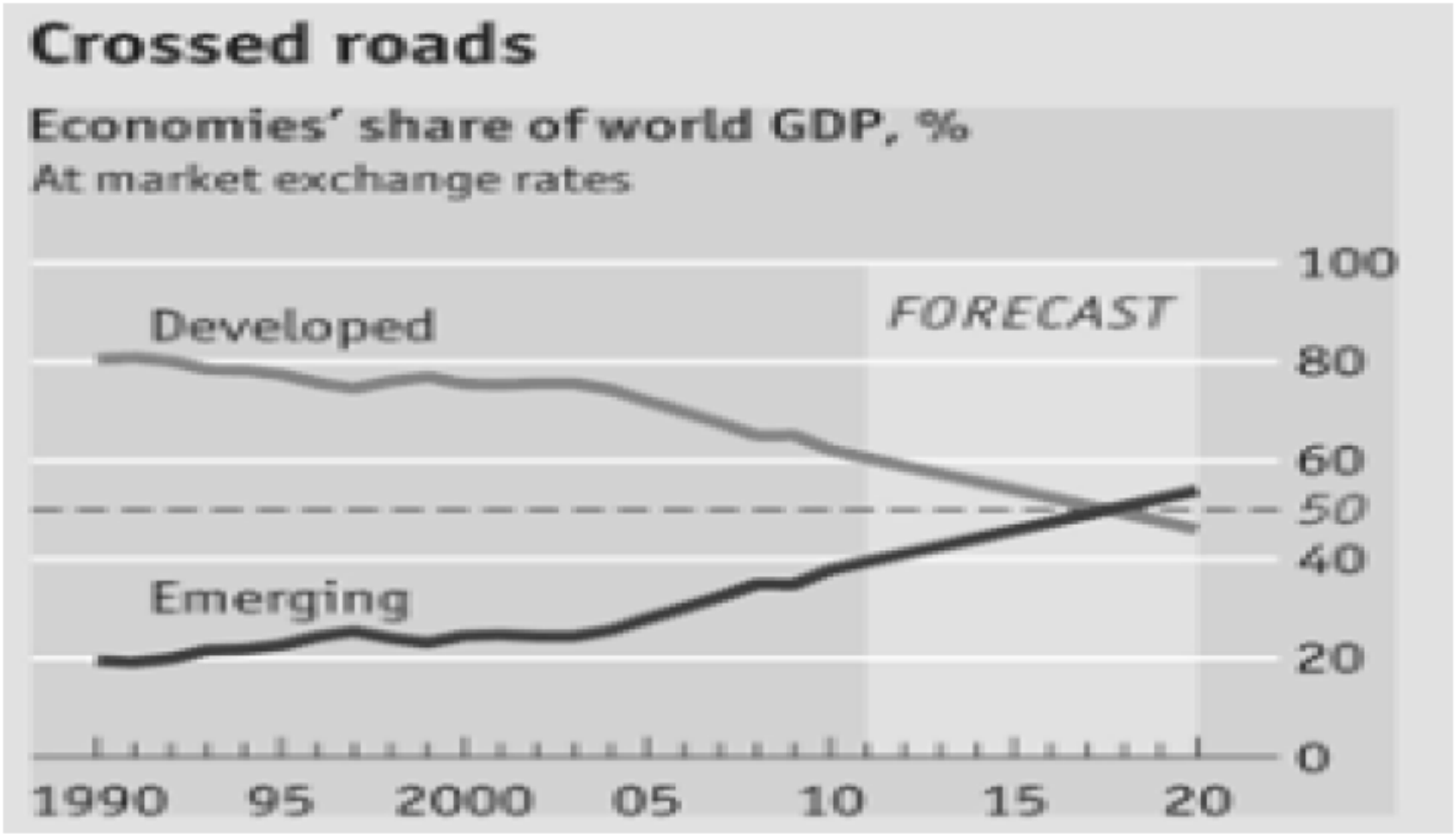
Source: EDGAR 4.2 (1970-2008); UNPD, 2010

CO_2 Emissions (Ref Scenario)



WEO, 2008

Emerging Economies



- 40% of GDP in 2010, twice than in 1990

Economy and Research in LDCs

- 25% of the largest 500 firms in Forbes list 2011 (4% in 1995)
- China and India will likely to become world powers in research being responsible for around 20% of the R&D in 2025 (European Commission, 2011)

Solution?

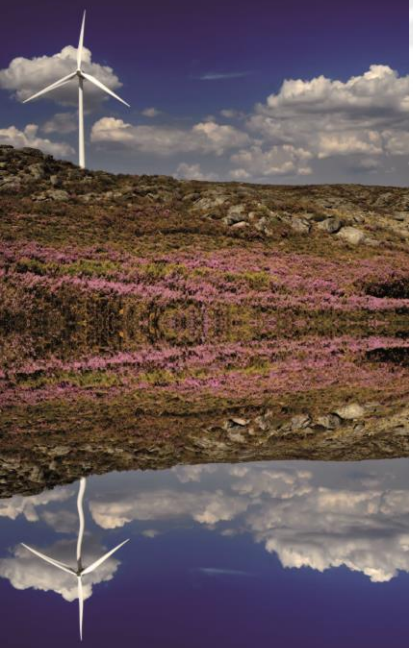
- The solution passes through the cities of emerging economies
- Others have to join as well
- How to solve the puzzle?

