

# Understanding Long-Term Finance Needs of Developing Countries

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# Main Messages

- Climate change financing needs of developing countries exceed by at least 5-10 times current and prospective flows  
    \$600 to \$1,500 billion a year vs \$100 b/year
- While there are a variety of estimates and approaches to estimating needs, there is a degree of convergence in the magnitudes among different studies

# Mitigation –Estimates of Global Costs

- IEA (2010) “Blue Map” scenario
  - up to 2030 \$750 billion a year
  - 2030-2050 \$ 1,600 billion a year
- Global Energy Assessment (2011)
  - 2010-2050 \$ 1,700-2,100 billion a year
- Edenhofer et al. (2009) “RECIPE”
  - up to 2030 \$480 – 600 billion a year
  - in 2050 \$1,200 billion a year
- Mckinsey (2009) Pathways to a Low-Carbon Economy
  - in 2020 \$ 660 billion a year
  - in 2030 \$1,000 billion a year

# Mitigation - 1

- UNFCCC (2009) expert group on technology
- Global additional financing required
  - \$300 to 1,000 billion a year until 2030
- Developing country share in costs of technology deployment and diffusion (*excl. research and development*)
  - \$182 to 505 billion a year
  - +more with R&D+

# Mitigation - 2

- World Bank Development Report 2010
- Incremental mitigation costs in development countries
  - \$140 to 175 billion a year
- “Associated financing needs”
  - \$265 to 565 billion a year

# Mitigation - 3

- UNDESA (WESS 2011)
- Global investments for energy transformation  
\$1,800 billion a year
- Developing country requirements
  - Energy transformation - \$1,080 billion a year
  - Agric. investment 20 billion a year
  - Total \$1,100 billion a year

# Mitigation – Bottom Up Estimates

- India (Centre for Science and Environment 2010)  
- 6 key sectors

\$10 billion a year for power sector alone

- China (Human Development Report 2009/10)

2010-2050 \$ 240 – 355 billion a year

pattern of increasing cost as economy grows

2030	269	269
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2050	523	1,584
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# Adaptation - 1

- UNFCCC (2007) developing country needs  
\$27 to 66 billion a year
- World Bank (2010)  
\$75 to ~100 billion a year

of which in a \$102 b a year “wetter” scenario

East Asia/Pacific	-	\$29 b
South Asia	-	17
Latin Am/Caribbean	-	23
Sub-Saharan Africa	-	19
Europe/Cent. Asia	-	11
Middle East	-	4 (rounding errors)



# Adaptation – 2

- Parry *et. al* (Imperial College 2009) Peer reviewed Evaluation of UNFCCC estimates  
(Parry former IPCC co-chair working group on impacts, vulnerabilities, and adaptation)
  - missing important sectors – ecosystem services, mining, manufacturing, energy, retail, finance, tourism
  - underestimation by 2-3 times in each included sector
- Water (adapting to floods not included)
- Infrastructure – low infrastructure levels to continue in Africa and LDCs
- Residual damage (Dlugolecki 2007)

# Adaptation - 3

- More realistic estimate of adaptation costs
- Fuller cost: 2.5 times UNFCCC range  
\$68 – 165 billion a year \$165
- Ecosystem services \$65 – 300 billion a year  
one half of maximum - 150
- Residual damage - \$200 billion a year  
2/3 of maximum residual damage 133
- Total 448**  
**or approximately \$ 450 billion a year**
- Still excluding mining, manufacturing, tourism, etc.

# Adaptation – Indicators from Disasters

- Loss of life, homes, infrastructure, livelihoods
- BP Deepwater Horizon - **\$ 7.8 billion**  
(excluding claims from public sector entities)
- Pakistan 2011 floods, 14 million affected,  
**\$10-15 billion for reconstruction** (MSNBC)
- Thailand 2011 floods, **\$46 billion** (WB 2011)
- US 2011 Mississippi flooding, **\$9 billion** (WSJ)

# Mitigation & Adaptation

- Developing Country Needs
- Mitigation \$500 to 1,100 billion a year
- Adaptation 100 to > 450 billion
- Range 600 to >1,550 billion a year

# Importance of Better Information

- Advantage of greater understanding among parties of the scale of estimates and assumptions behind them
- Importance of expanding support for bottom-up approaches, such as the NEEDS study (UNFCCC 2010)

# Methodology

- Greater precision with more detailed, sectoral studies but how to add up
- Many implicit, hard-to-measure, costs are ignored in overall estimates
  - Skills upgrading, local implementation capacity, etc.
  - Costs of adapting technology to local conditions
- Uncertainty in estimates of proportion of investment subject to climate change
- Many estimates are not independent of each other, partake of flaws in other studies

Thank you