



Sustainable Low Carbon Development

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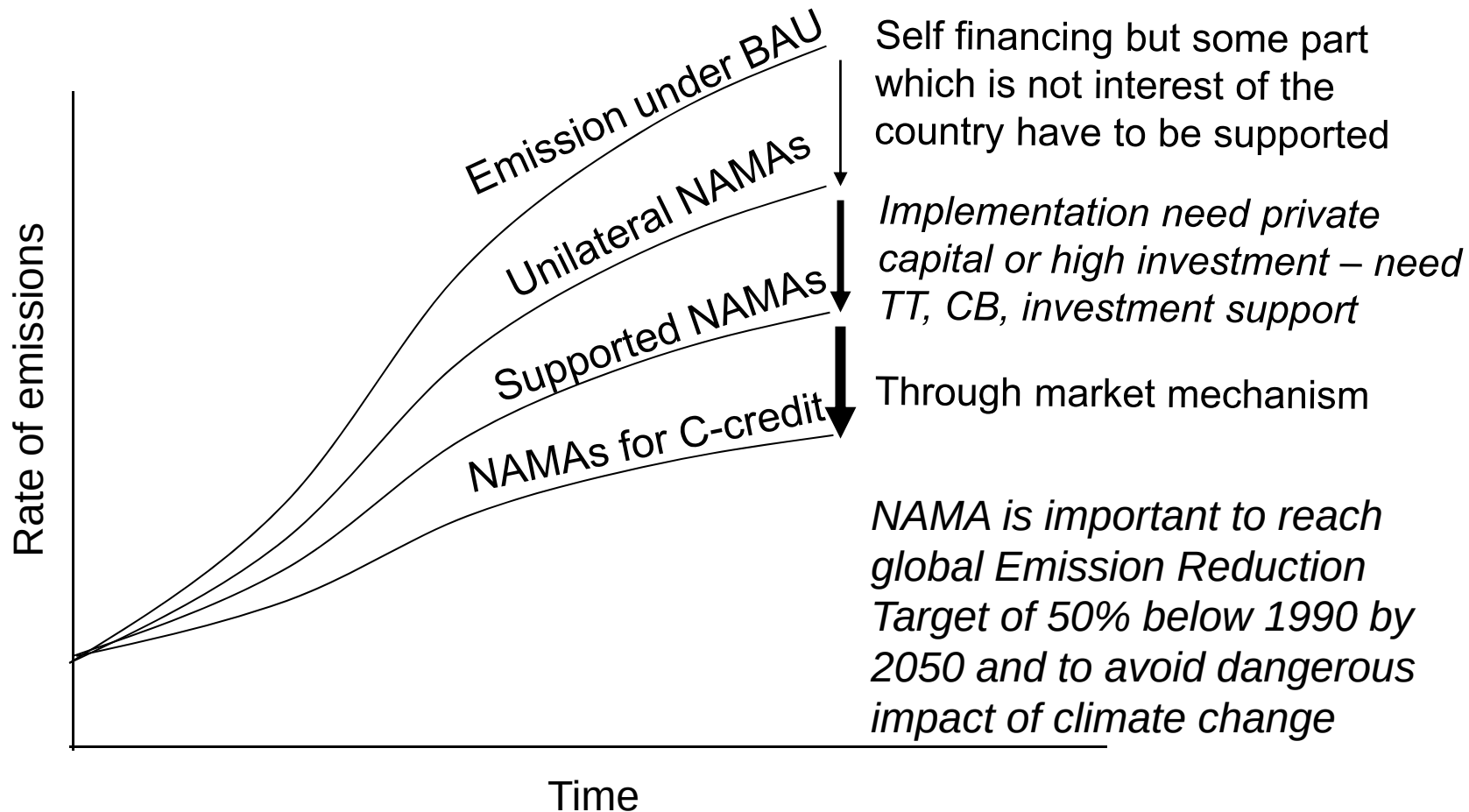




Bali Action Plan

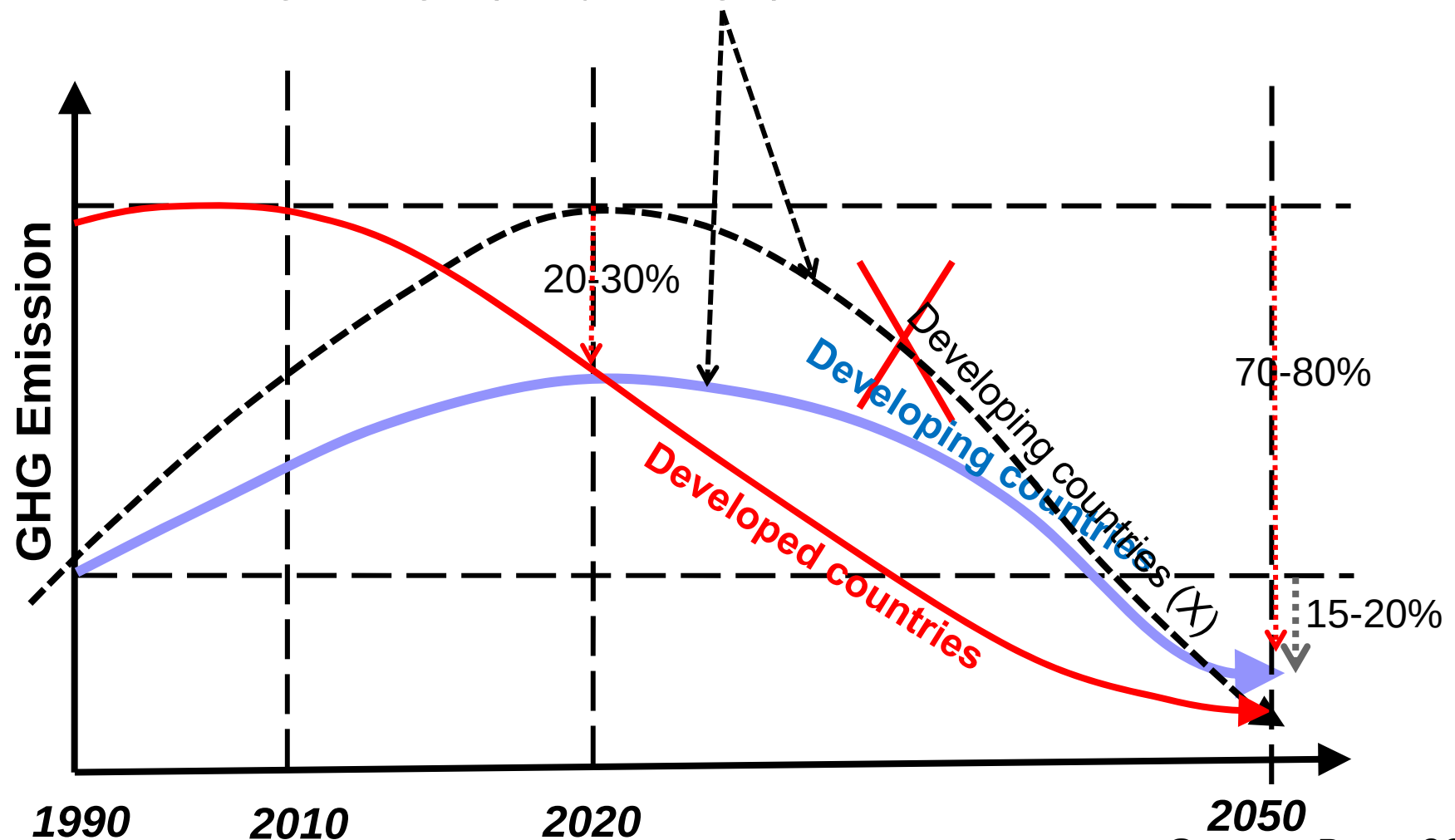
- **Decision 1/CP.13:** ‘...long-term cooperative action (LCA) to enhanced national/international action on mitigation of climate change:
 - Measurable, reportable and verifiable *nationally appropriate mitigation commitments or actions*, including quantified emission limitation and reduction objective by all Developed countries
 - Nationally appropriate ***mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable*** and verifiable manner;
 - ***Policy approaches and positive incentives*** on issues relating to REDD+ in developing countries;