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development

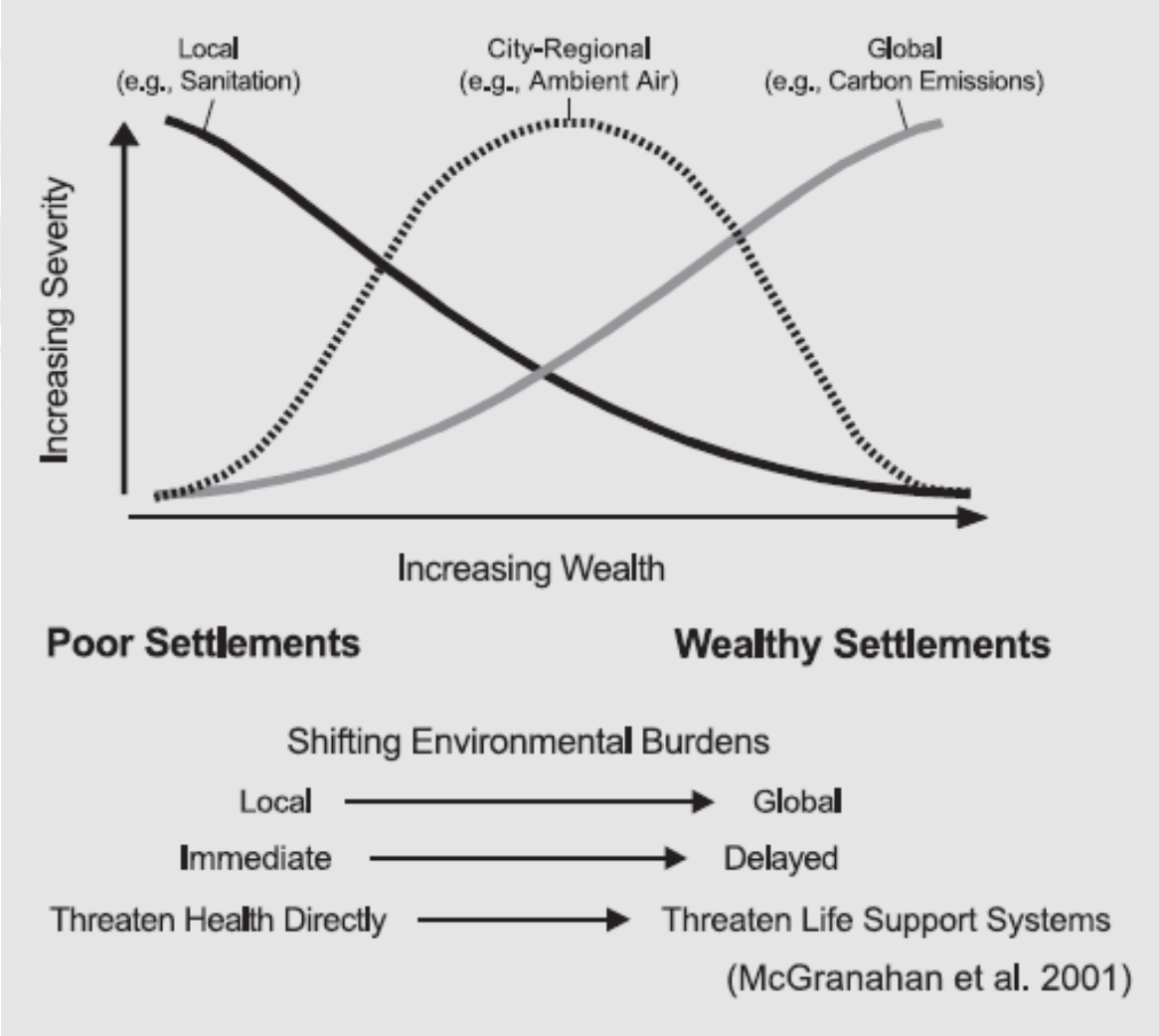


www.ias.unu.edu

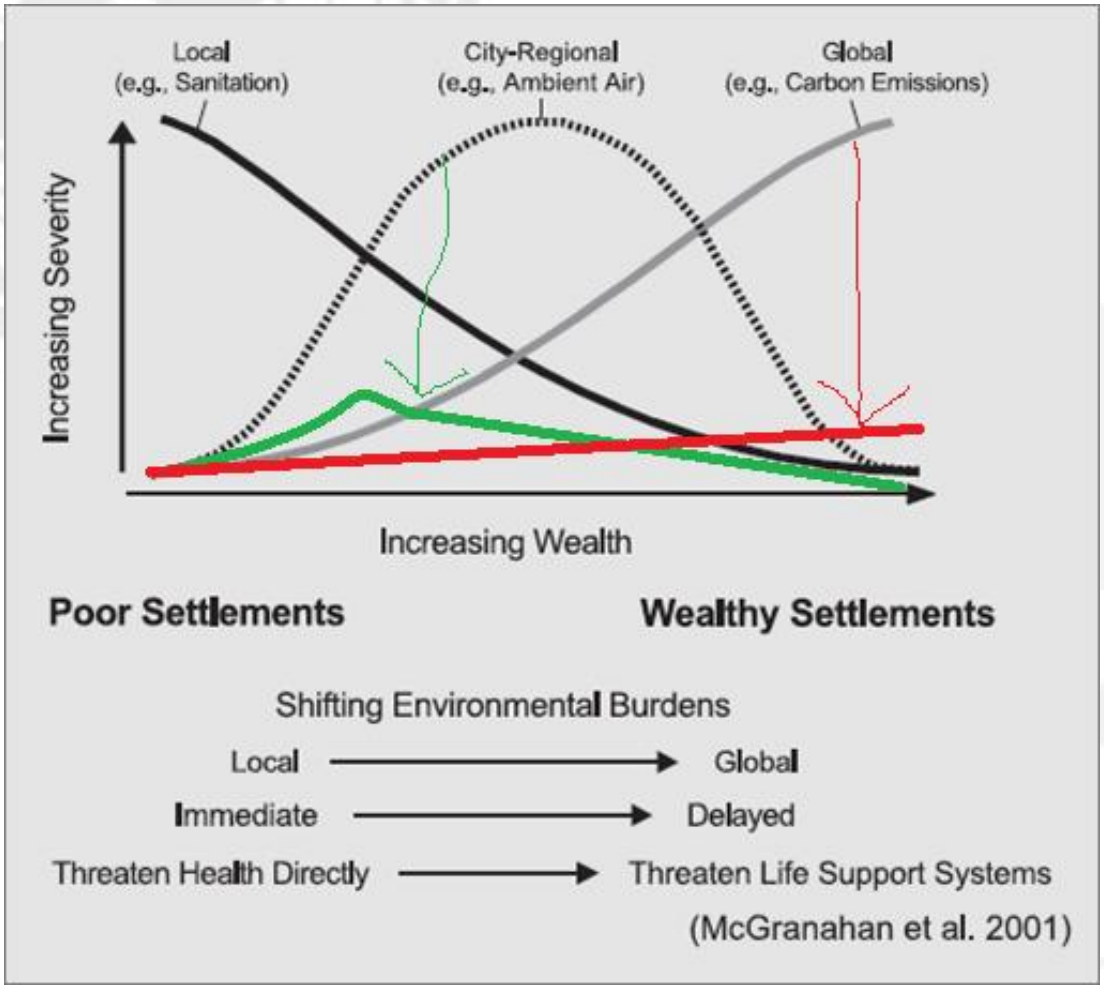
Urban Challenges in LDCs

- Rapid urban growth in LDCs (population+economy)
- Need economic opportunities for local population, jobs, income + housing, transport, infrastructure…
- Local /Regional environmental problems (e.g.,air pollution)
- Global issues (e.g., climate change, biodiversity). Mitigation/adaptation
- Trade-off x multiple opportunities
- **Co-benefits: Tackling local and global problems at the same time**

Economic Development and Environmental Issues



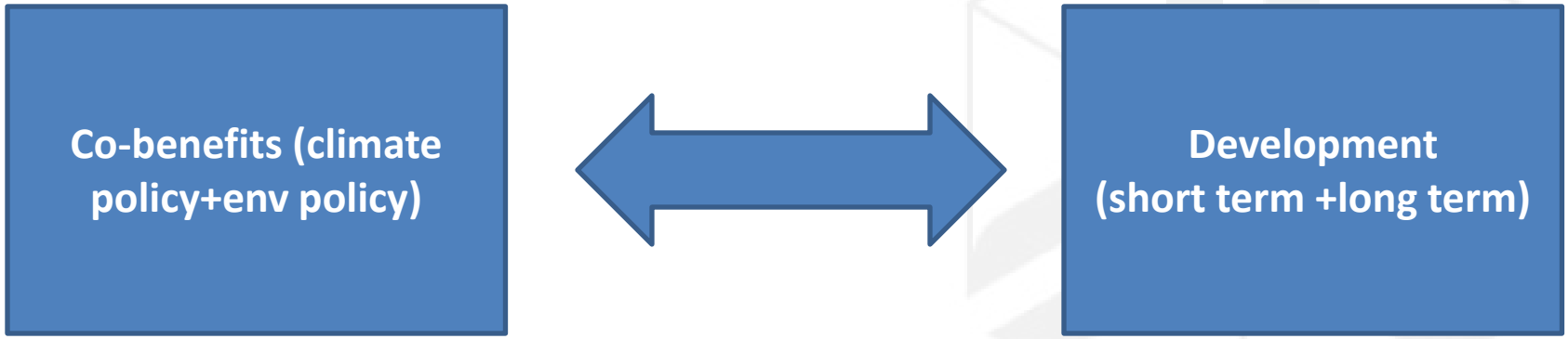
Possible changes with co-benefits



Co-benefits and Development

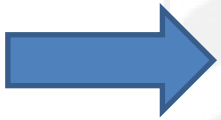
GHG reduction benefits	LEP reduction benefits	Economic benefits	Energy security benefits	Health and Safety

AGGREGATED CO-BENEFITS



Objectives of our research

- Combine the sectoral approach with thematic interdisciplinary institutional analyses using a case-study based methodology to identify where, how and why policies related to co-benefits have succeeded in order to develop evaluation tools to analyze and measure effectiveness of co-benefits.

HOW CO-BENEFITS HAPPEN  HOW TO MAKE THEM HAPPEN

Country/City Analyses

Sectoral Analyses

Institutional Analyses

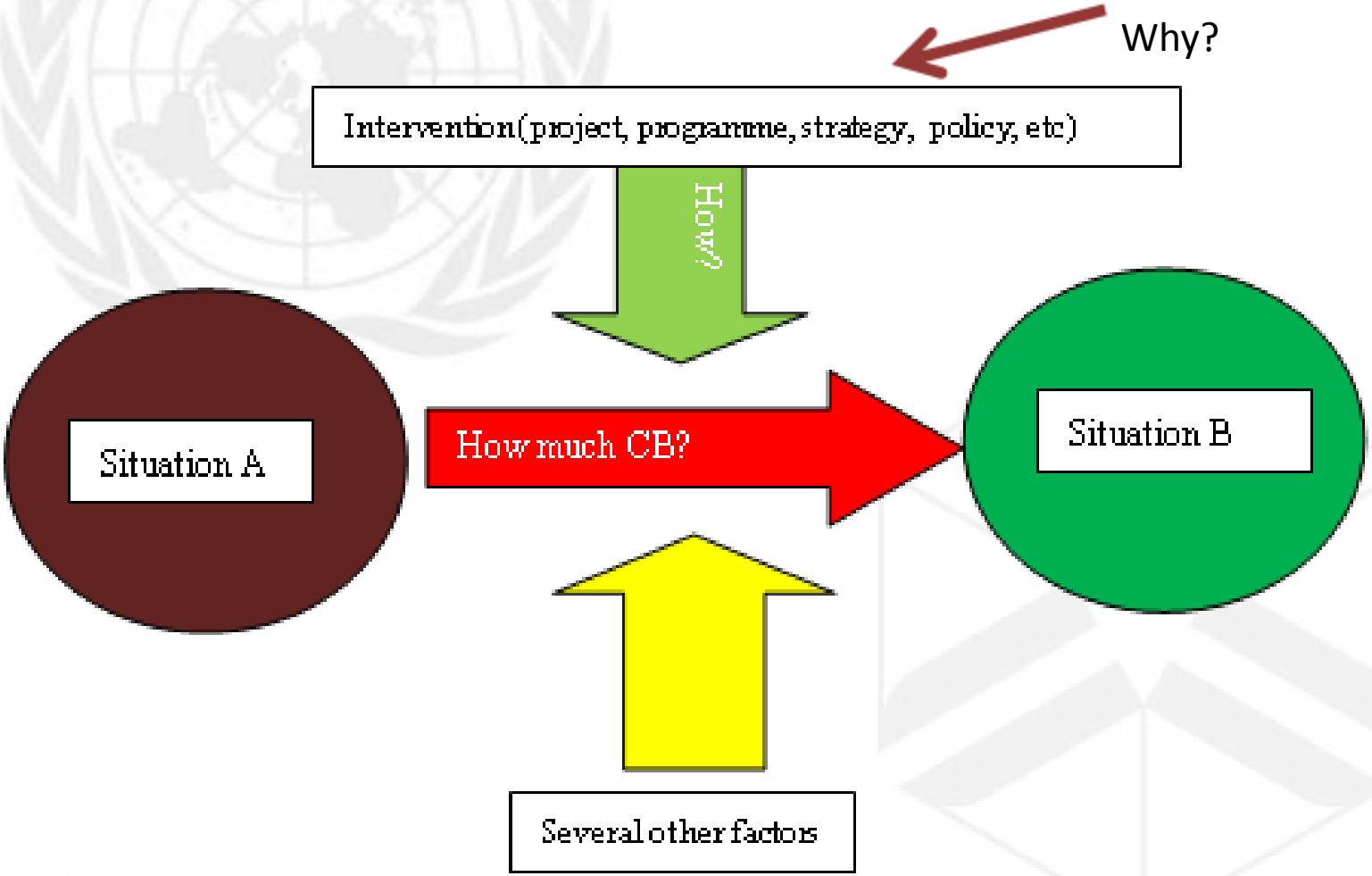
Assessing the effectiveness of co-benefits

