

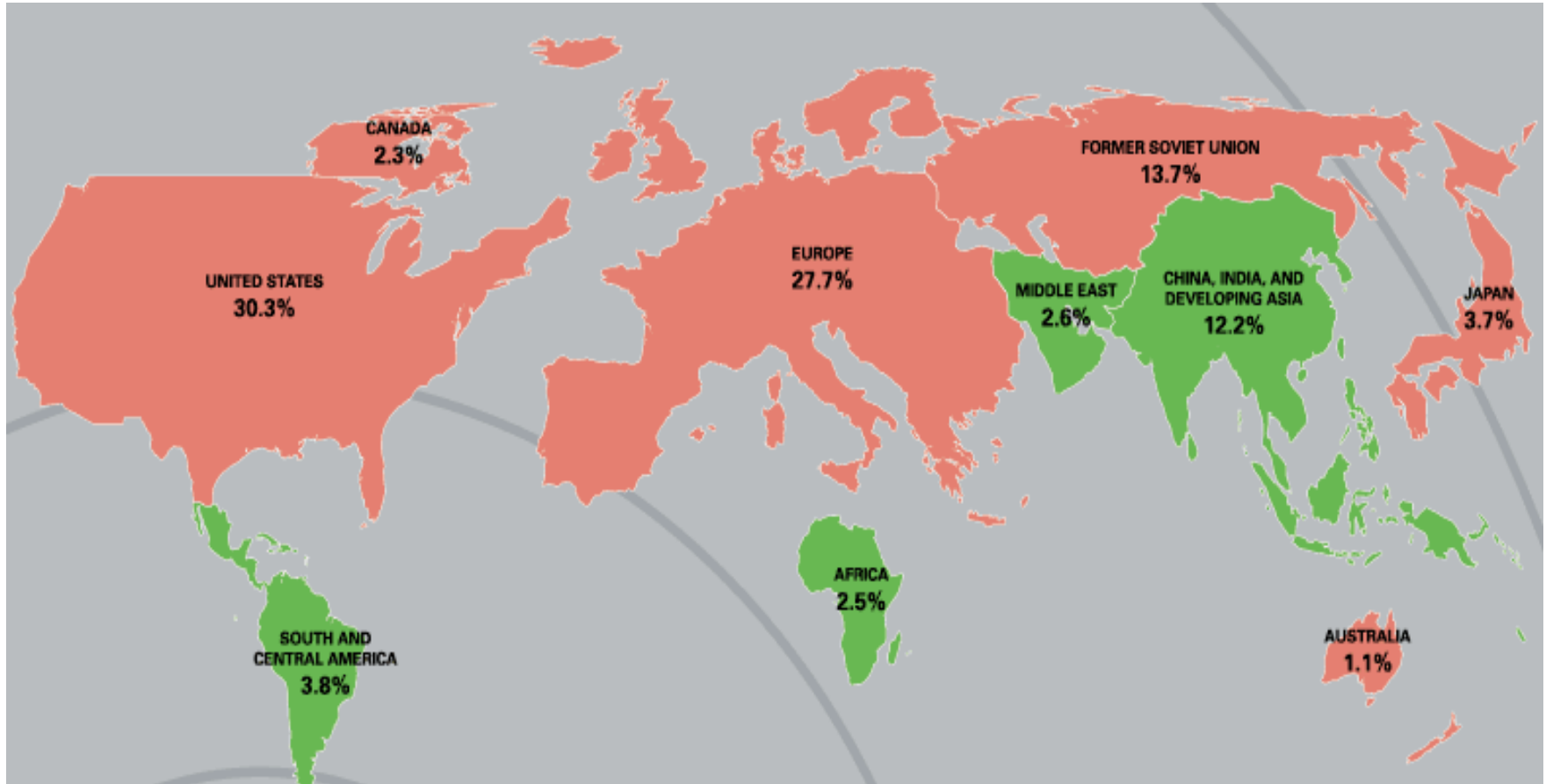
# **Climate Change, Energy and Development**

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# Industrialized countries have emitted the most anthropogenic CO<sub>2</sub>

(Area proportional to historical CO<sub>2</sub> emissions from fossil fuel combustion, 1900-1999)



Source: WRI

# Climate Change and Sustainable development

- To effectively address Climate Change – also must address sustainable development
- Carbon Dioxide is the Most Copious Greenhouse Gas Emission
- Global Warming and Climate Change
- Negative Socio-Economic Impacts