National Appropriate Mitigation Actions (NAMA)



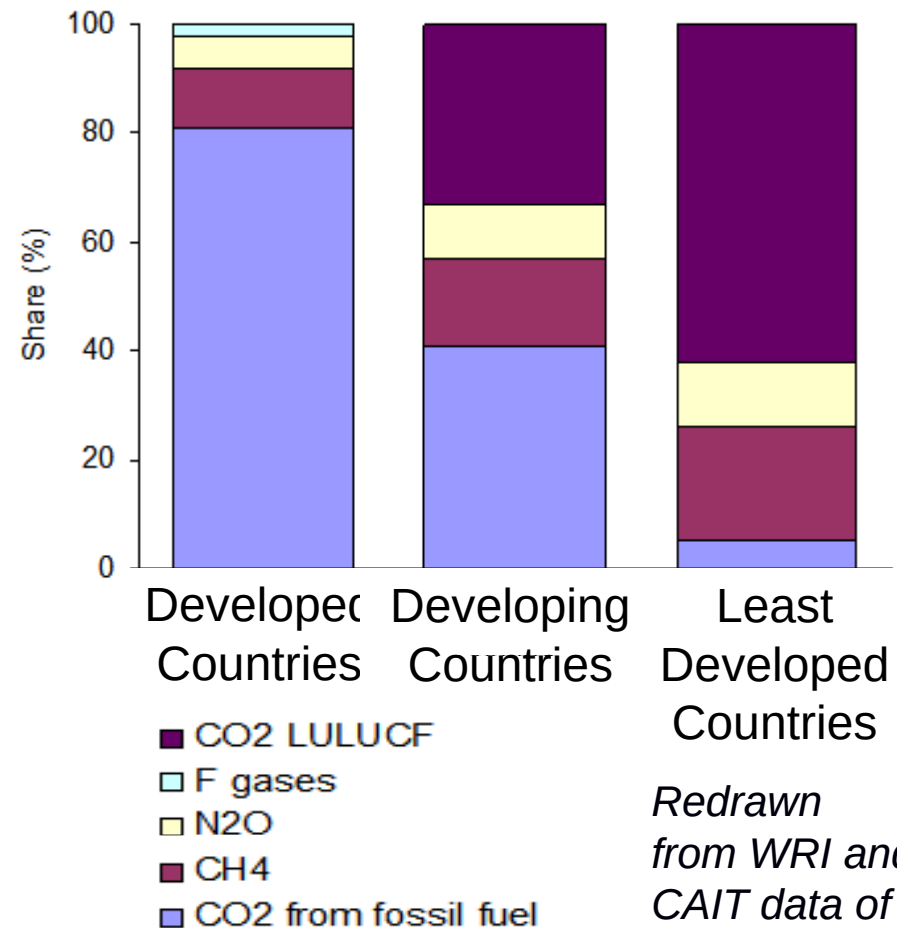
Path of future emission from Developing Countries

Strengthening Cooperation toward Sustainable LCD through acceleration technology transfer, the increase of financial support and strengthening capacity through pilot actions at local levels