Individual cases

Case Studies

- The research is based on grounded analytical research in cities in five countries: China, India, Indonesia, Japan and Brazil.
- Analyzing five broad sectors:
  - Energy (focus on non-transportation) and Industry
  - Transportation
  - Building
  - Land use
  - Liquid and Solid Waste Management

Evaluation


Why?
Intervention(project, programme, strategy, policy, etc)
How?
Situation A
How much CB?
Situation B
Several other factors

Individual Research Cases

- Shenyang, China (Energy-Tiexi District)
- Shanghai, China (Energy-Baoshan District)
- Shanghai, China (Building)
- Kawasaki, Japan (Energy/industry)
- Delhi, India (Transportation-Metro.)
- Surat, India (Waste)
- Yogyakarta, Indonesia (Transportation)
- CBSWM Yogyakarta (Waste)
- Sao Paulo, Brazil (Transportation, vehicles)

Delhi Metro

Case Study Analysis 1:
GHG Emissions Savings based on Mode Share: The Delhi Metro, India

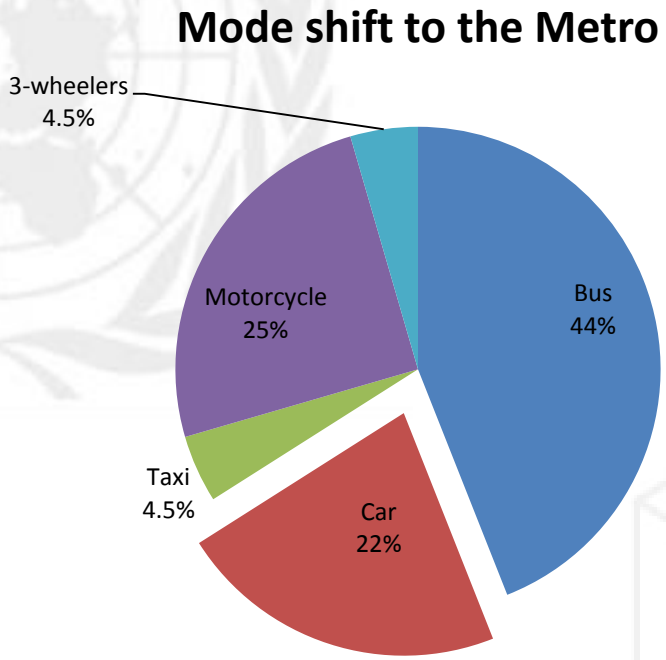


Figure -Mode shift to the metro.
Source: Interviews made with transport professionals in Delhi

Mode shift to the metro has been primarily from buses (Figure) with half as much coming from private cars and a quarter from motorcycles. The remaining 9% was split equally between three-wheelers and taxis.

Table 1 - Co-benefits from Delhi Metro for year 2011

	Bus	Car	Taxi	Motorcycle	3-wheelers	Metro	Total
GHG (tCO2/yr)	-44,256	-152,389	-28,994	-145,200	-10,381	357,120	-24,100
Percent Change (%)	-4.55	-6.48	-16.20	-8.67	-13.48		-0.46
Air pollutants (tons/yr)	-882	-2,491	-555	-29,635	-397	5,935	-24,897
Percent Change (%)	-4.55	-6.48	-16.20	-8.67	-13.48		-6.90

It is clear from this analysis that co-benefits can be easily achieved if the mode shift to the metro comes from cars or any other private mode rather than buses.

Community-Based Waste Management Actions, Indonesia

Waste separated in household scale

Waste separated in neighborhood scale

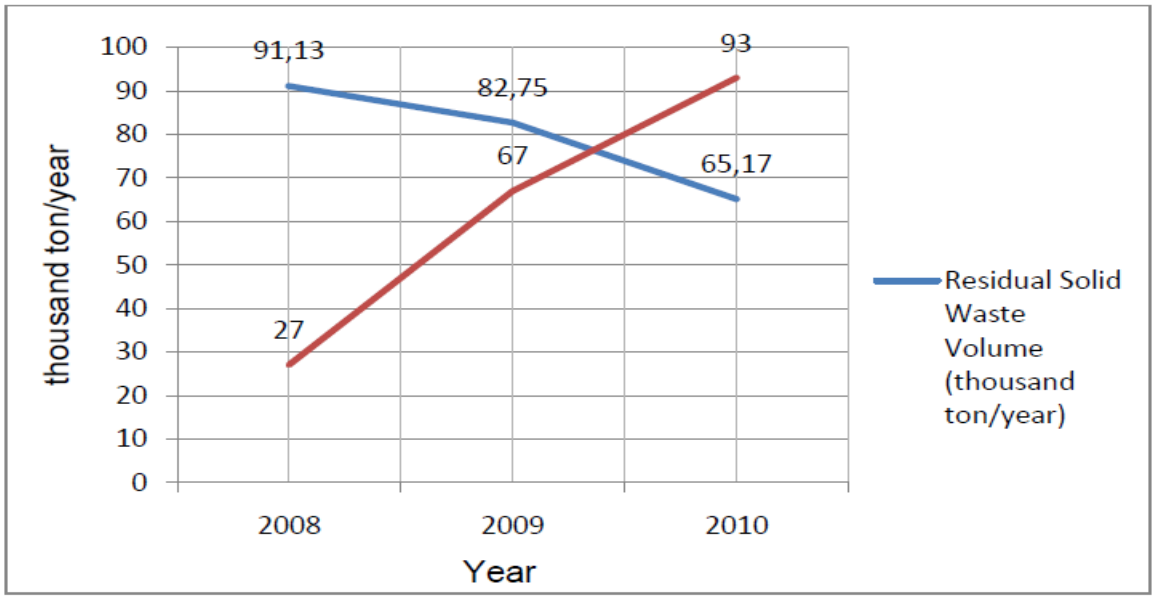
Place of Temporary Trash

Trashes before proceed

Proccess of composting

Case Study Analysis 4:
Solid Waste Management, Yogyakarta, Indonesia

Correlation between Amount of CBSWM Group and Volume of Disposal Solid Waste into the Landfill in Yogyakarta City, 2008 – 2010



Source : Environmental Agency of Yogyakarta City (2008 – 2010); Yogyakarta City CBSWM Association "Jari Polah" (2011).

Figure 10 - Correlation between among of CBSWM group and volume of disposal solid waste into the landfill in Yogyakarta city

The growth of CBSWM in last 7 years shows correlation to waste generation and disposal into landfill. Figure 4 shows there is a decreasing of solid waste about 28 % from 2008 until 2010.

