Climate change & urbanization: effects and implications for urban governance

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Key points:

- **What we know about climate change**
- **Why action on adaptation is needed now**
- **Why focus on urban areas in low/middle-income nations**
- **How adaptation is not an environmental issue but a *development+disaster preparedness* issue**
- **The core of adaptation is local development including poverty reduction & good local governance**
- **Larger context: burdens of climate change driven by affluence but borne by vulnerable/poor groups**

What we know about climate change

- CO_2 concentration rising
  - matches growth in fossil fuel use/emissions
- Warming of climate system
- Systematic change in precipitation in most regions
- Ocean temperatures up; also acidity up (sea level rise)
- Loss of arctic sea ice extent
- Loss of glacier mass
  - and increased run-off and earlier spring peak discharges in many glacier and snow fed rivers
- More intense extreme weather events
  - with very large development impacts
- Shifts in animal and plant species

- *More serious because of time-lags and political constraints to adaptation*
- *Many uncertainties – eg exact form local impacts will take, likely speed of change.... many possible but uncertain 'high-impact' changes*

Some likely impacts of climate change

Change	Impacts on urban areas	Impacts on health
Warm spells/heat waves frequency up on most land areas	Heat islands in cities; vulnerable populations; air pollution worsened	Increased risk of heat-related mortality; groups at risk; respiratory diseases up
Heavy precipitation events, frequency up over most areas	Floods/landslides, households losing homes, possessions, assets, livelihoods. Large population displacements and disruption of city economies, transport and other infrastructure damaged.	Deaths, injuries and dislocations; risks from food and water borne diseases up. Health services and emergency services unable to cope.
Intense tropical cyclone activity increases		
Increased area affected by drought	Water shortages, distress migration into urban centres, hydro-electric constraints	Increased food & water shortages, malnutrition and food and water borne diseases up
Increased incidence of extreme high sea level	Loss of property and livelihoods, damage to tourism, damage to buildings, salinization of water?	Coastal flooding, increasing risk of death and injuries

Disasters from extreme weather show vulnerability to climate change

- **95% of deaths from disasters over last 25 years in low- and middle-income nations**
- **Rapid growth 1950-2007 in number of 'natural' disasters from weather-related events**
  - I.e. storms, floods and droughts rather than earthquakes, volcanic eruptions and industrial accidents
  - 2007 the worst year ever for extreme weather disasters?
- **1% of enterprises & households in low-income nations have disaster insurance**
- **90% of deaths & serious injuries among poor?**

Why focus on urban areas in low- & middle-income countries?

- More than a third of the world's total population
- Their 'slums'/informal settlements house a sixth of the world's total population
- They will house most of the growth in the world's population
- Successful economies need well-functioning urban centres
- They include a large part of the people whose homes, assets and livelihoods are most at risk from climate change
  - the mega-deltas in Asia (Dhaka and Shanghai) and Africa (the Nile and the Niger....) , many West African coastal cities, Alexandria, Mumbai.....
  - Can we write off Dar es Salaam or Montevideo?

Potentially catastrophic risks being imposed on nations & cities that have contributed very little to the problem & that lack the institutional capacity to take needed measures to reduce the risks

Urban areas and adaptation

- All cities have had to adapt to their local environment
  - So adaptation is possible
- But climate change imposing new constraints, changing constraints and bringing uncertainty
- Adaptation impossible without
  - basic protective infrastructure & services for entire population
  - Special programmes to address those most vulnerable – *for adaptation plus disaster-preparedness, disaster-response and longer-term rebuilding*
  - Pro-poor land-use and land-management policies that are usually politically inconceiveable

Adaptation is not an environmental issue

- Adaptation all about the quality of local development
  - reductions in poverty (more stable livelihoods, better housing, infrastructure and services) central to successful adaptation
- Adaptation needs strong local knowledge about likely changes and what can be done to adapt to these
  - Nature and mix of increased risks very specific to each place
- Adaptation needs effective, accountable local government, for what it does & what it supports/encourages
  - among households, community organizations, NGOs, private sector....