# THREE LEGGED APPROACH TO CLIMATE CHANGE



Mitigation

Adaptation

REDD and Afforestation

# ADAPTATION – ENERGY & DEVELOPMENT

- CC adaptation is key to energy and development
- Adaptation for energy – energy and culture – acceptance, change issues and new energy.
- Energy for new users – concepts and perceptions
- Adaptation and development – a challenge for implementing climate change

# REDD, ENERGY & DEVELOPMENT

- REDD and development
- REDD and energy – the drive for change – current issues
- Challenge – what must happen. Cultural Acceptance and understanding.
- Technology needs and their role in making REDD a mitigation option – issues for acceptance of technology

# MITIGATION, ENERGY & DEVELOPMENT

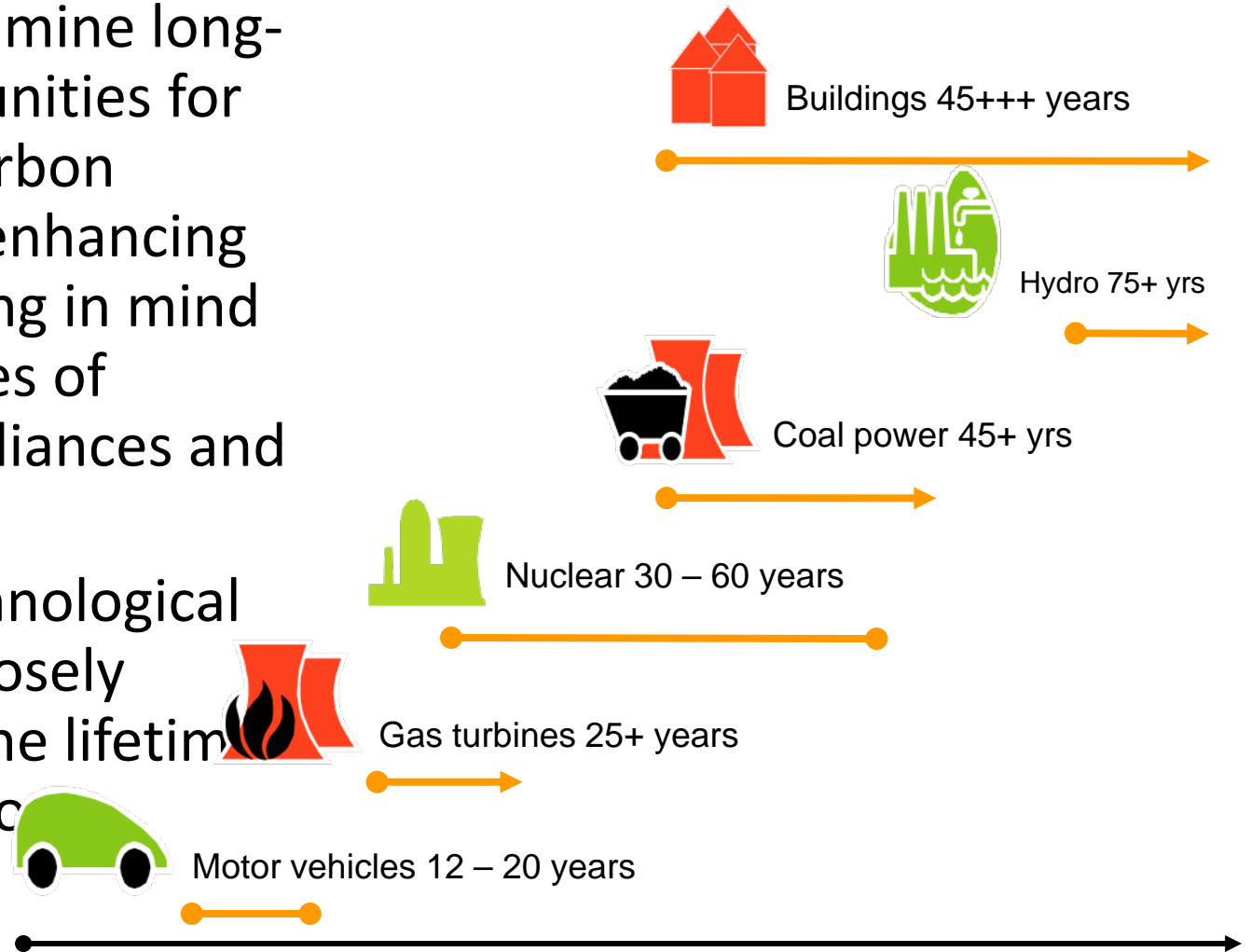
- CC and mitigation
- Mitigation challenge – the link to technology, finance and capacities
- Opportunities for development – what strategies are necessary.
- Challenges for emerging economies – emissions and mitigation, peaking – when, how and options.