Journal of Cleaner Production

Available online at www.sciencedirect.com
ScienceDirect

Volume 58, 1 November 2013

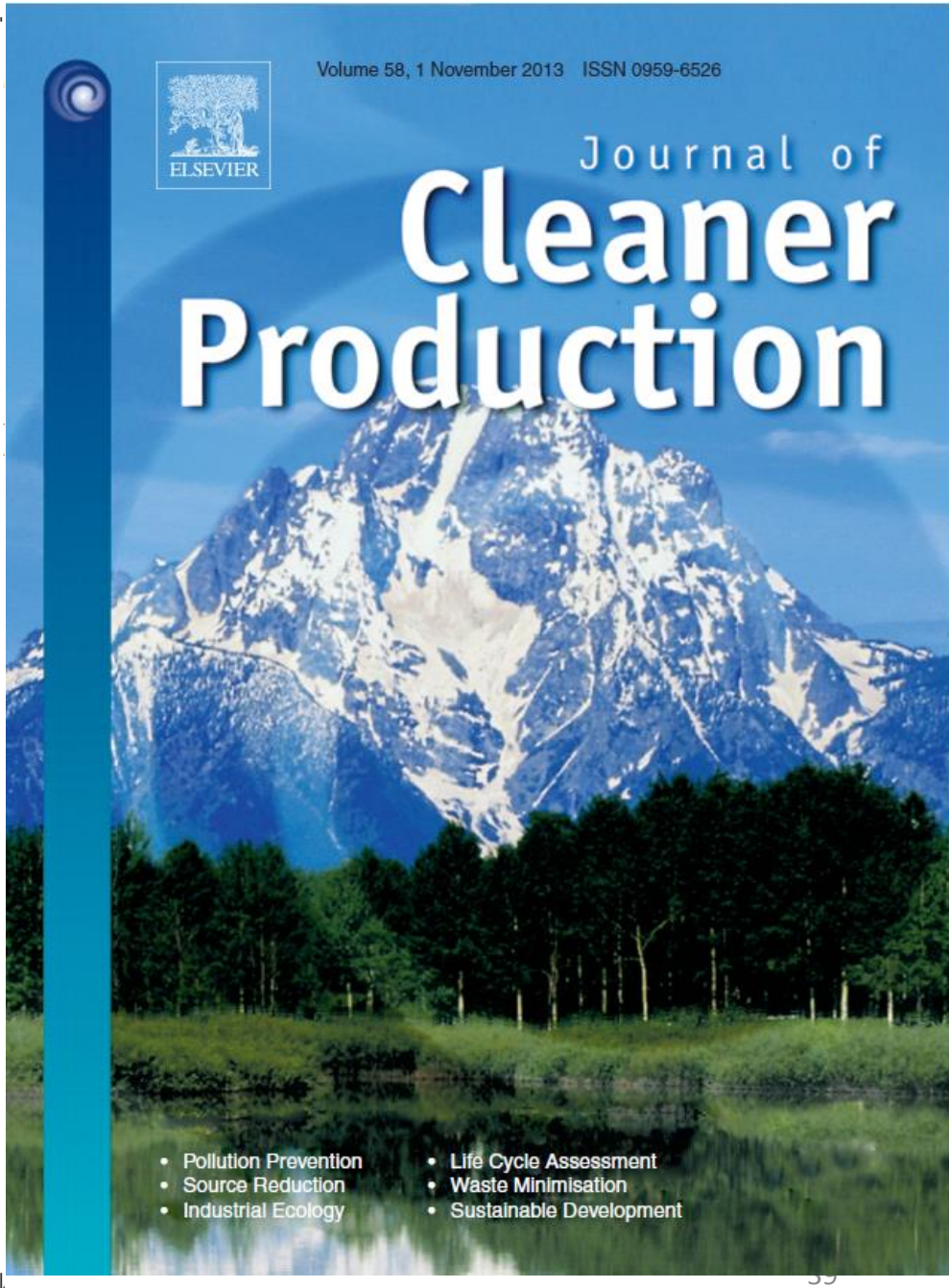
Contents

Special Volume: Co-Benefits in Urban Asia
Guest Editor: Jose A. Puppim de Oliveira , C.N.H. Doll , T.A. Kurniawan , Y. Geng , M. Kapshe and D. Huisingh

[Contents continued on BM II]

Covered in the abstract and citation database SCOPUS®. Full text available on ScienceDirect®

0959-6526(20131101)58;1-M

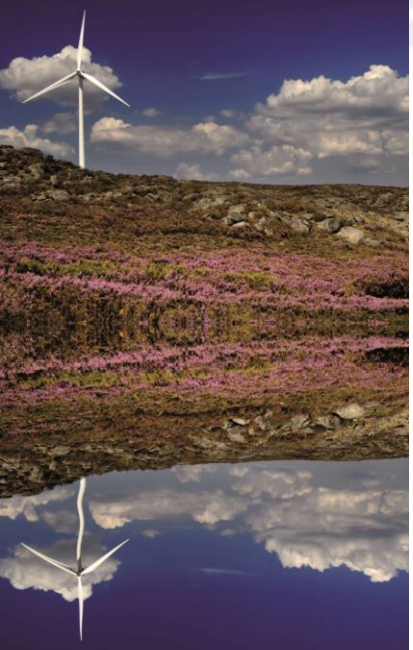


LESSONS: OBSTACLES AND OPPORTUNITIES FOR CO-BENEFITS

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

SOME LESSONS FROM THE DEVELOPMENT OF THE PROJECT

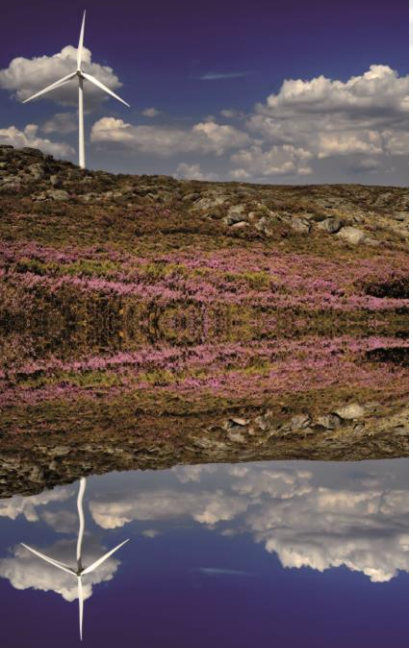
- Behind Co-Benefits: Still Limited Discussions on Co-benefits
- The Main Drivers are also outside the Environmental Arena
- Climate Change is not yet a Strong Driver
- Government is key for large scale/radical changes
- Urban governance as an underlying factor for effectiveness of co-benefits policies
- Law and Legal Institutions in relation to co-benefits
- The implementation issue and legal institutions
- Legislation as a Barrier and Opportunity for Co-benefits
- International cooperation can play an important role
- The difficulty to assess co-benefits
- Development of the Evaluation Tool: Trade-off between Quantification and Applicability

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

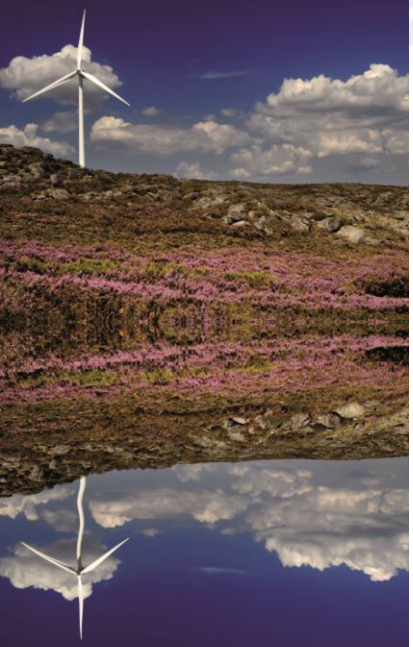
Behind Co-Benefits: Still Limited Discussions on Co-benefits

- There are no coherent co-benefits initiatives as such being implemented in any of the countries analyzed or in the general policy discussions.
- There is no coherent definition of co-benefits, what can limit its diffusion. Different organizations use different definitions, meaning for example, climate change and economy, or climate change and health, or even approaches having air pollution as the main goal.
- The lack of a well-established definition causes confusion among those who have heard about co-benefits. Nevertheless, there is a great interest in the topic when it is discussed among academics and policy-makers, open opportunities for expanding the use, as well as to disseminate a tool or manual.

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

The Main Drivers are also outside the Environmental Arena

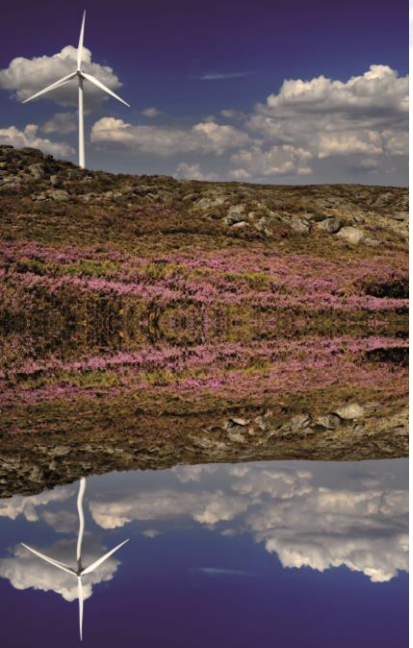
- The initiatives generally have a driver outside the environmental arena and are connected to development, such as improving public transportation in Yogyakarta, tapping business opportunities for waste management in Surabaya or energy security and jobs in the introduction of ethanol in Brazil.
- However, environmental related concerns had strong influence to drive some of the initiatives analyzed, both directly and indirectly. For example,iIn India, the environmental health issues in Surat in the 1990s, including cases of the plague, led to a strong push to clean up the city and introduce an effective waste management system in the region.

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

Climate Change not a Strong Driver

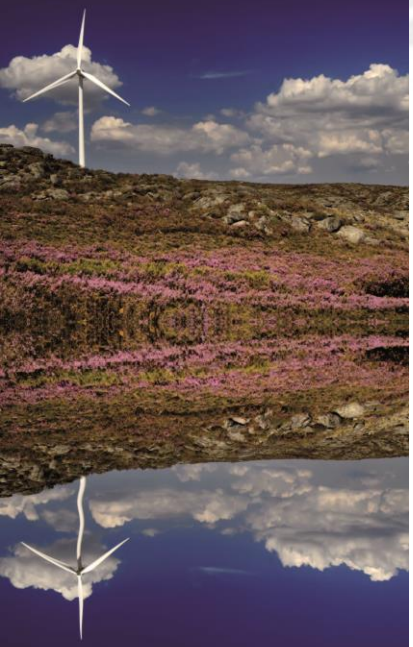
- Even with strong impacts on climate change mitigation, climate related reasons were not a priority in the cases. In some initiatives, the stakeholders were not even aware of climate change or the potential for tapping in the resources, both domestic and international, available for climate change projects.
- In some cases, policy-makers linked the initiative to tap on the Clean Development Mechanism (CDM) later on. In the Delhi Metro, the main objective was to provide mass public transportation to reduce congestion and consequently pollution.