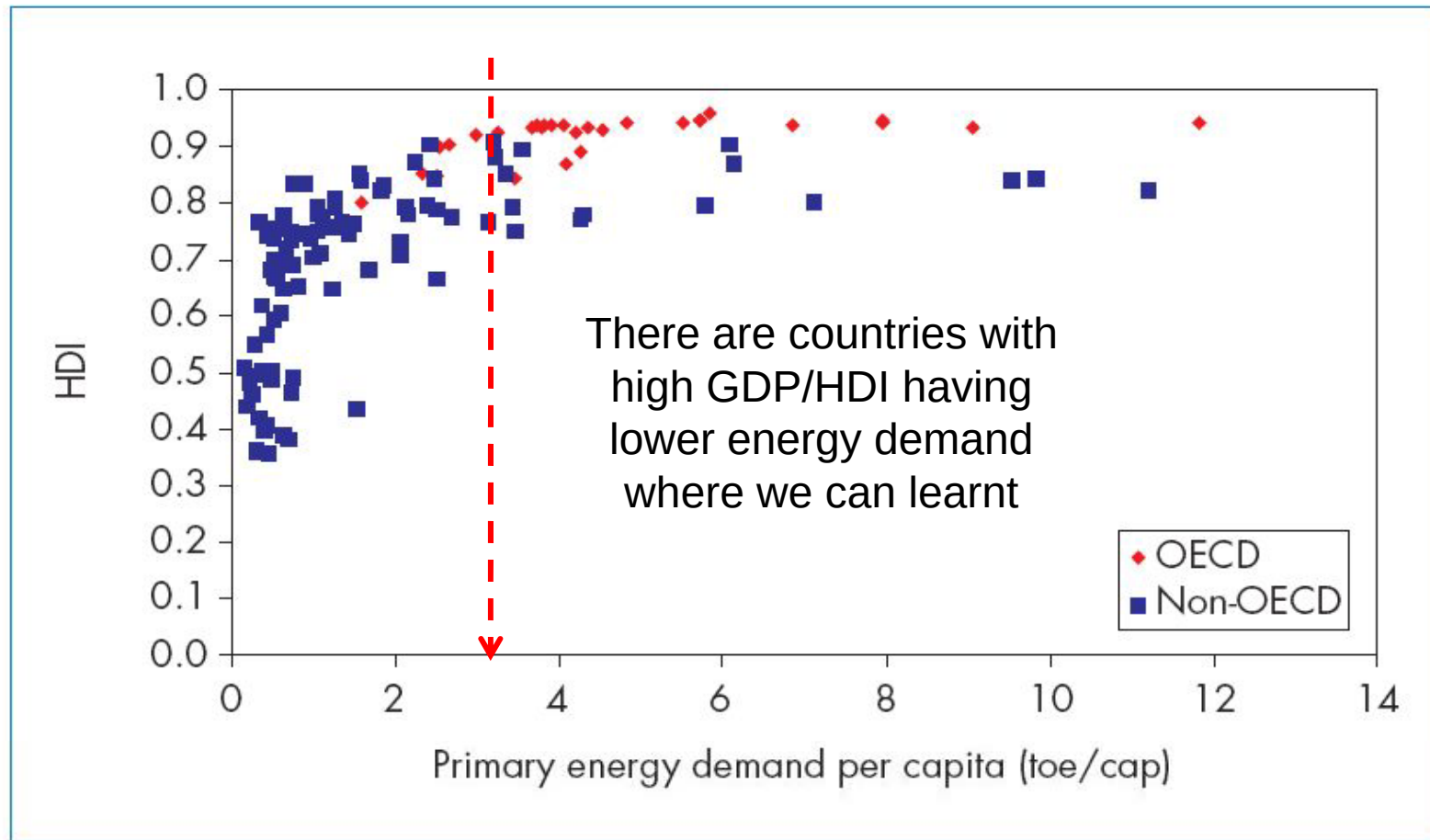
Source of Emission

- In least developed and developing countries main source of emission mainly from Land use, land use change and forestry, and gradually change to energy as they develop



*Redrawn
from WRI and
CAIT data of
2000*

HDI (~ life expectancy at birth + adult literacy & school enrolment + GNP per capita at PPP) versus Primary Energy Demand per Capita (2002) in tonnes of oil equivalent (toe) pa [1 toe pa = 1.33 kW_s]



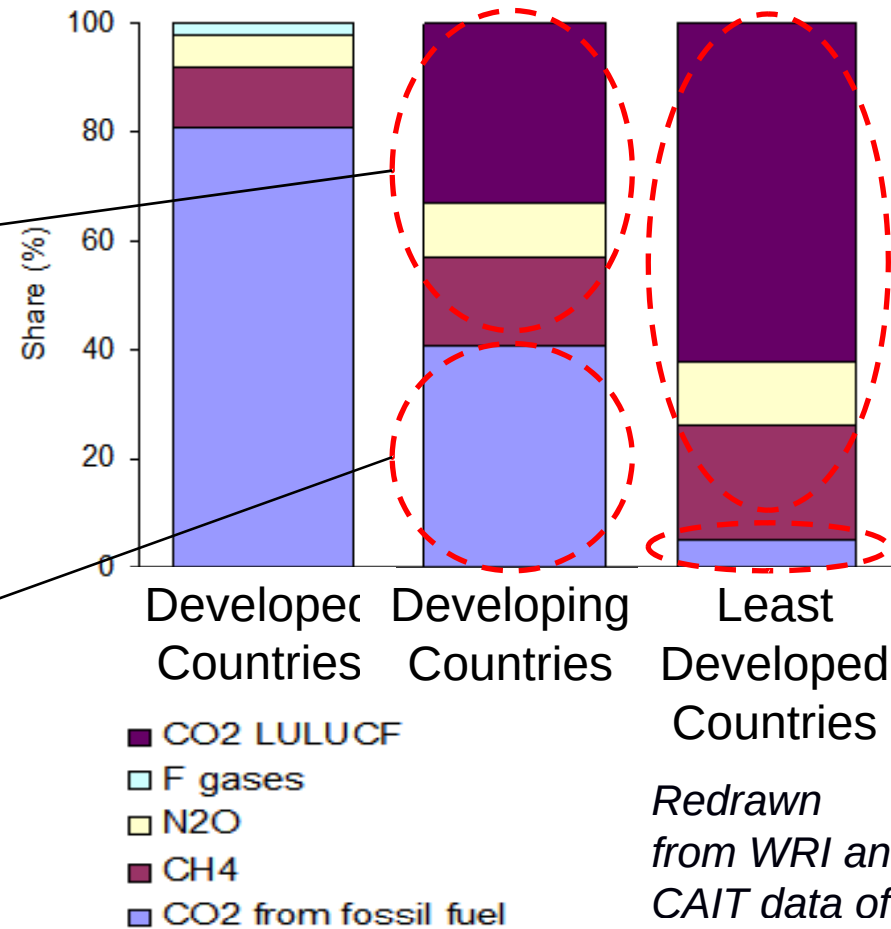
Sources: IEA analysis; UNDP (2004).