# MITIGATION CAN PROVIDE BENEFITS

- Reduce fossil fuel consumption
- Improve technological base, Increase in technological efficiency and effectiveness,
- Improve security and availability of power supply.
- Reduce road congestion with a shift from private to public transport.
- Poverty alleviation, Increase in employment resulting from mitigation projects.
- Strengthen institutional, systemic and human capacity.

# MITIGATION IS TIME RESTRAINED

- Need to examine long-run opportunities for reducing carbon sources or enhancing sinks, bearing in mind the life-times of various appliances and systems.
- Rate of technological change is closely related to the lifetime of capital stock



# SCOPE – CC , ENERGY & DEVELOPMENT

- Includes energy demand and supply, forestry, agriculture, rangelands and waste management.
- Includes analysis of the impact of options on the macro-economy.
- Considers policies and programs that can encourage adoption of mitigation technologies and practices

# A Shared Vision...THE FUTURE OF CC DEBATE

In Bali, countries agreed on a *shared vision, a comprehensive set of actions for long-term cooperative action based on the following key principles:*

- a) *developed countries taking the lead on emission reductions;*
- b) *developing countries, and in particular emerging economies, agreeing to contribute to the global mitigation effort;*
- c) *special attention being paid to the least-developed countries which need to pursue their sustainable development and should not be subjected to mitigation commitments; and*
- d) *developed countries providing predictable additional financing, technical and capacity building support to help developing countries adapt to climate change and contribute to greenhouse gas emissions.*

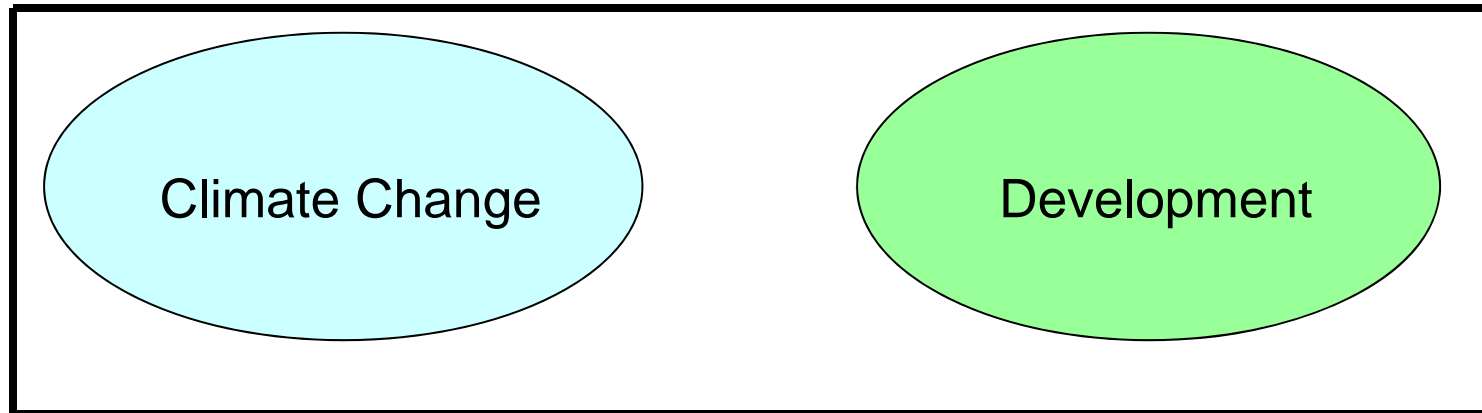
# BAP Pillars – THE BIRTH OF NAMA

- **mitigation:** GHG reduction by all developed countries and efforts by developing countries along the principle of 'nationally appropriate mitigation actions'; Policies and practices encouraging emission reductions from deforestation and forest degradation and the sustainable management of forests in developing countries; and Sector-specific actions for mitigation; and using market mechanisms as a means, among others, to promote mitigation actions;
- **adaptation:** *international cooperation for adaptation actions that include risk management and risk reduction strategies;*
- **technology development and transfer:** *scaling up of technology development and transfer to developing countries and cooperation on research and development; and*
- **financial resources:** Improved access to adequate, predictable and sustainable financial resources for developing countries, including innovative financing mechanisms; and Support for capacity-building, in particular for the most vulnerable developing countries.