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

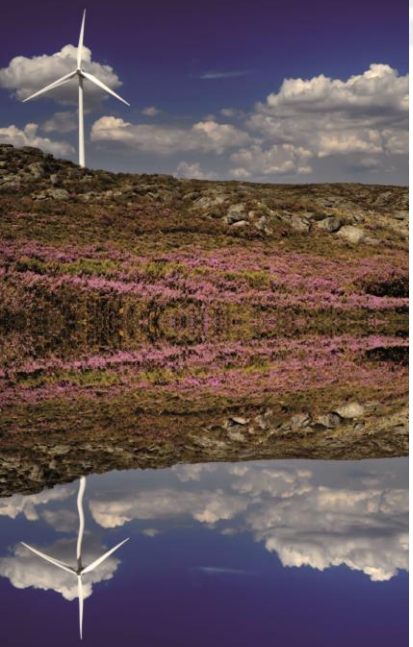
Government is key for large scale/radical changes

- Governments were the main drivers of the initiatives analyzed. When they were not the main initial drivers, they were important to expand and replicate the initiative to have larger impacts, such as the case of community solid waste management.
- Communities, NPOs and even the private sector may be important to develop the idea and demonstrate at the small scale, but governments that have the capacity to increase the scale and push for radical changes at urban level, such as the cases in China, India, Indonesia and Brazil.
- The level of involvement of different levels of government appeared in some cases, particularly those of larger scale and that required more radical interventions, such as Delhi metro or ethanol in Brazil.
- Institutional aspects related to coordination among different levels of government are an important aspect to catalyzed co-benefits. For example, in the Delhi metro was only possible with the coordination between the national government, which controlled land use and had expertise in rail, and the local city government which was responsible for the public transport system in the city.

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

Law and Legal Institutions in relation to co-benefits

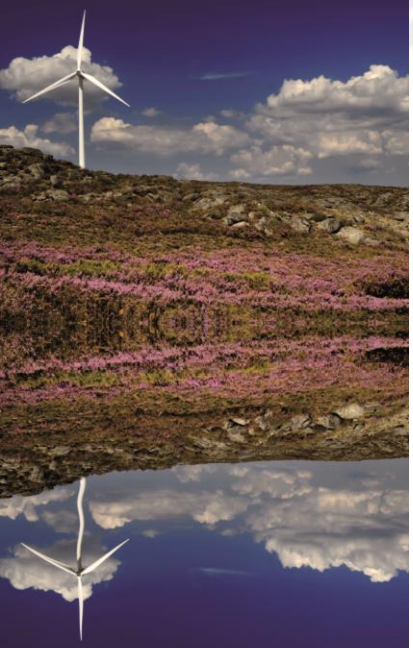
- Activities pursuing both development objectives and greenhouse gases (GHG) emissions reduction constitute a major opportunity to tackle local and global concerns together. Law and legal institutions are key aspects of the context enabling the implementation of these activities.
- The countries we studied have a comprehensive set of environmental regulations and some of them have already introduced policies and legislation on climate change in different levels. For example, Brazil Federal Government enacted the National Law on Climate Change in 2009 and has developed a plan to implement it in various sectors The City of Sao Paulo has also established its own climate change law ahead of the national government.
- In Delhi, legal decisions were the main drivers to start the process of clean-up the city, which led to many co-benefits

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

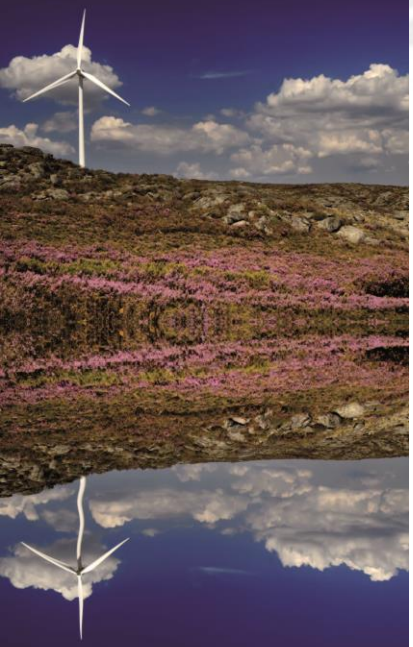
International cooperation can play an important role

- Even without targeting, international cooperation was present in its diverse forms in some of the cases studied, such as Delhi Metro and waste management in Surabaya. The cooperation was important to catalyze the process, by providing financial support (e.g. loans or grants) like the case of Delhi Metro or bringing new, and sometimes simple, technologies such as Takakura method.
- Nevertheless, international cooperation has a limited role at for supporting project by project level, particularly in large countries such as those in this study where financial requirements for large scale initiatives are huge and technical expertise is existent. Thus target should be on innovative processes with large impact, such as Delhi Metro.

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

Assessing Co-benefits

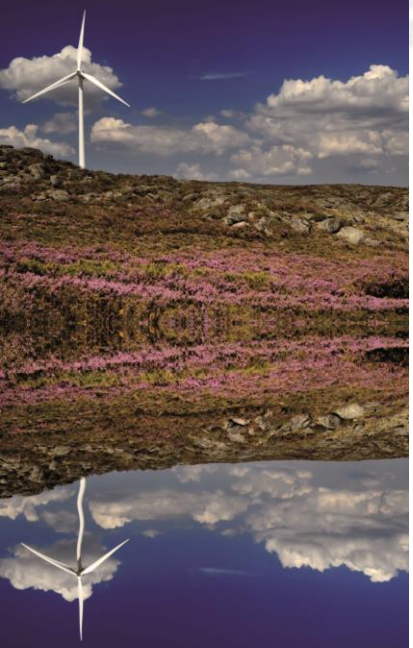
- **The difficulty to assess co-benefits:** Even though all the initiatives generated clear co-benefits, the quantitative assessment of the co-benefits, as defined in this project is not a straightforward task. Many of the benefits are hard to quantify in precise terms, even more if a MRV (measurable, reportable and verifiable) manner is required.
- ***Is development something easy to measure?***
- **Development of the Evaluation Tool: Trade-off between Quantification and Applicability**

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

Autonomy and capacity at the local level

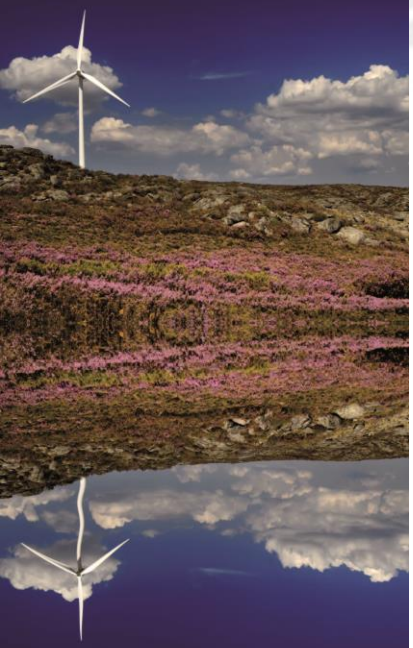
- The degree of decentralization in a country influence cities' initiatives for co-benefits
- Decentralization has not brought enough resources to the responsibilities in the cities
- SWM responsibility belongs to local authorities but they do not have the resources or technical expertise to establish SWM systems

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

Coordination among government bodies and divisions

- Sectoral approaches: specialization x isolation/coordination
- Coordination among different governments with different responsibilities
- Delhi Metro Rail Corporation (DMRC): participation of the city government and national government, which control the public transportation and land-use respectively.

Awareness of policies to realize co-benefits

- Developing countries the awareness of pushing environmental agendas forward consistently is yet to be developed.
- Climate change policies are still incipient and with mix results.
- CDM has brought some awareness, more in the private sector (MNCs)
- The court actions such as the clean-up process in Delhi are linked to win-win situations in economy, local environment and reductions in GHG emissions.

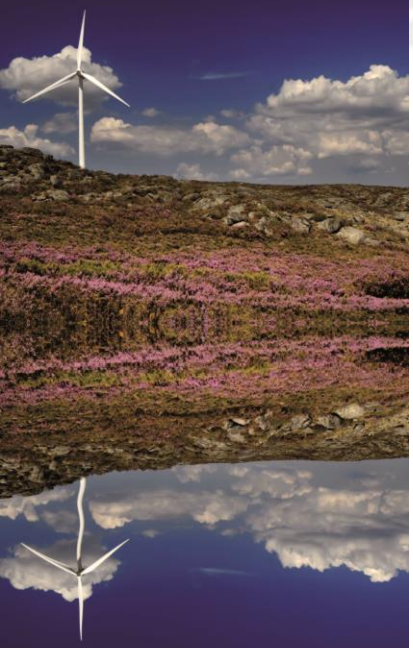
Adoption of new technologies

- Most of the cases involved simple technologies, but new to the city
- Clean technologies in many sectors are new, advanced and more expensive than existing technologies, or need large initial investment
- Lack of regulations and standards
- Integrated systems to make clean technologies to work more effectively

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

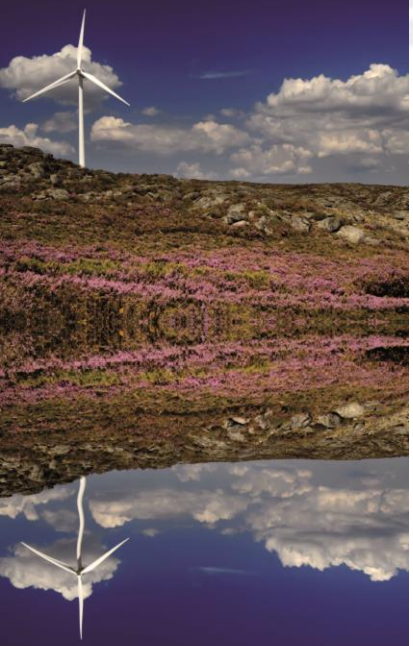
Financial opportunities

- Reform of public budgeting for allocation of public funding
- Changes in regulation to attract private investments leading to co-benefits
- Many of those reforms may need changes at different levels.
- City governments may be able to introduce some of those changes, but others may need to be approved at higher level of governments,
- Development assistance and policy could help to make the reforms necessary to make co-benefits more attractive financially.