Note: shoulder in HDI vs energy-use curve at ~ 3 toe pa [= 4.0 kW_s] per capita
3 toe = 22 boe

Sources of Emission: Urban vs Rural

Mainly from
rural areas
(relatively low
HDI/GDP)

Mainly from
urban areas &
cities (relatively
high HDI/GDP)



Redrawn
from WRI and
CAIT data of
2000

Megacities 2015

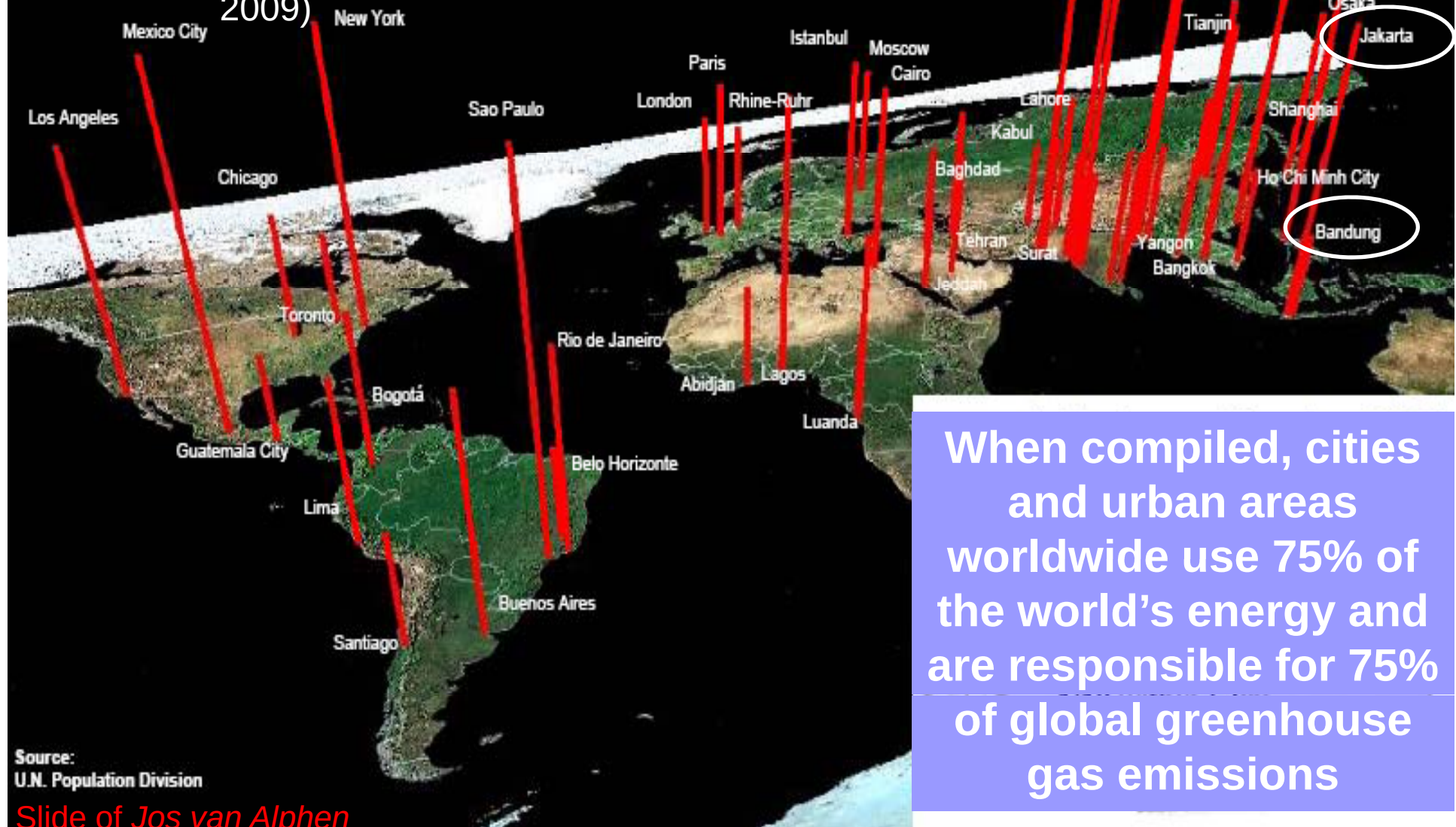
Urban population growth of Indonesia between 2000-05 was 4%/yr (ADB, 2009)

population worldwide in cities

1950 30%

2005 50%

2030 60%



When compiled, cities and urban areas worldwide use 75% of the world's energy and are responsible for 75% of global greenhouse gas emissions

Source:
U.N. Population Division

Slide of Jos van Alphen



Drivers of GHG Emissions

Impact = Population × Affluence × Technology

CO₂ Emissions = Population × (GDP/Population) × (Energy/GDP) × (CO₂/Energy)