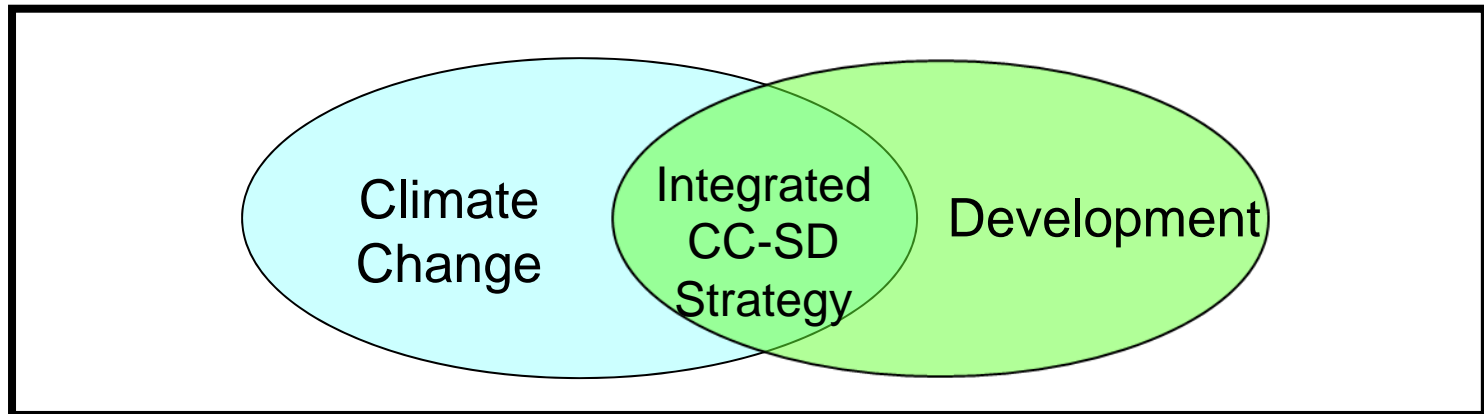
# NAMA

**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”

# An integrated climate change-sustainable development strategy is essential



Former Viewpoint



Emerging Viewpoint

# SOME KEY CHALLENGES

- Identification, estimation and valuation of mitigation benefits.
- Relation between mitigation and sustainable development

# Different Tools, Policies, Measures and Instruments

- **Global:** Kyoto Protocol.
- **Country level :** emissions, carbon, or energy taxes, subsidies, deposit-refund systems, voluntary agreements, permits (tradable and non-tradable), technology and performance standards, product bans, direct government spending, including R&D investment.
- **Regional level:** tradable quotas, joint implementation, clean development mechanism, harmonized emissions, carbon or energy taxes, quotas, international technology and product standards, voluntary agreements, and direct international transfers of financial resources and technology.