UNITED NATIONS UNIVERSITY

UNU-IAS
Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

International network of cities and local governments for information exchange

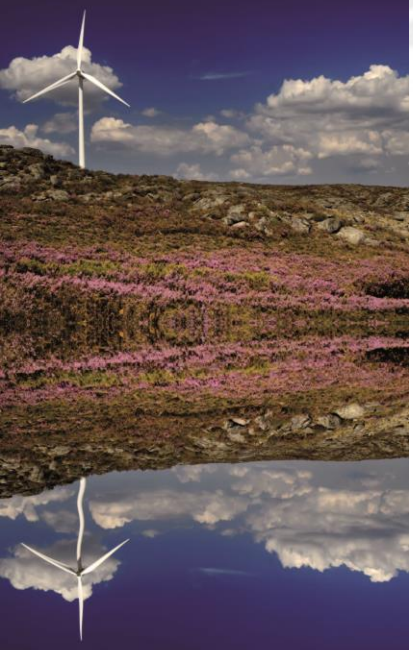
- Networks of cities and local governments could increase synergies and facilitate knowledge and information exchange among them,
- Capacity to learn and move forward the implementation of new ideas
- Takakura method in the SWM

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

Advancing Knowledge and Promoting Learning for Policy-Making to Meet the Challenges of Sustainable Development



www.ias.unu.edu

OPPORTUNITIES FOR PROMOTING URBAN CO-BENEFITS

- Discussions of Co-benefits has emerged in several organizations: Opportunities in the Policy Arena

- **Short Term-** Straight forward initiatives using simple technologies

E.g., waste management, 3R.

- **Medium Term:** require larger investments and the projects can have a high institutional complexity, and consequently high risks and transaction costs

E.g., transportation, and industry and energy sector.

- **Long Term –** Areas with slow changing paths and involving a larger set of integrated initiatives and standards

E.g.,: building and land-use sectors, consumption

(nevertheless, better start sooner than later as they have long term impacts on the way cities operate)

Institutional Analysis

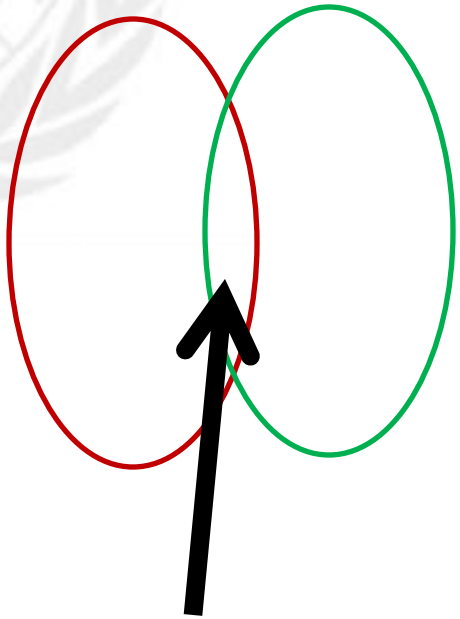
The institutional analyses examine lessons and practices across institutional themes. This is divided into four components:

- **Urban governance**
- **Law and Legal Institutions**
- **Project and Policy Management**
- **International Cooperation**

(Existing) Technological Opportunities

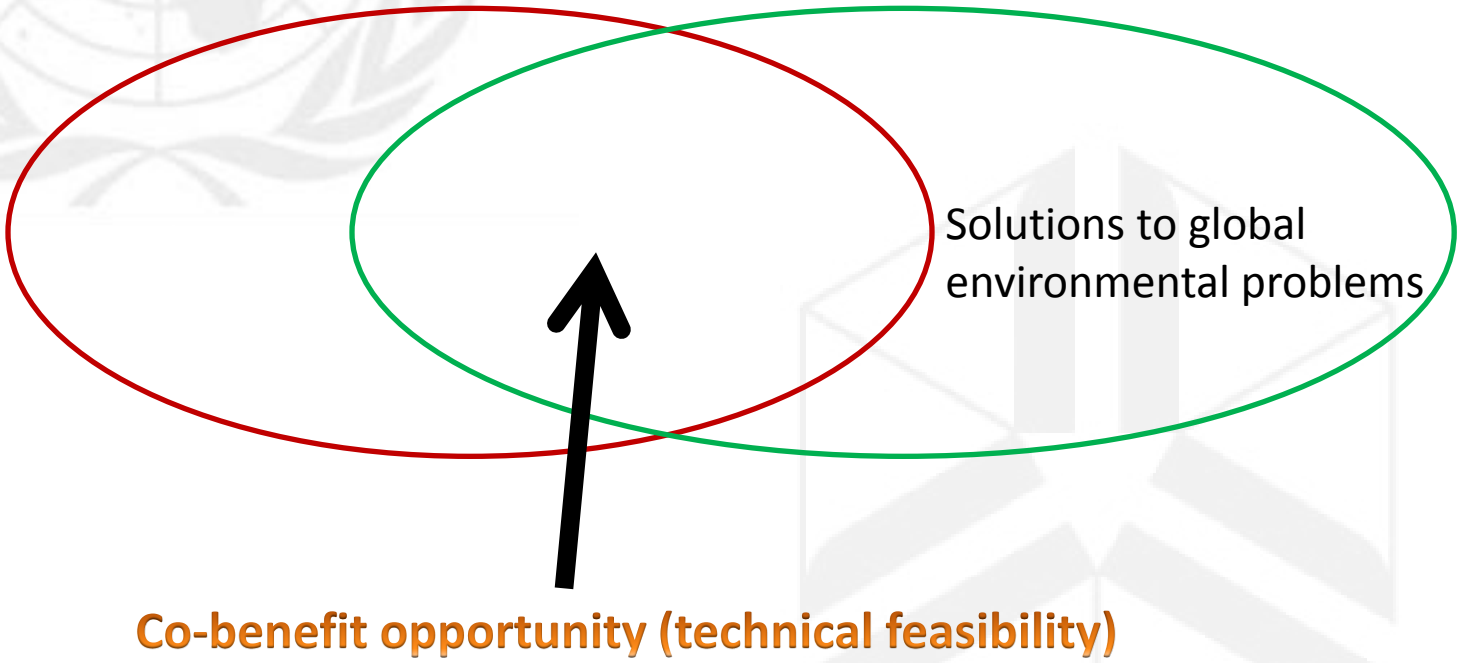
Solutions to local socio-environmental problems

Solutions to global environmental problems

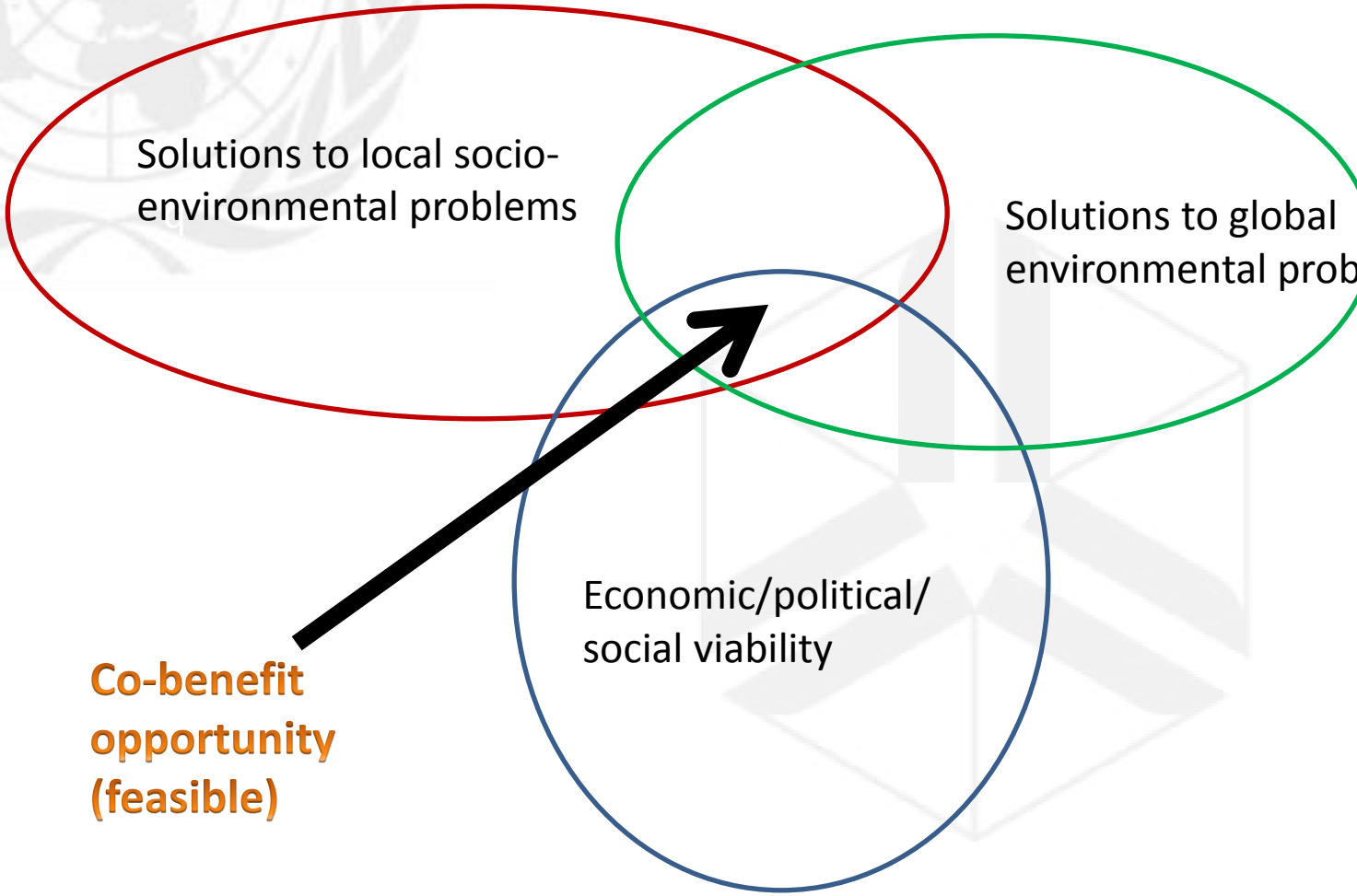


Co-benefit opportunity (technical feasibility)