- (All these apply to rural and urban areas)

- To achieve this implies dramatic changes in the effectiveness of aid agencies

Who is most at risk among urban populations

- Urban populations already facing difficulties with extreme weather events in their homes
  - Variation in which locations will face increased intensity and/or frequency
  - Great variation in who is most at risk – by income group (and quality of housing and infra), age, gender.....
  - High vulnerability of infants & young children including impacts on long term development as well as more immediate impacts
  - Disruptions that affect urban livelihoods
- Urban centres at risk of sea-level rise - on coasts with settlements and water sources at risk
- Urban populations that cannot adapt
  - Who cannot change locations
- Urban populations with the least resilience
  - There will be lots of disasters; how large their impact is so dependent on what is done in advance

Big issues for local adaptation

- **You cannot adapt infrastructure that is not there**
  - Most costings of adaptation based on cost of modifying climate-sensitive infrastructure
  - Not appropriate basis with large deficits in infrastructure
- **Successful adaptation not possible if local government refuses to work with the poor and sees their homes, neighbourhoods and enterprises as 'the problem'**
- **Local adaptation depends heavily on competent, well-resourced, accountable local governments**
  - But these do not exist in most nations
  - Building this a slow, difficult, highly contested process
- **Adaptation, like poverty reduction, is not solved by large international funding flows**
  - **UNFCCC documents do not understand this**

Joined-up thinking easier than joined-up action

- Adaptation needs all sectors of government to buy in:
  - housing, building, planning and land-use management, infrastructure, water, transport and roads, health and emergency services
- Needs most governments to change way they work with low-income groups
  - Otherwise “adaptation” will be used by powerful groups to evict low-income communities

Let local innovation & precedents drive national policies

- CAPAs and LAPAs driving NAPAs
  - *Learn from good experiences e.g. Durban at city level and Cavite at community-level*
- Explore synergies between local development and adaptation
  - *Get the attention of the 'development' bits of local government*
  - *the hundred-fold difference in the cost-effectiveness of different actors; What $25,000 can do in the hands of a savings group formed by women 'slum' dwellers*
- Build on the innovations in local development successes
  - *community-led and municipal led 'slum' and squatter upgrading and housing finance; a lot of innovation to draw on*

Get international funding for adaptation embedded in local development

- Successful adaptation is
  - Informed by good local knowledge about hazards, risks and vulnerabilities (and who is most vulnerable)
  - Underpinned by land-use management that delivers on development and protecting/expanding protective eco-systems ***(rural and urban working together)***
  - Supported by citizen/civil-society capacity and willingness to work with government
  - Raises difficult issues for all aid agencies on the how to do this

What needs to be done: ***Building adaptive capacity in tens of thousands of localities*** to the many impacts of climate change that:

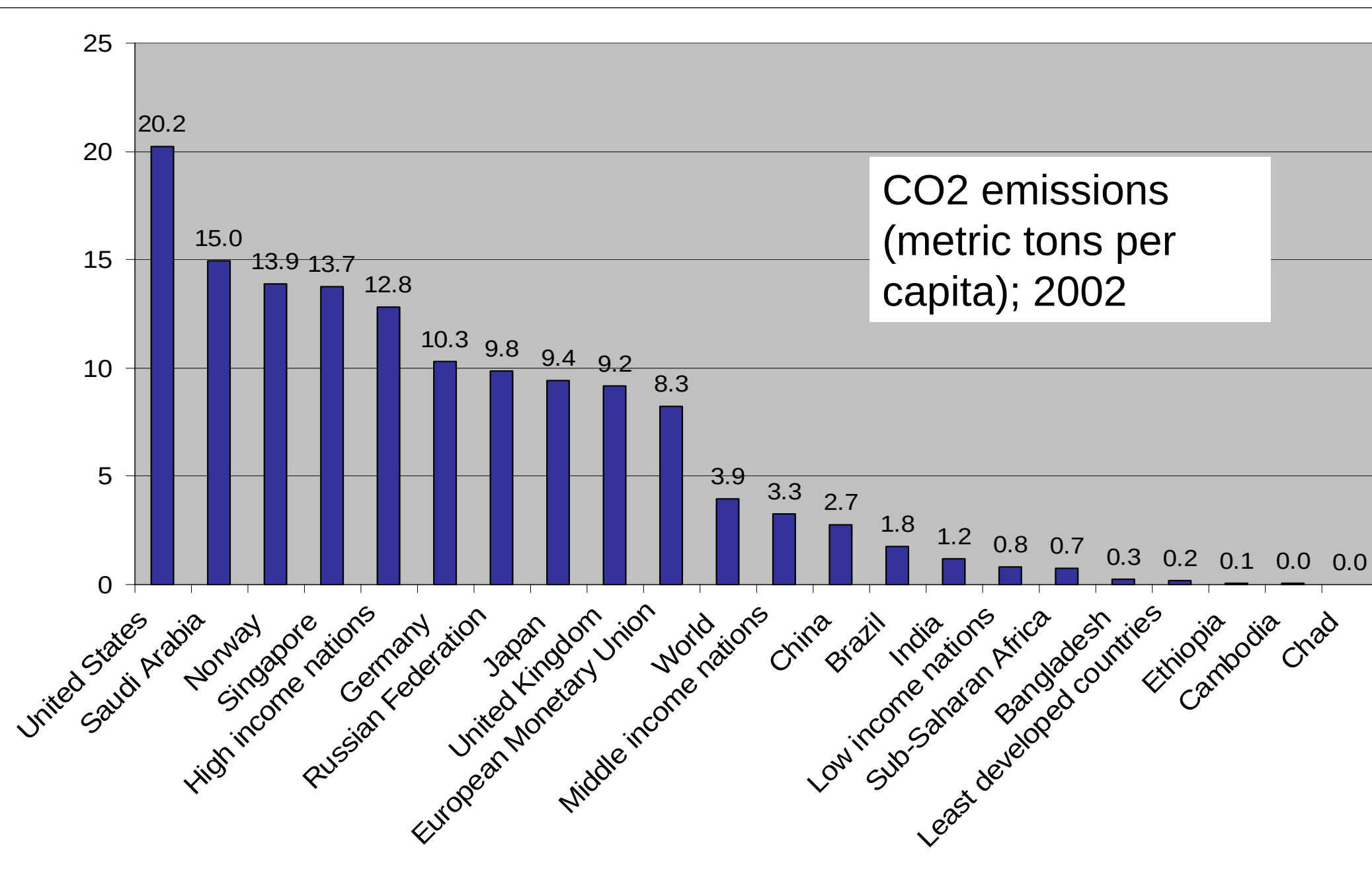
- **supports and works with reduction of risks to other environmental hazards including disasters**
- ***is strongly pro-poor***
- **builds on knowledge acquired over the last 20 years on reducing risk from disasters**
- ***is based on and builds a strong local knowledge base*** *of climate variabilities and of likely local impacts from climate-change scenarios*
- **encourages and supports actions that reduce risks (and vulnerabilities) now, while recognizing the importance of measures taken now for needed long-term changes**

