Partnership for Market Readiness
PMR country-specific support: China
May 29th, Barcelona

Upstream Analytical Work to Support Development of Policy Options for Mid-and Long-term Mitigation Objectives: China

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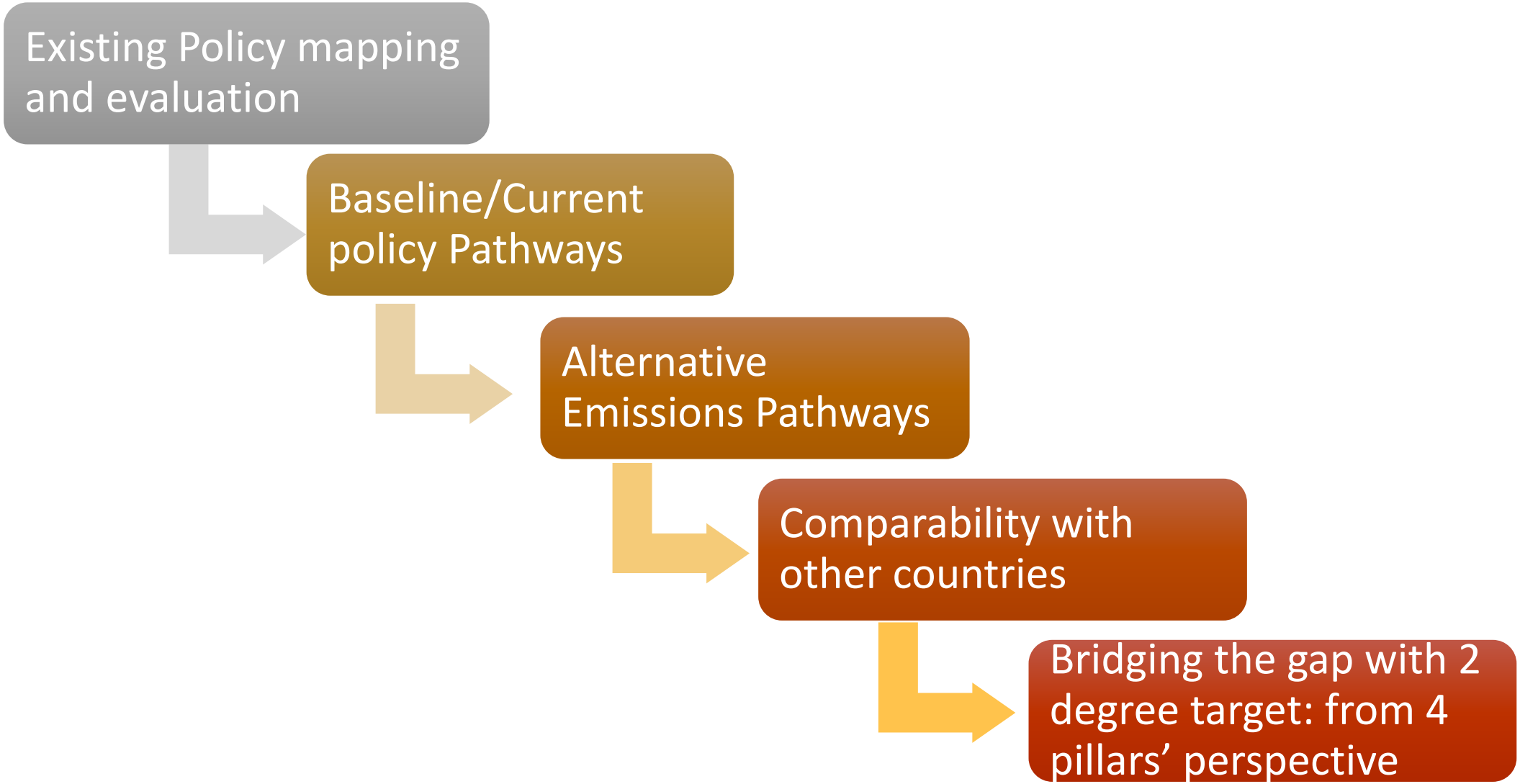
Wang Ke, Wang Jingfu, Fu Shuaixiong, Cui Xueqin, Liu Junling

Project overview: tasks, progress and next steps

Five Components of the Project

- Task I: Mapping and assessing existing and planned policies and instruments
- Task II: Review and comparing of the existing and ongoing studies on constructing China's GHG emission scenarios for 2020, 2030 and 2050
- Task III. Facilitating comparability of China's emission scenarios with other countries (e.g. EU, US, India and Brazil, etc)
- Task IV. Understanding China's emission scenarios and projection in the context of the four pillars of decarburization strategy proposed by the IPCC
- Task V: Providing technical inputs and feedback to checklist of analytical tools for analyzing designing and presenting emission scenarios