Technological Development (more R&D, supply-side)



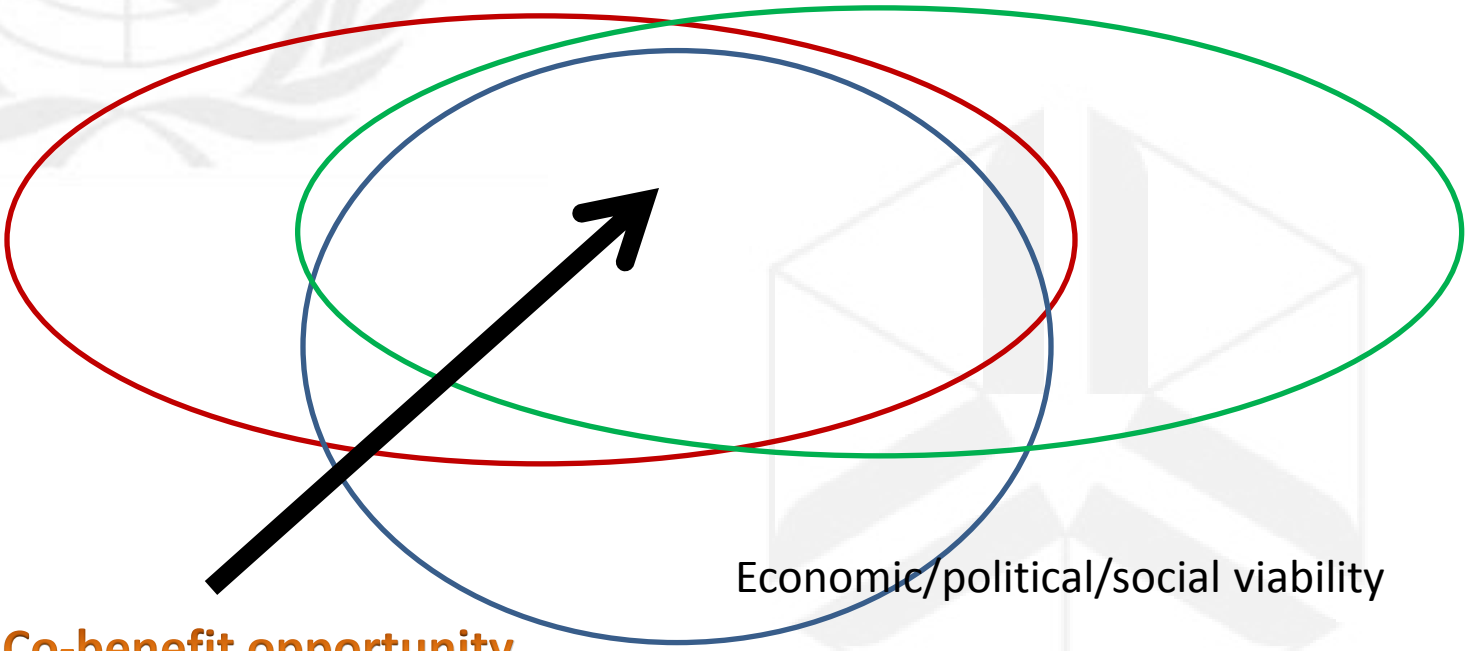
Limits


Solutions to local socio-environmental problems
Solutions to global environmental prob
Economic/political/ social viability
Co-benefit opportunity (feasible)

Innovation and diffusion (Institutional Development?)

Solutions to local socio-environmental problems

Solutions to global environmental problems



Economic/political/social viability

Co-benefit opportunity (feasible, promoted by public policies, market driven etc)

Climate Change and Cities

- Mitigation and Adaptation
  - Sectoral issues (energy, transportation)
  - Physical issues (buildings)
  - Land use issues (urban form, heat islands)
  - Regional issues (effects on economy of the region)
  - Green Agenda issues (consumption)

OPPORTUNITIES FOR PROMOTING URBAN CO-BENEFITS

- Discussions of Co-benefits has emerged in several organizations: Opportunities in the Policy Arena

- **Short Term-** Straight forward initiatives using simple technologies

E.g., waste management, 3R.

- **Medium Term:** require larger investments and the projects can have a high institutional complexity, and consequently high risks and transaction costs

E.g., transportation, and industry and energy sector.

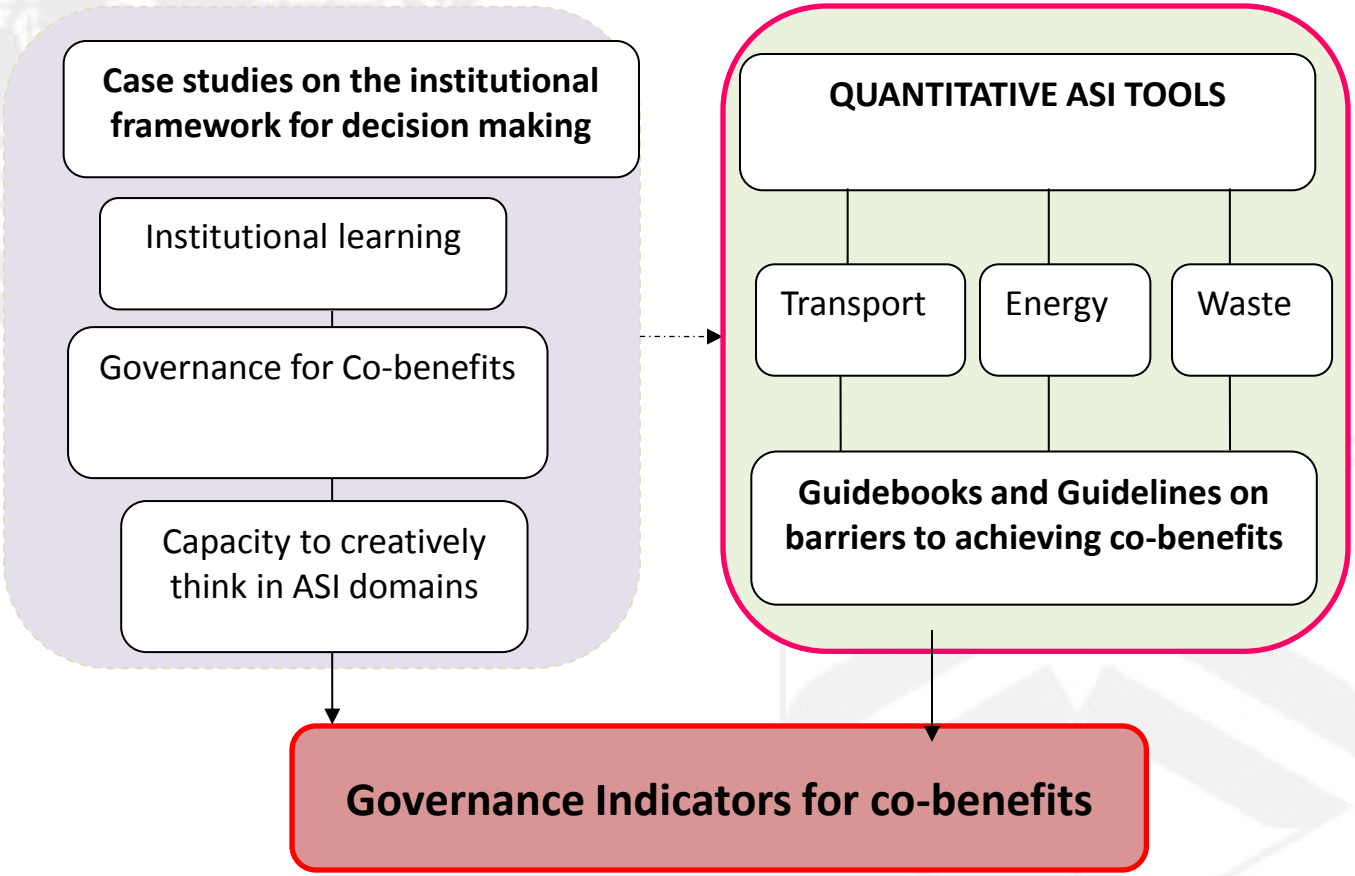
- **Long Term –** Areas with slow changing paths and involving a larger set of integrated initiatives and standards

