



EUROPEAN FOREST
INSTITUTE

Circular Economy in China and its Connection with Bioeconomy

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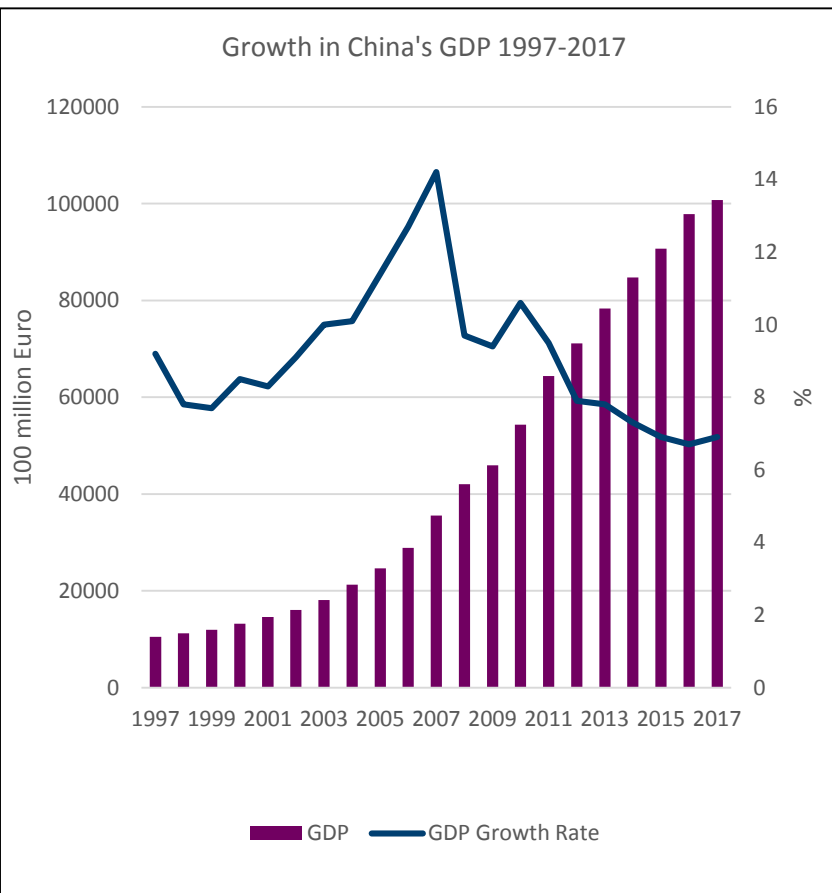
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Presentation outline

1. Why Circular Economy in China
2. Circular Economy in China: Concept, Policies and Practices
3. Circular Economy vs Bioeconomy in China
4. Forest Bioeconomy Potential in China