Building blocks of the projects



Task I: Mapping and assessing existing and planned policies and instruments

1.1 Policy mapping and evaluation

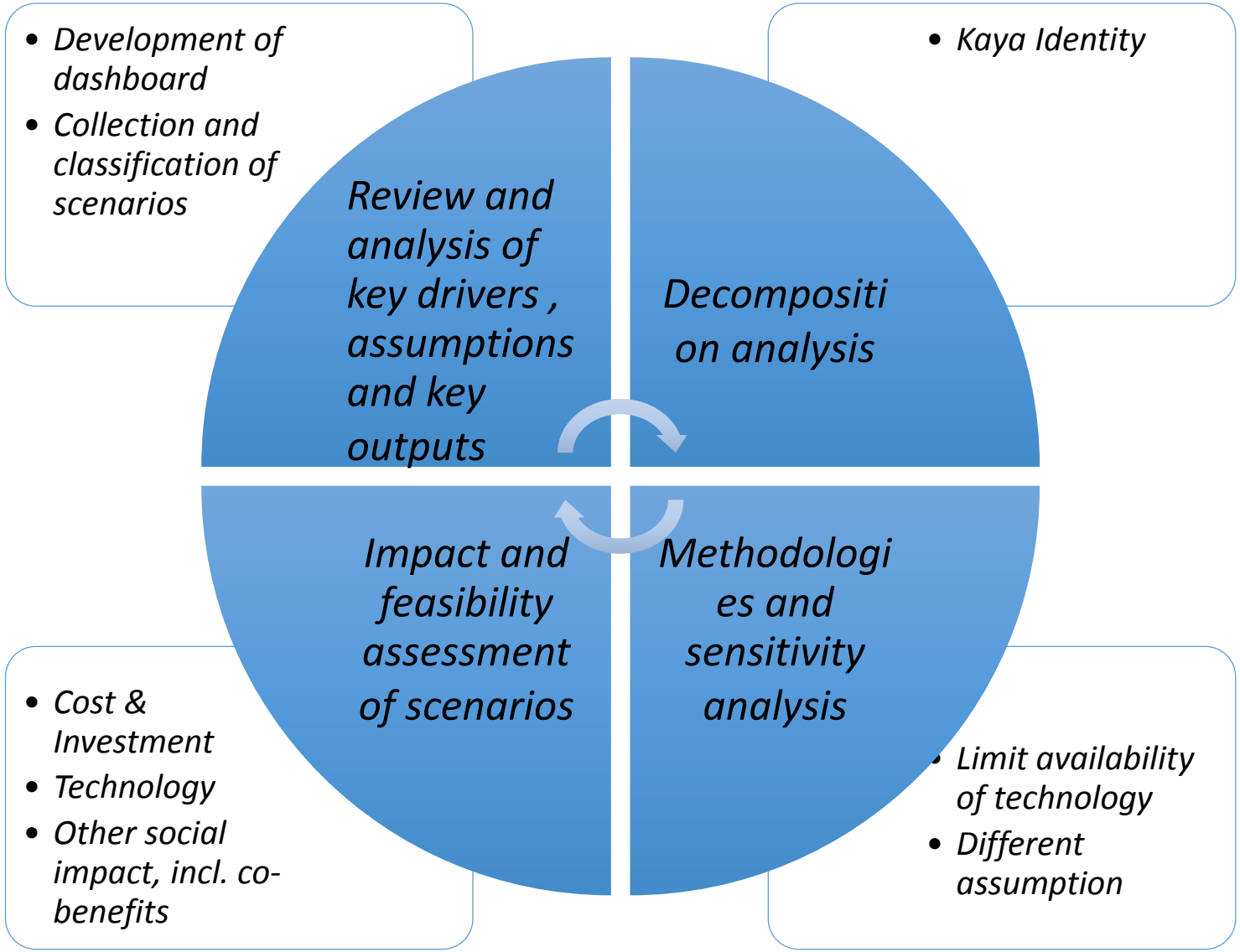
- *Mapping existing and planned policies*
- *Performance evaluation: qualitative and quantitative*

1.2 Development of BAU/CPS

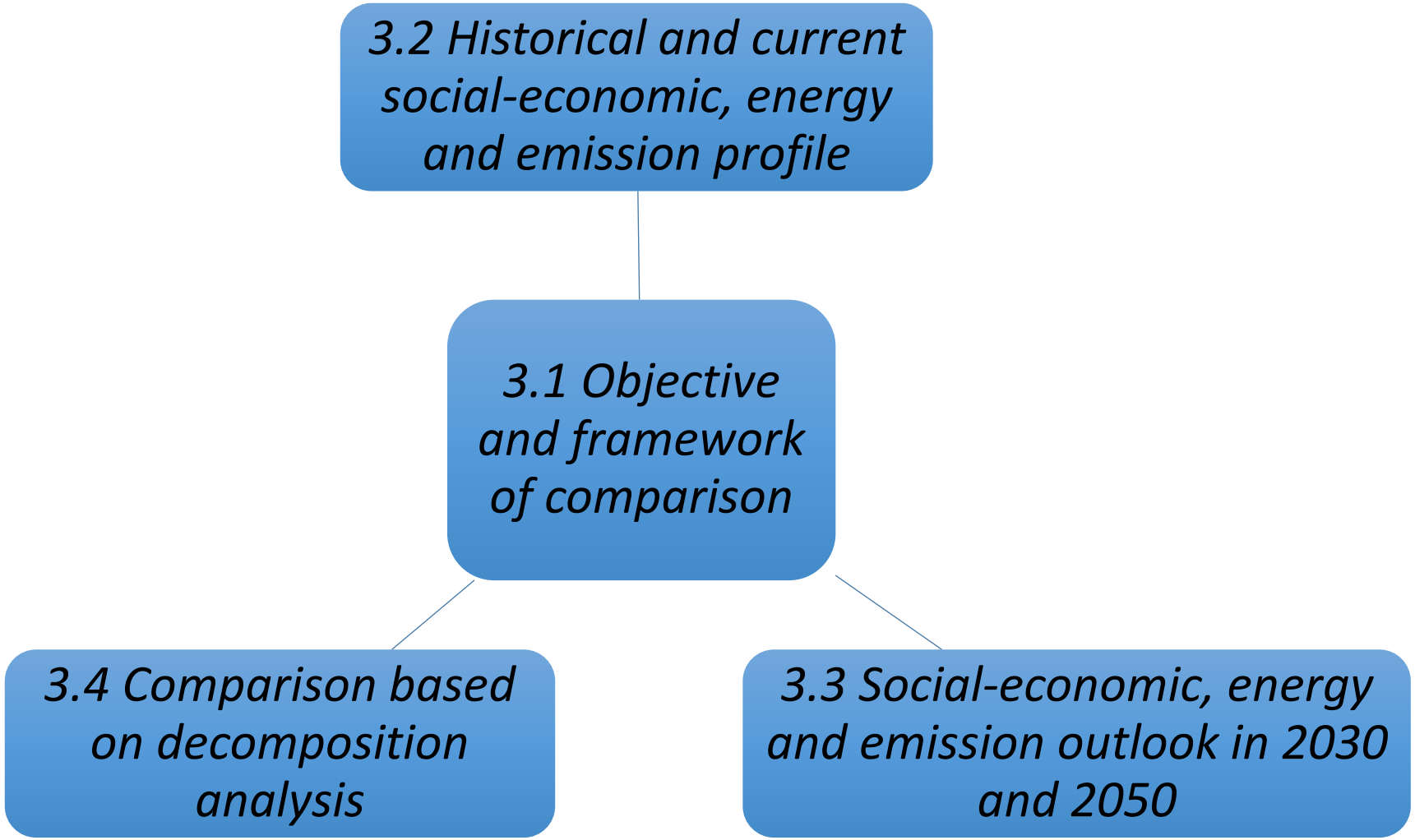
- *BAU/CPS Scenario*
- *Analysis on mitigation potential*
- *Uncertainties*

