

# REGIONAL RESEARCH AGENDA FOR LOW CARBON DEVELOPMENT

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Jakarta, 24 November 2014  
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# LOW CARBON GREEN GROWTH

1. Using less energy, improve efficiency of resource use and to switch to low carbon energy resources;
2. Protecting natural resources with high CO<sub>2</sub> content such as forests and peatland;
3. Design and disseminate low-carbon technologies and business models to reinvigorate local economies;
4. Implement policies and incentives that discourage carbon intensive practices;

# TRIPLE TRACK SUSTAINABLE LOW CARBON GROWTH CO-BENEFITS

Environmental Co-Benefits: Reduce air pollution, forests' conservation, lower particulate pollution  
clean energy to cut indoor air pollution, and outdoor air pollution reduction through reduced fossil fuel combustion and clean technology uses;

Economic Co-benefits: Increase energy efficiency, renewable energy development. Investments on the transition to low-carbon economies by absorbing low-productivity labor. Carbon taxation to reduce CO<sub>2</sub> emissions coming from fossil fuel; Increasing forest cover for carbon sink services;

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Social Co-Benefit; The growth of Public Transportation system to induce energy efficiency;  
Empower Women in land management and to give them a voice on low-carbon consumption choices;  
Implement poverty eradication programs

***Sustainable Development follows a triple track, environment-economic-social, that has a spill over effect of co-benefits on low carbon growth***

# LOW CARBON GREEN GROWTH REQUIREMENTS

- State of the art Green Technology to develop: Alternative energies, energy efficiency;
- Natural asset & Waste Recycling Management;
- Spatial planning based infrastructure development to enable value added through resource enrichment within the bio-capacity of nature;
- Raising productivity of human capital through education, science development and capacity building;
- Poverty alleviation through inclusive growth;

# KEY LOW CARBON TECHNOLOGIES

1/ Carbon-capture-storage; 2/ on/of shore wind energy; 3/ biomass integrated gasification combined cycle; 4/ photovoltaic solar systems; 5/ coal integrated gasification combined cycle; 6/ coal ultra-supercritical steam cycle; 7/ energy efficiency in buildings and appliances; 8/ water heating; 9/ energy efficiency in transport; 10/ second generation biofuels; 11/ electric & plug-in vehicles; 12/ hydrogen fuel cell vehicles; (IEA list)

# LINKING SCIENCE AND POLICIES

- Asian countries are facing problems to secure supply of Water, Air, Food and Energy (WAFE);
- There are Asian local solutions with technologies that need to be identified to establish appropriate policies to assure the security of WAFE;
- Based on the respective policies of WAFE, models of relevant sciences need to be identified and tested;
- Key global policies to ensure active participation of countries are by providing seed capital and/or funding on “matching formula” basis. (End)

# REFERENCES

Publications by Asian Development Bank and the Asean Development Bank Institute, among others “Low-Carbon Green Growth in Asia, Policies and Practices” and the upcoming Study on “Indonesia’s Population Dynamics and Sustainable Development” by Emil Salim, Toening, Alvin, Nizam and Evie Arifin (an UNFPA Publication, November 2014)