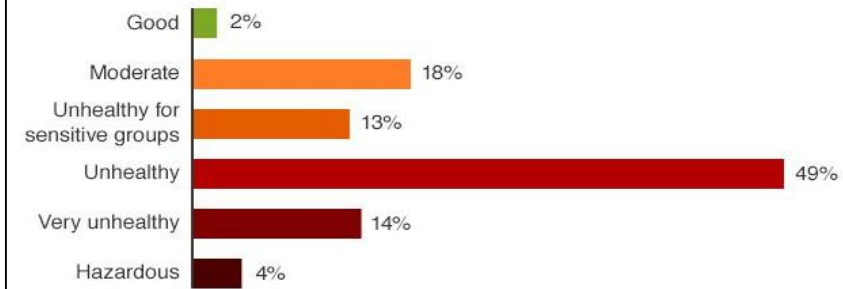
1. Why Circular Economy in China

- Linear economy development caused environment degradation and Pollution

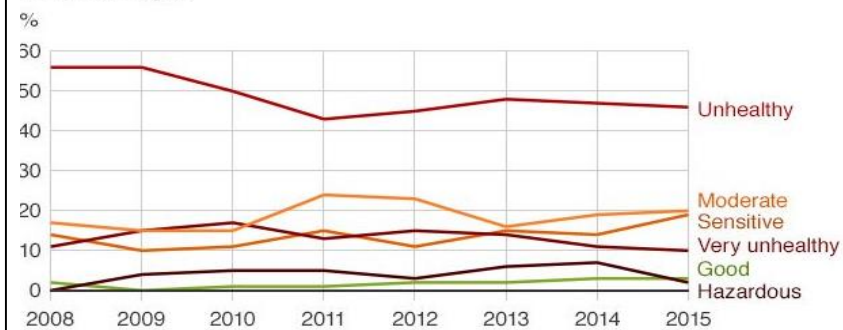


Beijing air quality 2008-2015

Daily average air quality index (AQI*) at US embassy, based on PM2.5 concentration readings



Annual averages



Daily average compiled from valid hourly readings Apr 2008-Jun 2015.