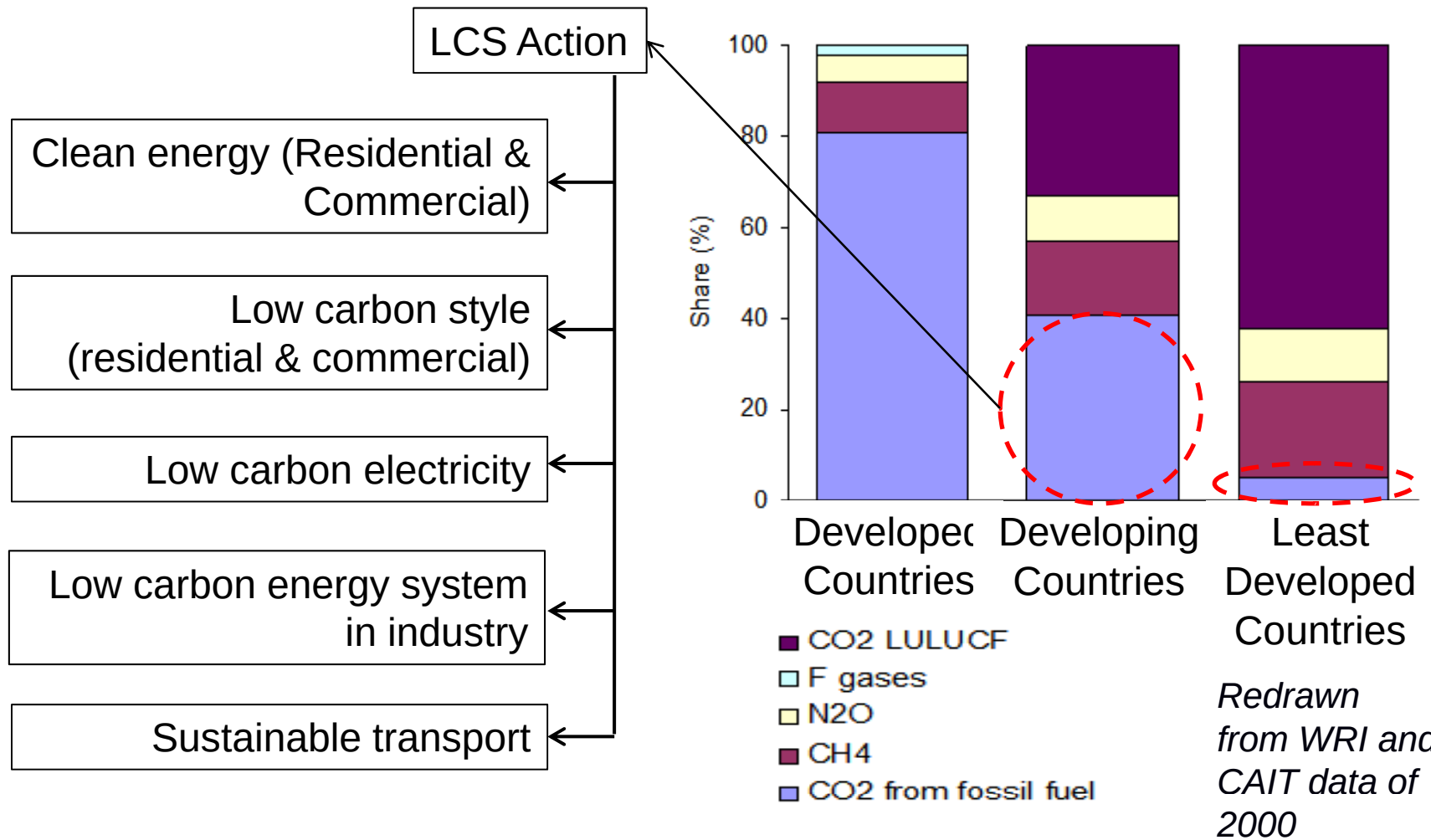
$$Net\ C = P \left(\frac{GDP}{P} \right) \left(\frac{E}{GDP} \right) \left(\frac{C}{E} \right) + (LE - S)$$

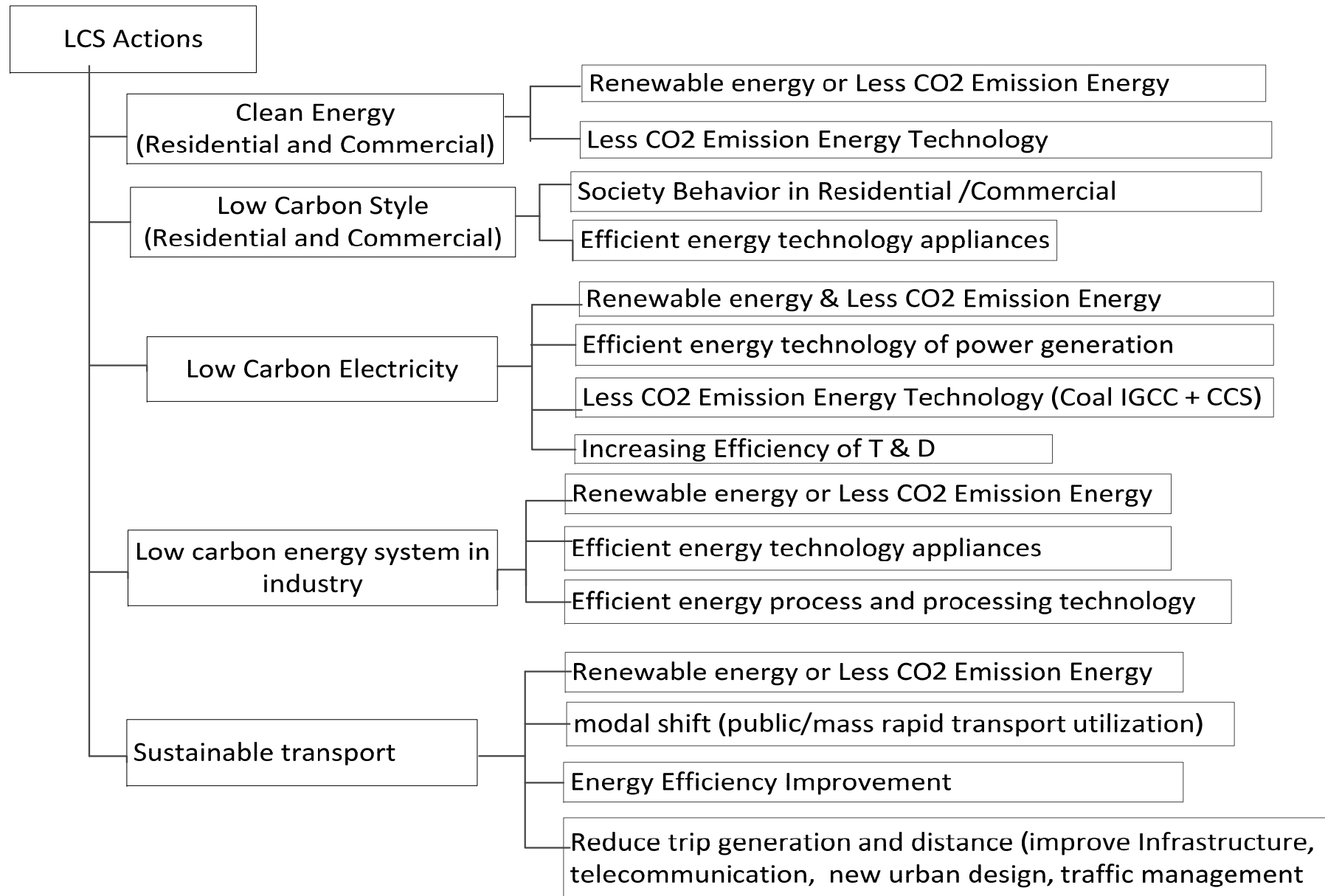
  

Energy **Clean** *Land base*
Efficient **Energy and** *emission and*
 Technology *Sequestration*