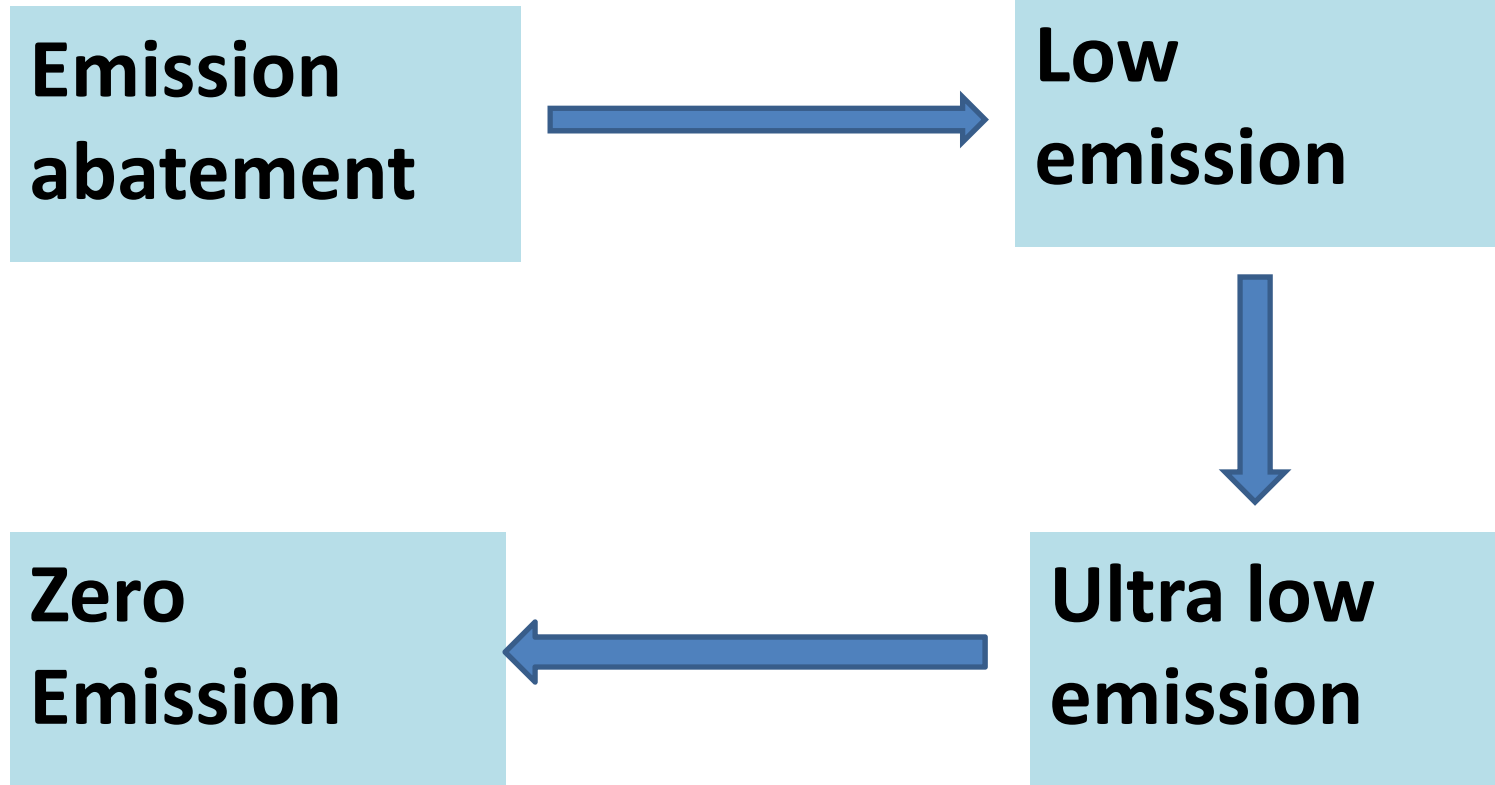
# PROPOSALS ON THE TABLE and PAMs

- GHG emission reductions and limits –  
**Peak, Plateau and decline thereafter.**  
**Conditional on Finance, Capacity Building and Tech Transfer – Do we know what means – are we ready?**
- Carbon pricing concepts, REDD and MRV – **carbon tax, transport, government, low carbon economy**  
**What's PAMs for Africa?**

# PROPOSALS ON THE TABLE and PAMs

- Preparing for the future – **education, public awareness, research, outreach**  
**what do we mean by CB?**
- Prioritise Vulnerability & Adaptation: **1<sup>st</sup> order maybe okay – but 3<sup>rd</sup> & 4<sup>th</sup> ?**
- Integrate & Institutionalising CC work:  
**legislative, regulatory and fiscal package – Are we ready to accept the Finance and TT under what terms?**

# TECHNOLOGY CHALLENGE



# TECHNOLOGY PERSPECTIVES FOR CARBON MANAGEMENT

- Adoption of high efficiency in thermal power generation through fuel and boiler technology
- Increasing use of renewable energy sources
- Growing nuclear power production
- Energy efficiency in end use sectors
- Promotion of clean coal technology
- Research on carbon capture and storage



# CDM for CCS – a case for Southern African countries

- The purpose of carbon capture and storage is to address the GHG emissions
- NAI have no obligatory emission reduction targets, their participation is through CDM.
- Access to carbon credits could improve the economics of CCS
- Currently \$50 gap between CCS and conventional CDM,

# FINAL THOUGHT

We need to transform the global energy system into one that relies on advanced, efficient and low emission technology ... **i.e.**, – Green & Better Jobs, Greater Opps for Africa, Cleaner Air, Sustainable Development, Better Future

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