Task II: Review and comparing of China's GHG emission scenarios for 2020, 2030 and 2050

- The review is structured to compare the studies in the following three scenarios:
  (A) Reference Scenario - Existing Policy Scenario ;
  (B) Enhance Policy Scenario;
  (C) Ambitious Policy Scenario.
- The three scenarios apply to both sectoral and economy-wide levels.
- The timeframe should cover 2020, [2025], 2030 and 2050.



Task III. Comparability of China's emission scenarios with other countries



Task IV. Understanding China's emission scenarios and projection in the context of the four pillars of decarburization strategy proposed by the IPCC

Task 4.1 Review of four pillars of decarbonization strategy proposed by IPCC

Task 4.2 Analysis on implications of the IPCC decarbonization strategy on China's emission scenarios

Task 4.3 Analysis on the feasibility of IPCC decarbonization strategy in China based on the work conducted in component II

Task 4.4 Identification and recommendation of a list of key areas in which further research could be conduced in phase II of this project

Work Organization

国家应对气候变化战略研究和国际合作中心
National Center for Climate Change Strategy and International Cooperation (NCSC)

国家发展和改革委员会能源研究所
Energy Research Institute National Development And Reform Commission

中国人民大學
RENMIN UNIVERSITY OF CHINA

清華大學
Tsinghua University

北京大學
PEKING UNIVERSITY

Consultants and advisors

Relevant experts in economic, energy and climate change fields and representatives from government and sector

Guided by WB and NDRC

Project Leader: ZOU Ji

Project Undertaking Unit: NCSC

Coordination experts

- FU Sha (NCSC): Technical coordinator
- Li Yan (NCSC): Administrative coordinator
- CUI Xueqin & LIU Junling (Renmin University): Technical assistant

Project Team

- Component 1: **Liu Qiang,** Ding Ding, LI Junfeng, Wang Jingfu
- Component 2: **Zou Ji,** Fu Sha, Teng Fei, Chen Wenying, Wang Ke, Wang Jingfu, Li Junfeng, Fu Shuaixiong, Cui Xueqin, Liu Junling
- Component 3: **Zhang Xiaohua,** Teng Fei, Zou Ji, Fu Sha, Wang Ke, Fu Shuaixiong, Cui Xueqin, Liu Junling
- Component 4: **Jiang Kejun,** Zou Ji, Fu Sha, Zhang Xiaohua, Chen Wenying, Teng Fei
- Component 5: **Chen Wenying**, Zou Ji, Li Junfeng, Fu Sha, Zhang Xiaohua, Jiang Kejun, Teng Fei