Climate Change Mitigation Actions are to reduce Nett GHG Emissions

Main sources of Emission: Urban

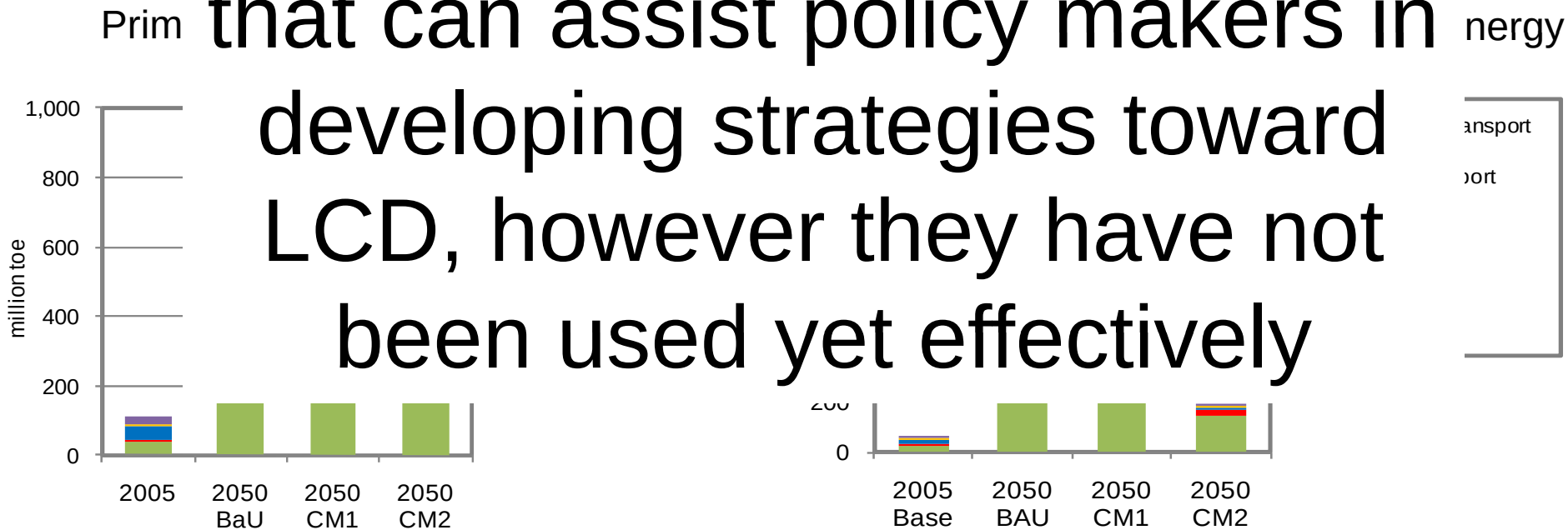
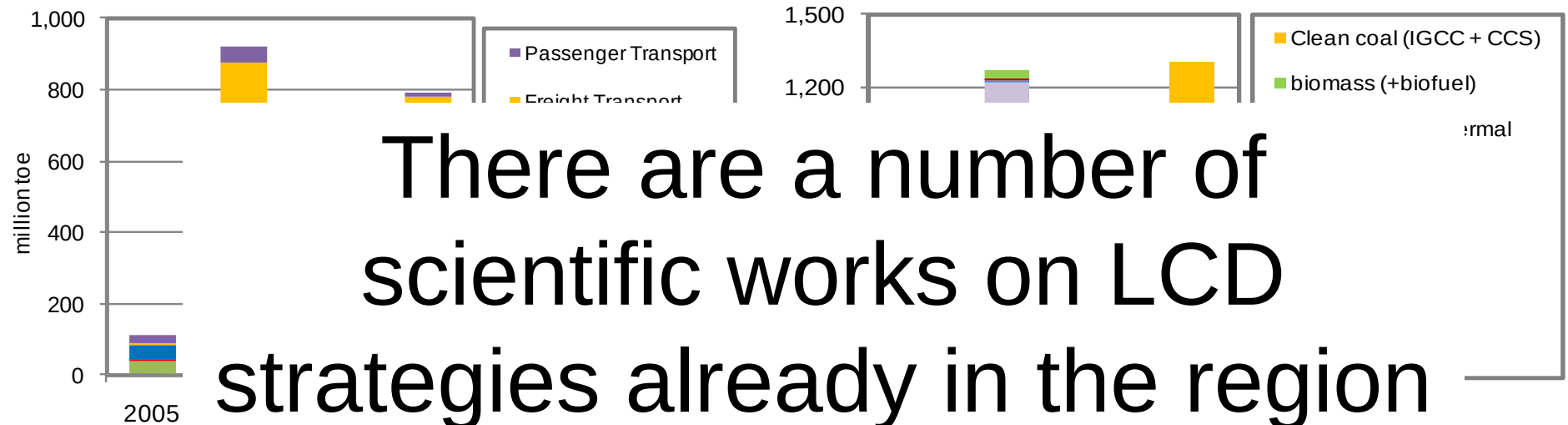




Modeling Work on LCD in Indonesia: Estimation result of base year (2005) and target year (2050)