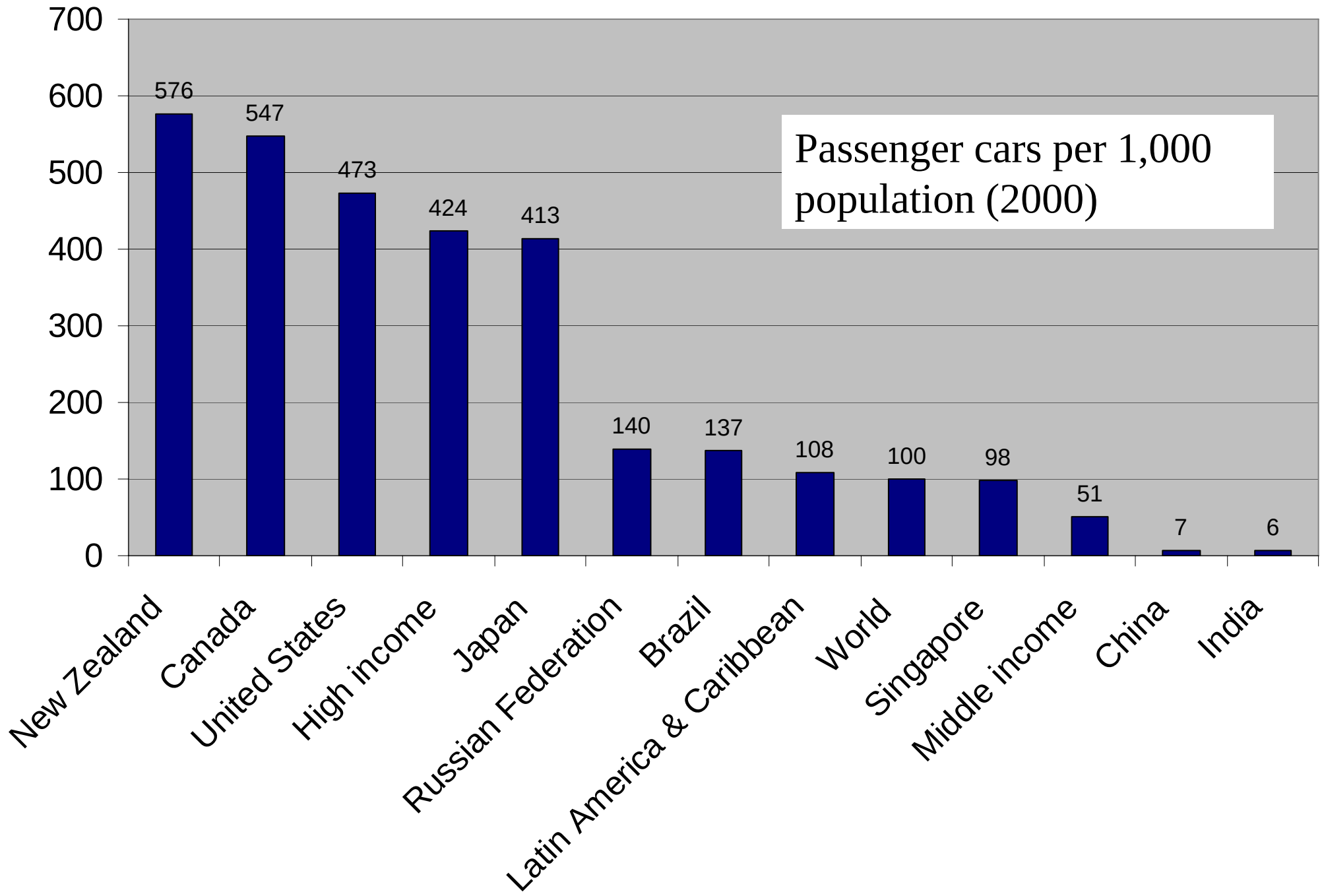
What needs to be done (2)

- **recognizes that the core of the above is building the competence, capacity and accountability of local levels of government and changing their relationship with those living in informal settlements and working in the informal economy**
- ***recognizes that government policies must encourage and support the contributions of individuals, households, community organizations and enterprises***
- **recognizes key complementary roles by higher levels of government and international agencies to support this**
- ***also builds resilience and adaptation capacity in rural areas***
- **builds into the above a mitigation framework too**
  - But for most low-income nations, not much complementarity

Urban centres need successful local rural development and rural adaptation

- Urban dependence on rural resources and eco-system services (including protective services)
- Much of the urban population have livelihoods that depend on rural (producer and consumer) demand for goods and services
- How vulnerable low-income urban populations are to higher food prices or disruptions in food supplies
- How many (poor and non-poor) households have rural and urban components to their livelihoods, incomes and asset bases


CO2 emissions (metric tons per capita); 2002
25
20
15
10
5
0
20.2
15.0
13.9
13.7
12.8
10.3
9.8
9.4
9.2
8.3
3.9
3.3
2.7
1.8
1.2
0.8
0.7
0.3
0.2
0.1
0.0
0.0
United States
Saudi Arabia
Norway
Singapore
High income nations
Germany
Russian Federation
Japan
United Kingdom
European Monetary Union
World
Middle income nations
China
Brazil
India
Low income nations
Sub-Saharan Africa
Bangladesh
Least developed countries
Ethiopia
Cambodia
Chad


Passenger cars per 1,000 population (2000)
700
600
500
400
300
200
100
0
576
547
473
424
413
140
137
108
100
98
51
7
6
New Zealand
Canada
United States
High income
Japan
Russian Federation
Brazil
Latin America & Caribbean
World
Singapore
Middle income
China
India