TASKS		Experts
Component I: Mapping and assessing existing policies and instruments **(Liu Qiang take lead)**	Task 1.1 Mapping existing and planned policies and their institutional arrangements	Ding Ding, Li Junfeng, Wang Jingfu
	Task 1.2 Qualitative assessment of policy instrument	Ding Ding, Li Junfeng, Wang Jingfu
	Task 1.3 Quantitative assessment of policy instrument	Liu Qiang, Li Junfeng, Wang Jingfu
	Task 1.4 Analysis of tools and methodologies	Liu Qiang, Li Junfeng, Wang Jingfu
Component Ii: Review and comparing of the existing and ongoing studies on constructing China's GHG emission scenario for 2020, 2030 and 2050 **(Zou Ji take lead)**	Task 2.1 Development of dashboard	Fu Sha, Cui Xueqin, Liu Junling
	Task 2.2 Collection, classification and general description of scenarios	Fu Sha, Cui Xueqin, Liu Junling
	Task 2.3 Review and analysis of key drivers and assumptions of scenarios	Zou Ji, Fu Sha, Fu Shuaixiong, Cui Xueqin, Liu Junling
	Task 2.4 Review and analysis of key outputs of scenarios	Zou Ji, Fu Sha, Cui Xueqin, Liu Junling
	Task 2.5 Decomposition analysis	Teng Fei, Wang Ke
	Task 2.6 Impact and feasibility assessment of scenarios	Wang Ke, Wang Jingfu
	Task 2.7 Methodologies and sensitivity analysis	Chen Wenying
Component III. Comparability of China's emission scenarios with other countries (e.g. EU, US, India and Brazil, etc.) **(Zhang Xiaohua take lead)**	Task 3.1 Development of dashboard and collection of scenarios	Fu Sha, Cui Xueqin, Liu Junling
	Task 3.2 Comparison of definitions of scenarios, modeling tools and methodologies, etc.	Zhang Xiaohua, Cui Xueqin, Liu Junling
	Task 3.3 Comparison of key drivers and assumptions of scenarios	Zhang Xiaohua, Fu Shuaixiong, Cui Xueqin, Liu Junling
	Task 3.4 Comparison of key outputs of scenarios, mainly focus on the level of ambition, feasibility and difficulty of scenarios.	Zhang Xiaohua, Zou Ji, Fu Sha, Cui Xueqin, Liu Junling
	Task 3.5 Comparison based on decomposition analysis	Teng Fei, Wang Ke
Component IV. Understanding China's emission scenarios and projection in the context of the four pillars of decarbonization strategy proposed by the IPCC **(Jiang Kejun take lead)**	Task 4.1 Review of four pillars of decarbonization strategy proposed by IPCC	Jiang Kejun
	Task 4.2 Analysis on implications of the IPCC decarbonization strategy on China's emission scenarios	Jiang Kejun, Zhang Xiaohua, Zou Ji
	Task 4.3 Analysis on the feasibility of IPCC decarbonization strategy in China based on the work conducted in component II.	Jiang Kejun, Zou Ji, Fu Sha
	Task 4.4 Identification and recommendation of a list of key areas in which further research could be conduced in phase II	All
Component V: Providing technical inputs and feedback to checklist **(Chen Wenying take lead)**	Task 5.1 Summary on analytical tools and models that China applies based on the work of task 2.7.	Chen Wenying
	Task 5.2 Providing feedback and comments on the checklist	All

Executive progress

Inception and preparation

- Inception workshop (January 22nd- 23rd ,2015 , Beijing)
- Contract signing (February, 2015)
- Delivery of detailed work plan (March, 2015)

Draft report preparation

- Study on different components of the project (January-May, 2015)
- Consultative workshop focusing on different subjects (economy , energy, technology…)

1st round of consultation

- Internal consultation workshop (May 12, Beijing)
- Technical Workshop on understanding China's Intended Nationally Determined Contribution (INDC) (May 21-22, 2015, Washington, D.C.)

Delivery of FOD

- Delivery of FOD report of different components (May, 2015)

Technical Workshop on Understanding China's INDC

Washington, D.C., May 21-22, 2015

Objective and content of the workshop

- *This technical workshop provides an opportunity for participants to deepen their understanding of China's preparation of its INDC and discuss challenges related to its formulation and presentation. Day 1 of the workshop ("Technical Dialogue") discusses key findings in the studies supported by the PMR on China's post-2020 emission scenarios. Day 2 of the workshop ("Policy Dialogue") provides an opportunity for policy makers and technical experts to exchange their views on the INDCs.*

Wide range of Participants

- *Around 50 participants*
- *Policy makers: China, Brazil, EU, US*
- *Organizations/Institutions: NCSC, Renmin University,ERI, Federal University of Rio de Janeiro, TERI, Duke University, IEA, IDDRI, PNNL, IIASA, WRI, WB*

Next Steps and time schedule

Finalization of final report and summary for policy makers

- Mid-June: Development of detailed outline of final report
- **Mid-July: Submission of draft report (Mid- July)**
- End of July： Expert Review
- **June-July: Preparation of summary for policy makers**
- End of August: Revise reports based on experts' comments and submission of final draft
- Mid-September: Expert Review
- **End of September: Delivery of acceptable final reports**

Outreach and communication

- Side event in Bonn (June 3)
- **Outreach in Bonn, Beijing and DC (October-November)**
- Consultative workshop in EU (October)
- Side event in Paris (December)

Preliminary key messages for Policy makers

Policy mapping and performance evaluation

China has adopted and implemented a lot of policies and measures in promoting transition to a low carbon development pathway:

- *Integrate low carbon strategy into mainstream social and economic development plan*
- *A clear defined and comprehensive planning system*
- *Set up clear emission reduction targets*
- *Adoption of various policy tools: Laws and regulations, economic incentives, low carbon pilots, ETS, etc.*

	Target	Performance
Reduction of CO_2 emission per unit of GDP	40-45% (2020 compared to 2005)	36% (2014)
Proportion of service sector in total GDP	47% (2015)	48.2% (2014)
Energy consumption per unit of GDP reduction	16% (2015 compared to 2010)	13.4% (2014)
Proportion of non-fossil energy	11.4% (2015)	11.2 (2014)
Forest coverage	21.66 (2015)	21.63 (2014)