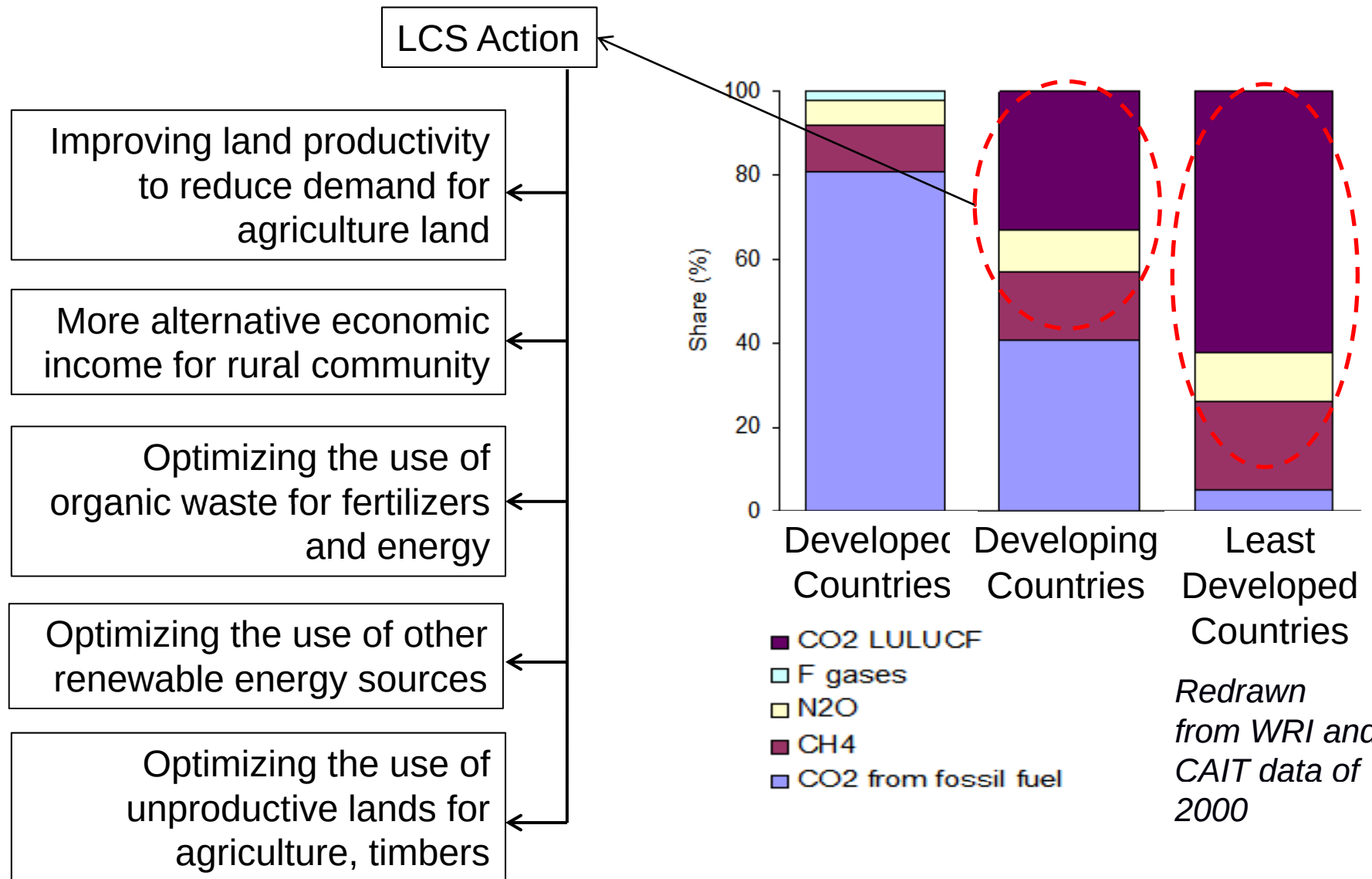
Energy Emission Parameter	2005 Base	2050		
		BaU	CM1	CM2
Energy Demand, ktoe				
Passenger Transport	17,798	41,406	12,543	9,244
Freight Transport	6,562	126,510	45,623	42,056
Residential	42,832	69,761	38,710	66,971
Industry	39,224	569,325	471,039	543,266
Commercial	3,704	111,952	68,039	129,068
Total	110,120	918,953	635,954	790,605
Energy demand per capita, toe	0.50	2.81	1.95	2.42
Energy intensity, toe/million rupiah	61.6	24.8	17.2	11.6
CO ₂ Emissions				
Total, million ton-C*	81	1,184	617	183
Per capita, ton-C	0.37	3.62	1.89	0.56
Total, million ton-CO ₂	299	4,341	2,263	670
Per capita, ton-CO ₂	1.4	13.3	6.9	2.0
Annual GDP Growth rate	-	6.9%	6.9%	8.3%
Annual energy demand growth rate	-	4.8%	4.0%	4.5%
Energy elasticity	-	0.70	0.57	0.54