E.g.,: building and land-use sectors, consumption

Conclusions and the way forward

- Climate change has become more relevant driver in some countries Co-benefits being discussed in several agendas
- In the international landscape, it seems that the post-Kyoto regime will be more based on voluntary actions, and the National Appropriate Mitigation Actions (NAMAs)
- There will be three basic groups of urban co-benefits would have to fit in.
  - Firstly, there are the mitigation actions that make economic and financial sense, which will be carried out voluntarily or with minimum access to credit. Strategy => National/local awareness
  - Secondly, there are those actions that will be viable with the official or voluntary carbon trading systems, such as CDM or ETS (EU). Strategy => Awareness through international organizations + countries to influence international processes
  - Thirdly, there will be those projects that will not make economic sense in the short or long term, because of the huge opportunity costs that have to be given up. Strategy => International cooperation and multilateral funds

Project design and Tools



Next Steps

- Test the tools with policy-makers and experts
- Make the tool available for use
- Create a database of cities with the co-benefits initiatives as well as backgrounds
- Introduce the health co-benefits component in the tools
- Understanding the technological capacities in cities from an institutional point of view

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies

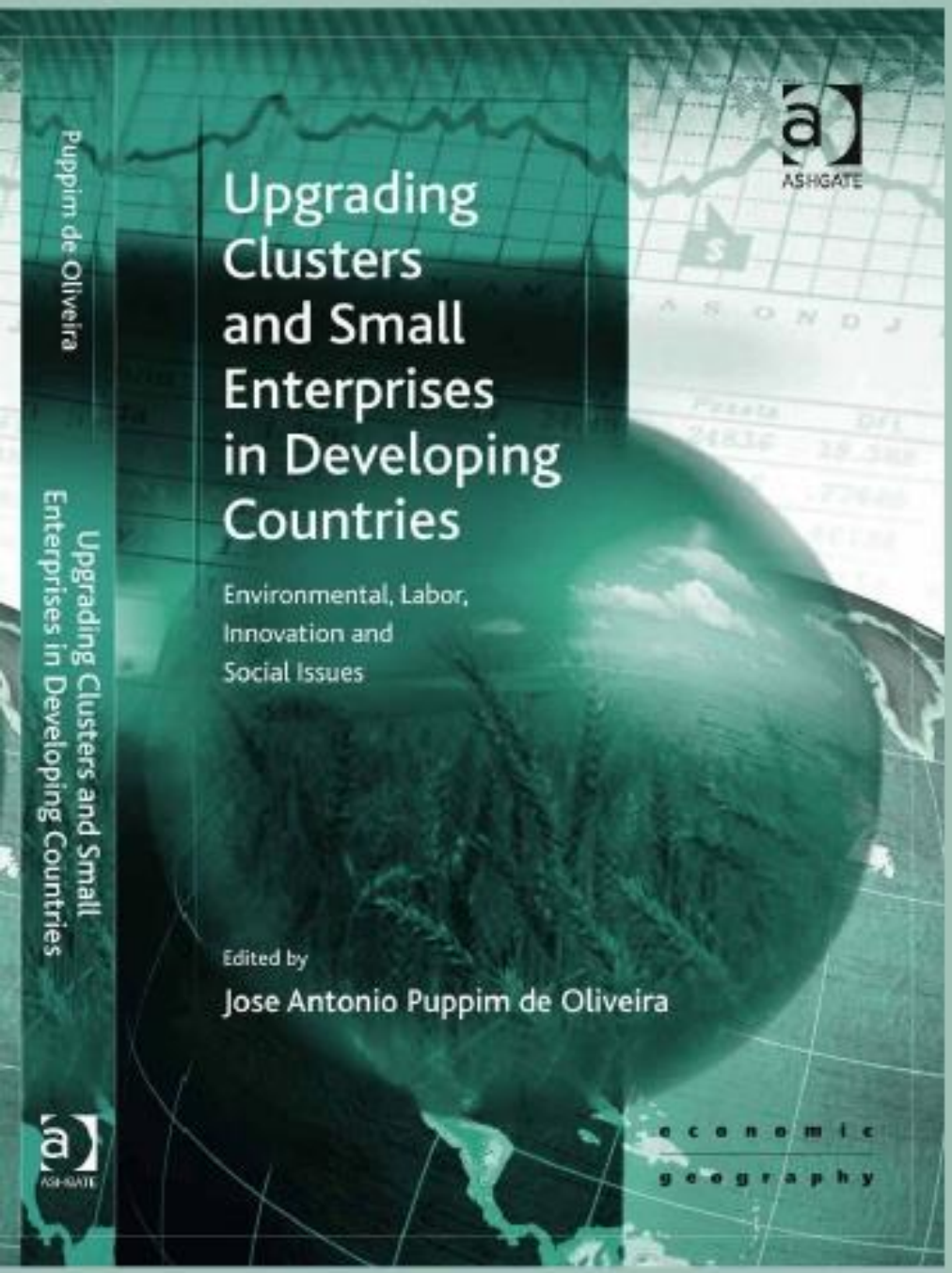
UNU-IAS Policy Report

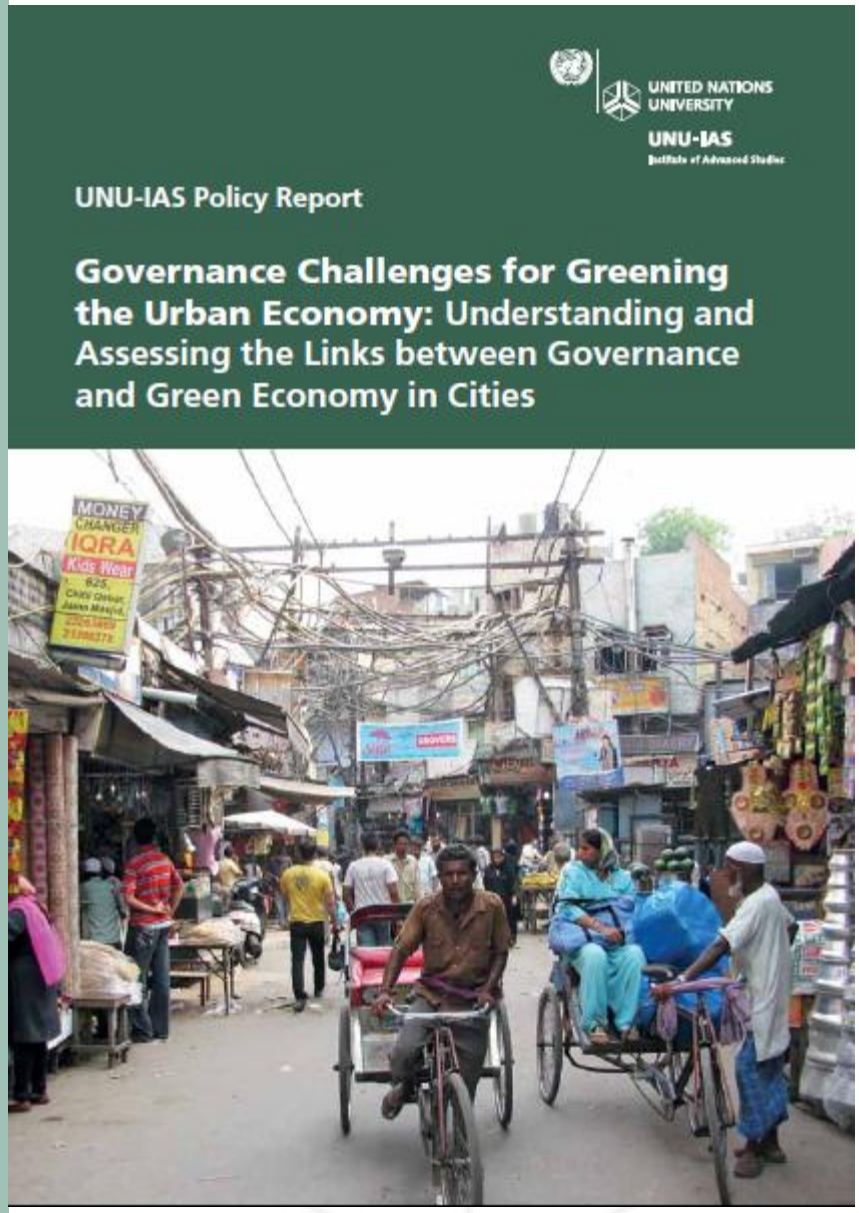
Urban Development with Climate Co-Benefits: Aligning Climate, Environmental and Other Development Goals in Cities

UNITED NATIONS UNIVERSITY

UNU-IAS

Institute of Advanced Studies





José Antonio Puppim
de Oliveira

Volume 32 Number 3 August 2012

PUBLIC ADMINISTRATION AND DEVELOPMENT

The International Journal of Management Research and Practice

wileyonlinelibrary.com/journal/pad

SPECIAL ISSUE
PUBLIC ADMINISTRATION AND SUSTAINABILITY: THE ROLE OF PUBLIC INSTITUTIONS IN CREATING A SUSTAINABLE FUTURE
Guest Editors: Yannick Glemarec and Jose A. Puppim de Oliveira

GREEN ECONOMY and GOOD GOVERNANCE for SUSTAINABLE DEVELOPMENT

Opportunities, Promises and Concerns

EDITED BY Jose A. Puppim de Oliveira

THANK YOU FOR YOUR ATTENTION!

Jose Antonio Puppim de Oliveira

puppim@ias.unu.edu

www.ias.unu.edu

www.unu.edu