Carbon emissions trading pilot

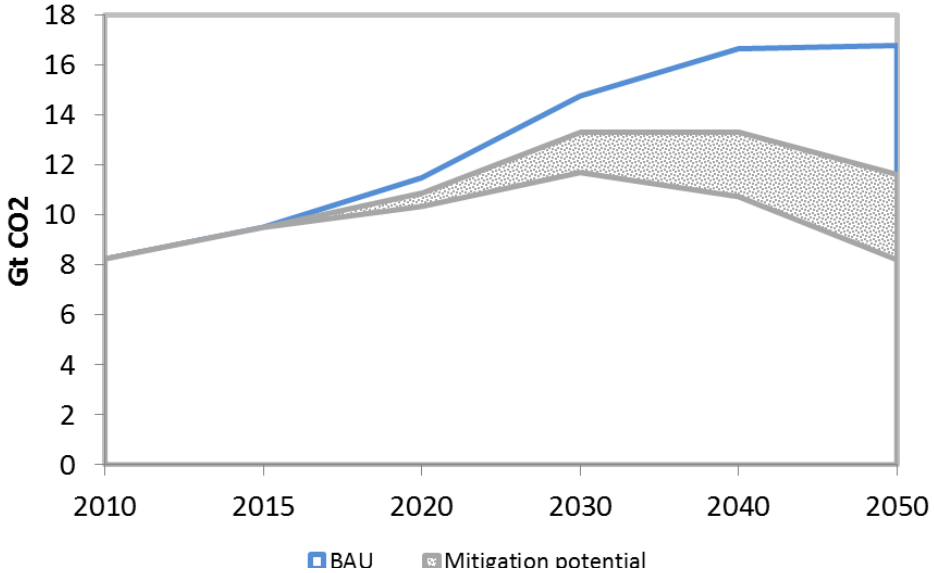
2011	To conduct carbon emission trading pilot programs in 5 cities and 2 provinces
Jun. 2012	NDRC published <*Interim Regulation of Voluntary Greenhouse Gas Emission Trading*>
2013-2014	Pilots published local management rules and built trading platform and launch local trading
Dec. 2014	*NDRC published <Carbon Trading Temporary Management Method>*

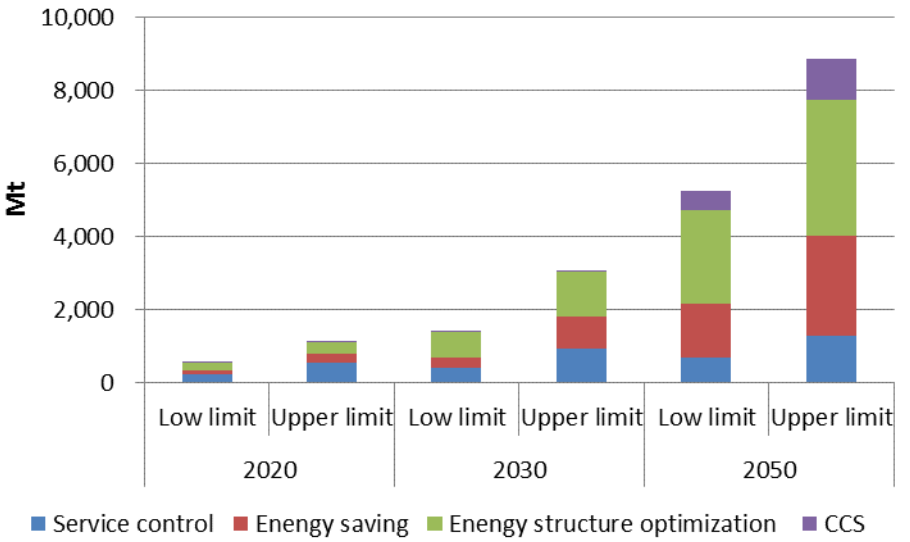
By the end of 2014, the total trading volume of 14.8 $MtCO_2$ and turnover was more than 536 Million RMB.

2016	A nationwide carbon trading market to be built

China’s BAU scenario and further mitigation potential

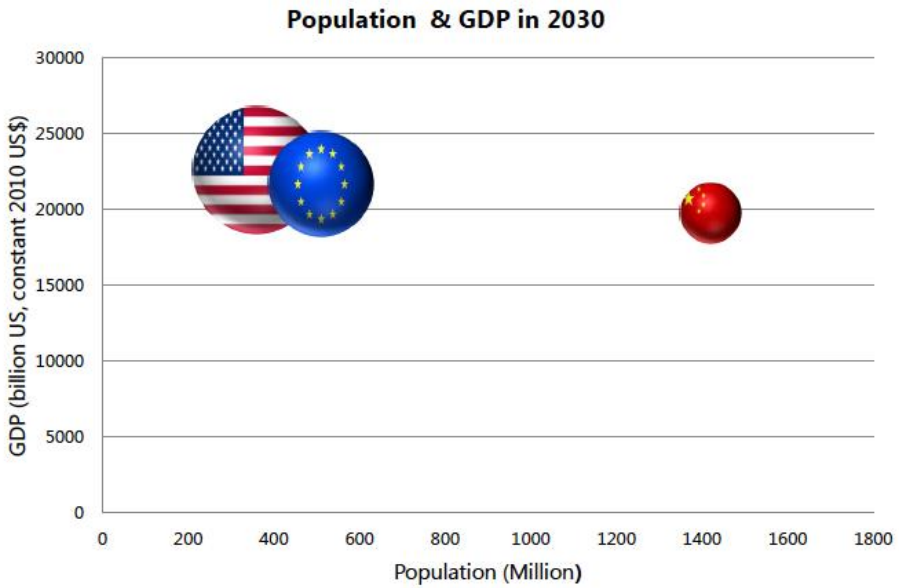
- *Without additional mitigation policy and measures, under BAU scenario, China’s CO2 emissions are projected to continue to increase until 2040.*
- *With the combination of enhanced mitigation efforts, the emission reduction potential (compared with BAU) will rise from 0.6-1.1 GtCO2 in 2020 to 1.4-3.1 GtCO2 in 2050.*
- *Four key measures to reduce emission:*
  - *Controlling the volume of service demands in industrialization and urbanization*
  - *Improving energy efficiency*
  - *Optimizing the energy mix by adopting of natural gas and non-fossil fuel*
  - *Deploying CCUS*