Source: Dewi et al., 2010

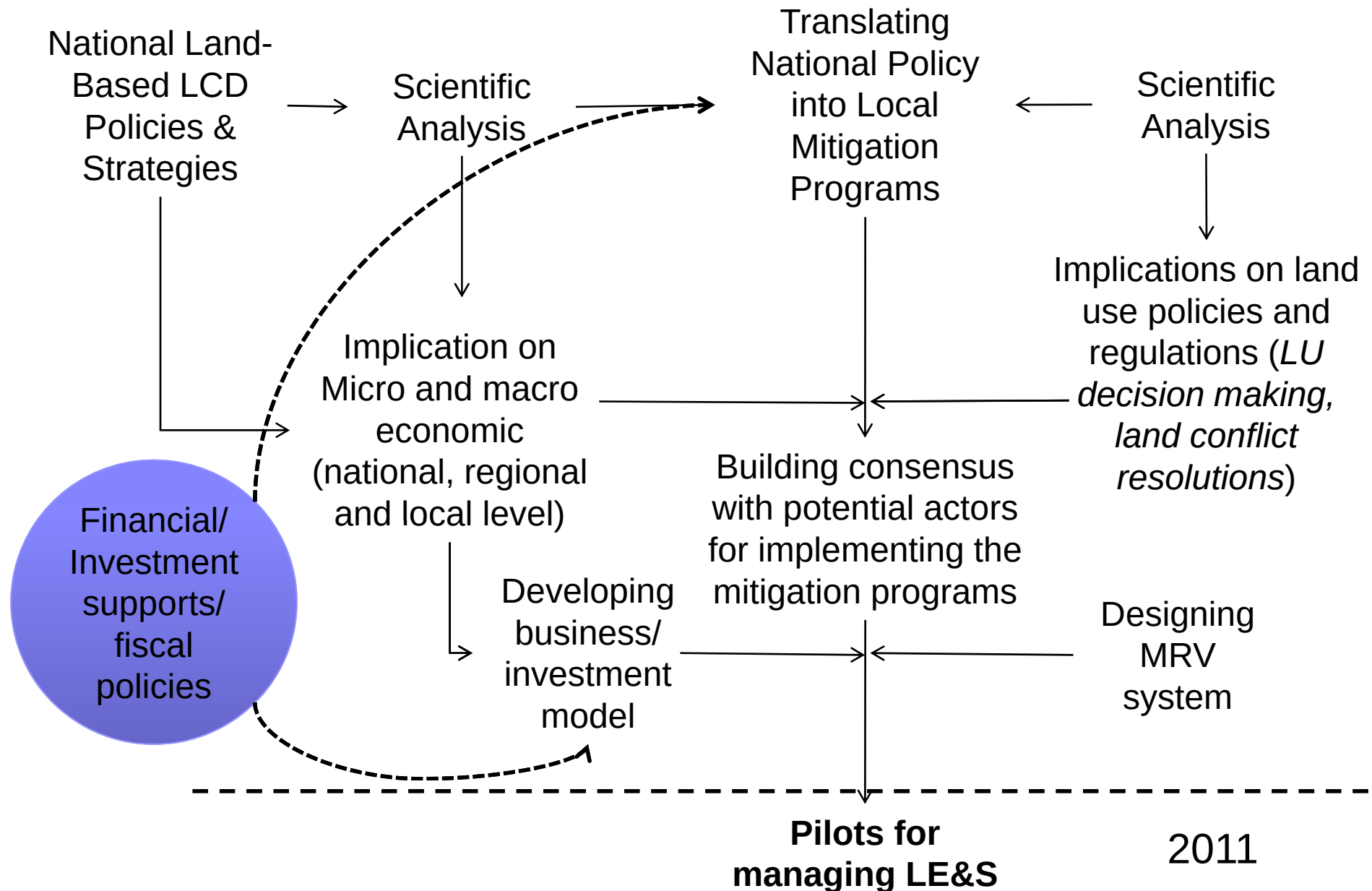


There are a number of scientific works on LCD strategies already in the region that can assist policy makers in developing strategies toward LCD, however they have not been used yet effectively

Sources of Emission: Rural



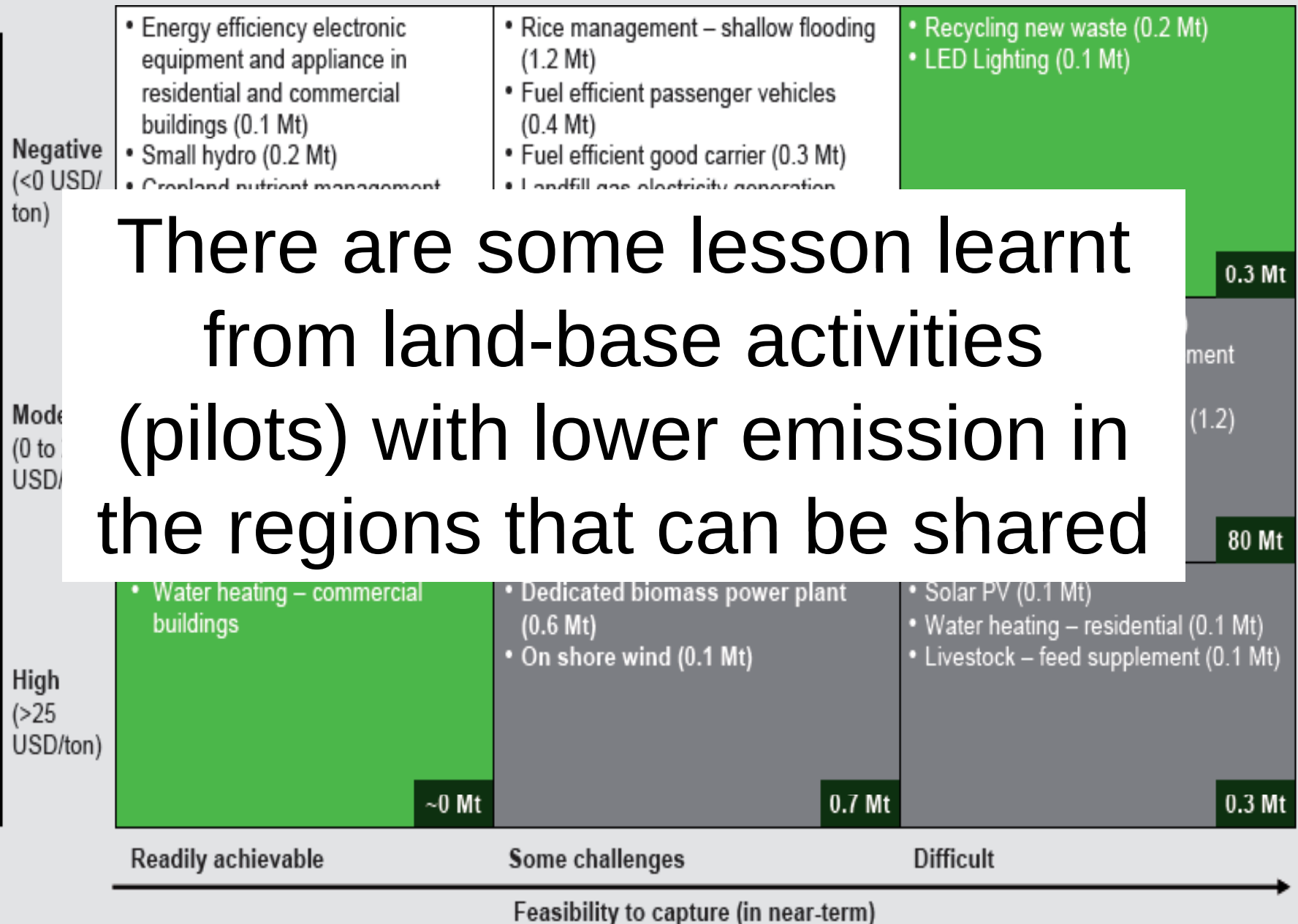
Pilots for managing land base emission and sequestration



Land-Base LCD Strategy in Central Kalimantan DNPI (2010)

- Do it now (potential to be realized by 2015)
- Start slow, then accelerate (potential to be realized by 2020)
- Develop now, capture over time (potential to be realized from 2015-2030)

PRELIMINARY



There are some lesson learnt from land-base activities (pilots) with lower emission in the regions that can be shared



Needs for Regional Network on Low Carbon Society (LSC)

- Many modeling works that can help policy makers in developing strategies for LCD – Need for integration of research and policy
- There are a number of lesson learnt from other countries in the regions in implementing land-base activities with lower emission
- Generating regional network can enhance transfer of knowledge and technology among countries toward LCD, and exchange of lesson learnt in integrating research and policy



THANK YOU