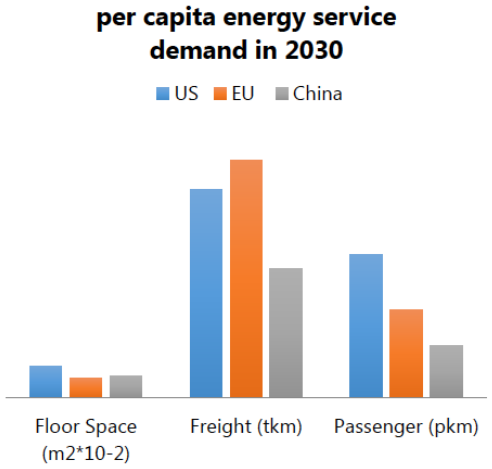




China’s alternative scenarios

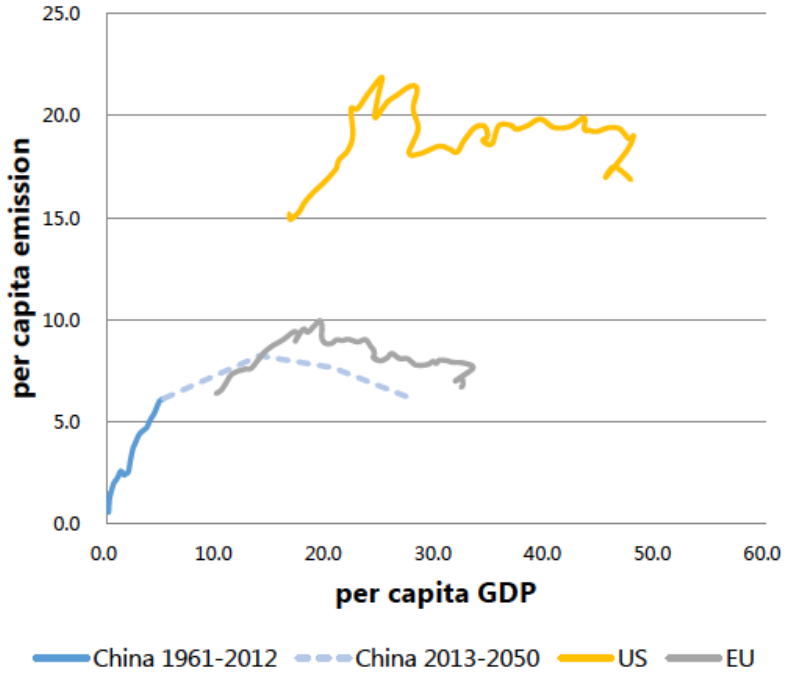
- Level of development are major drivers that will affect China’s further emission trajectory.
- China’s future social economic development trends:
  - China’s Population will peak around 2030, the peaking level is around 1450 Million. The urbanization rate will continue to increase to around 78% in 2050.
  - China’s GDP will keep growing, but the growth will be lower and lower. The total GDP amount in 2030 will be comparable with US and EU, but the GDP per capita still only 1/3-1/4 of level of US and EU.
  - Major energy intensive products in China will peak around 2030. Demand for transportation and building will continue to increase until 2050, but the per capita still smaller than US and EU.





China’s alternative scenarios

- With enhanced policy and measures, China is able to transit to a less carbon intensive sustainable development pathway by peaking earlier and lower than developed countries.
- The decarbonization rate after 2030 is key for China to fulfill the requirements of 2 degree target
- China’s future level of decarbonization is still facing a lot of uncertainties:
    - Uncertainties in Social economic development
    - Uncertainty in low-carbon technology development and deployment
    - Uncertainty in policy and measures
    - Uncertainty in resource availability
    - Etc.

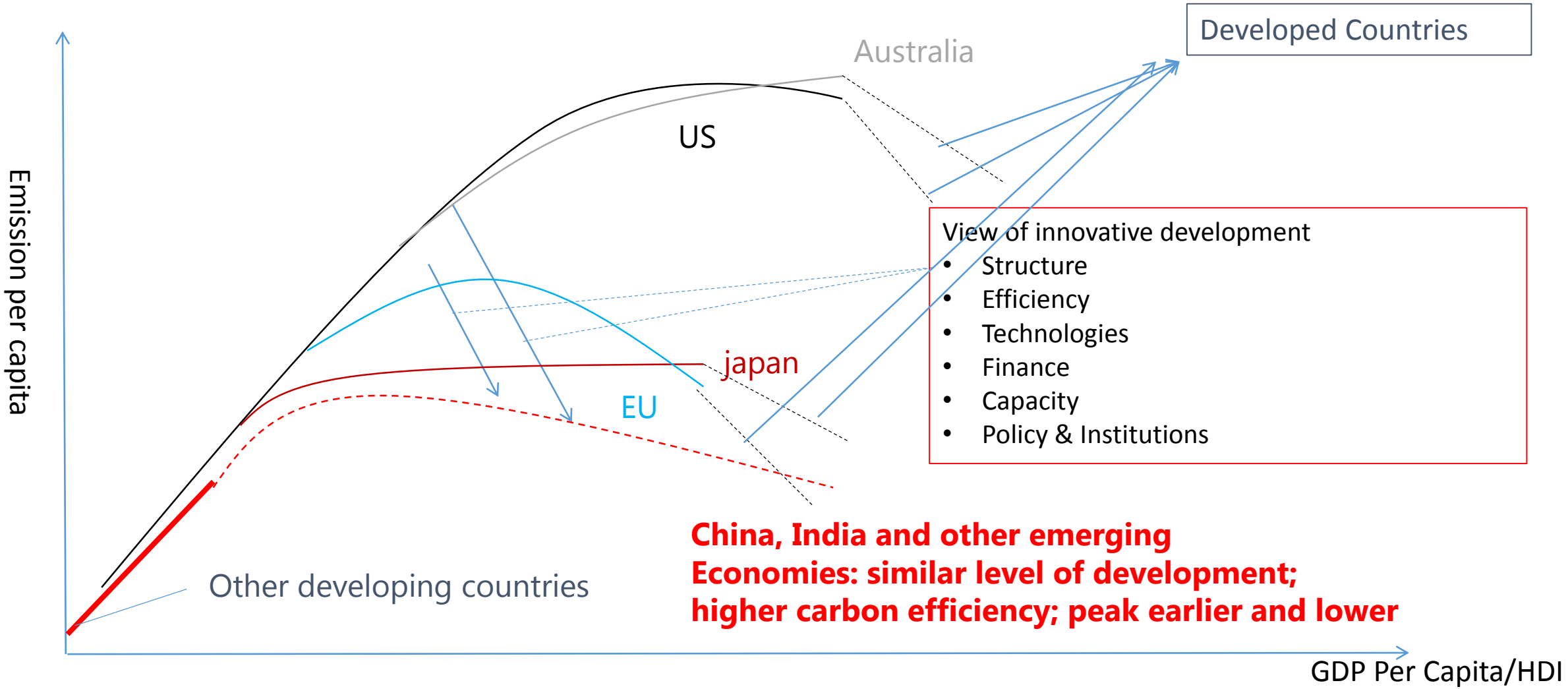


Implication and feasibility of IPCC's proposal in China

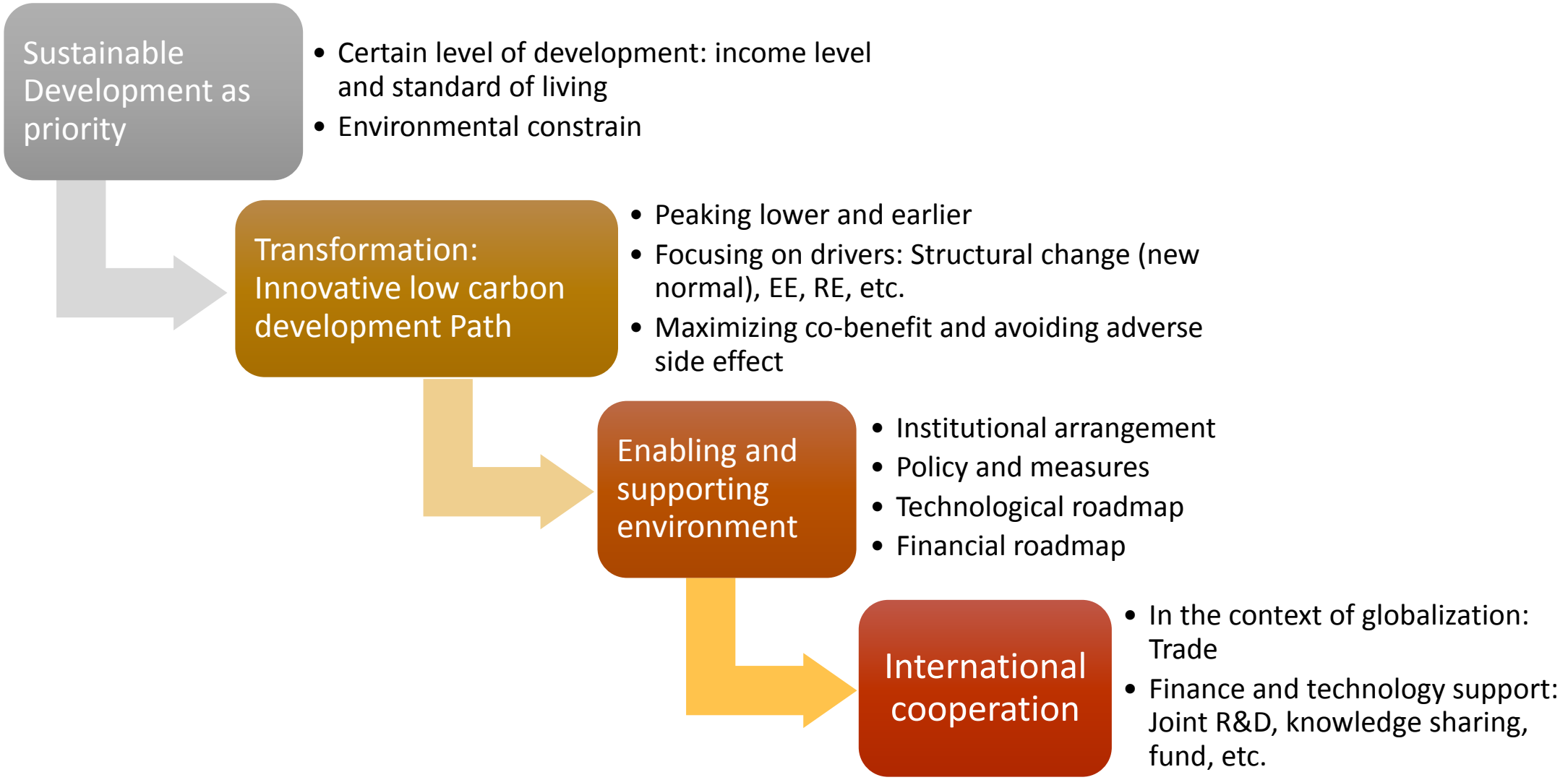
- Both burden sharing or effort sharing approach are not able to guide national target setting:
    - Understanding of national circumstance and development needs
    - Assumption of key drivers and parameters
    - Data basis
    - Choosing sharing approach and indicators
    - Deviation from existing reality
- Four pillars proposed by IPCC is meaningful on guiding the development of China's emission scenarios but further in-depth review still required for specific numbers

Implication on understanding of China's INDC

Rationale: an innovative development path compared to the ones in developed economies in the history



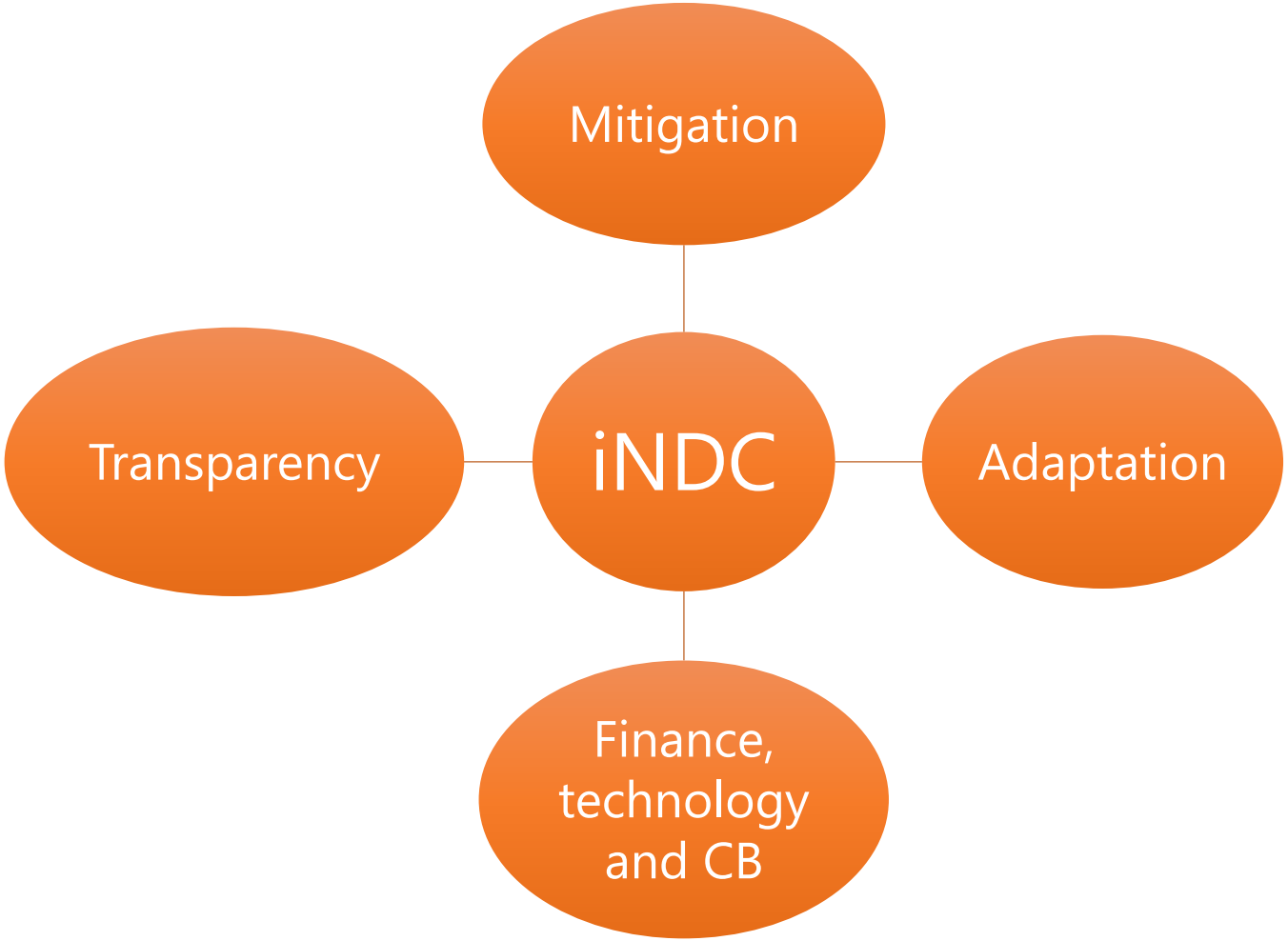
Storylines of the INDC scenario



Implication on understanding of China's INDC

- Pioneer a bifurcation in its growth pattern grounded on its capacity to align the low carbon redirection of its energy systems with its development priorities: Peaking target
- The overall peaking target is indicative and can be broken down in more detailed indicators that aiming at transformation and invention of development path: e.g. emission per GDP, efficiency target, energy mix target such as share of non-fossil fuel, non energy-related CO2 target such as carbon sink, etc.
- Be a learning by doing process

Scope of China's iNDC



China's iNDC on Mitigation

- Target set: as stated by Vice-Premier Zhang Gaoli at UN summit
  - ✓Peaking
  - ✓Intensity
  - ✓Non-fossil fuel
  - ✓Carbon sink
- Enabling and supporting environment:
  - ✓Policy and measures
  - ✓Technological roadmap
  - ✓Financial roadmap
  - ✓Capacity building in
    - ✓Information, Monitoring, Accounting
    - ✓Human resources
    - ✓Institutional arrangement for enforcement

Thank You!

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