AQI categories as set by the US Environmental Protection Agency

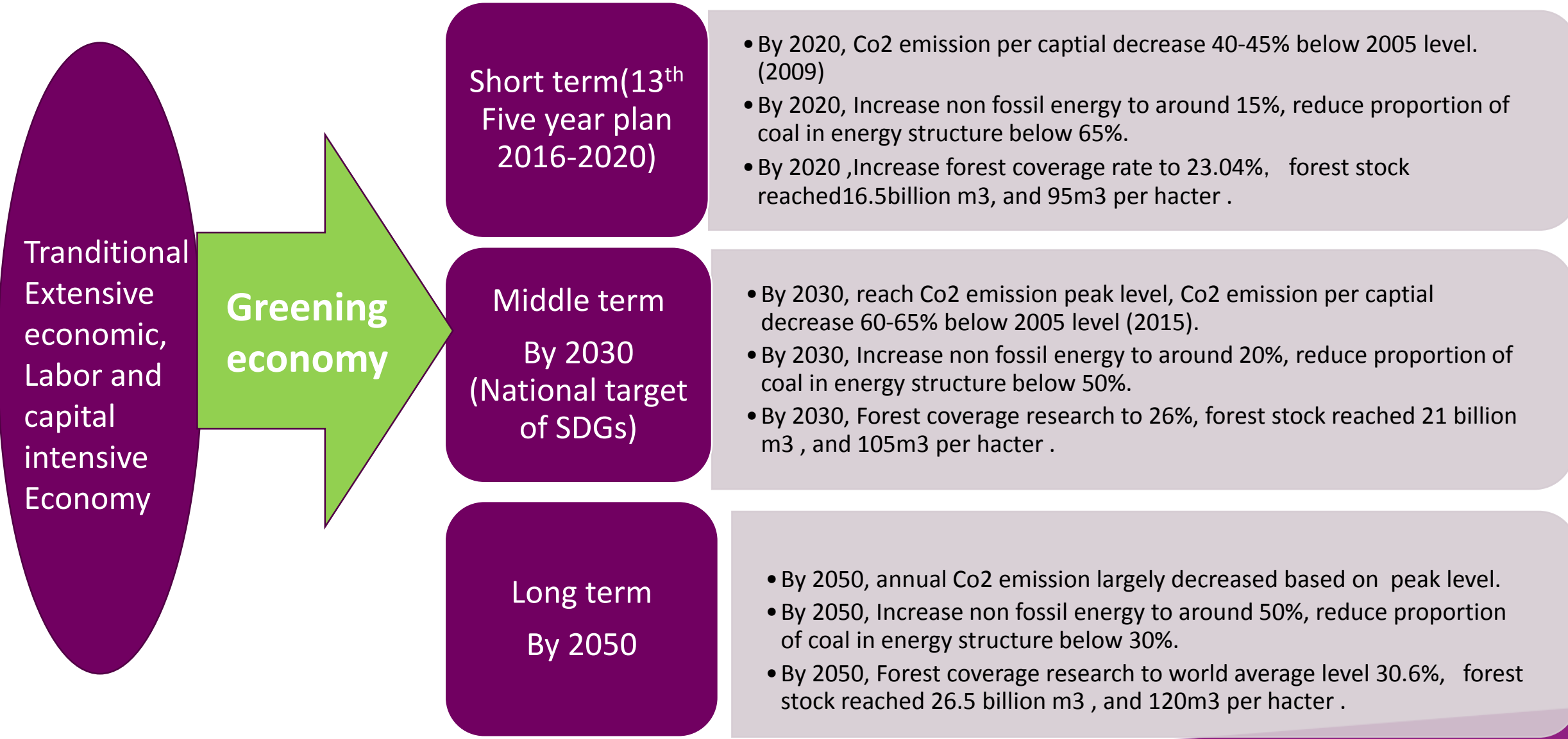
Source: US embassy, Beijing

BBC



Source: China economic annual report 2018

Shifting the Economic Development Model :Linear to Circular Economic Development



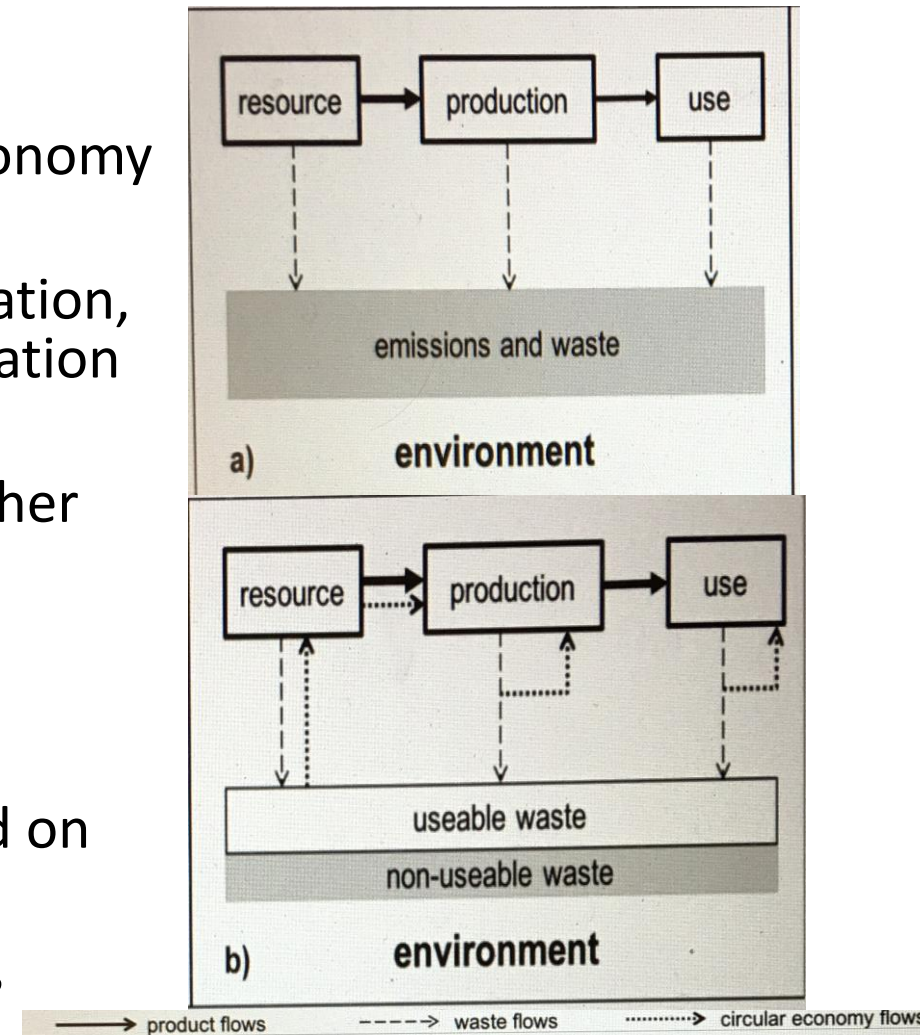
2. Circular Economy in China: Concept, Policies and Priorities

2.1 Concept

- In 1990s, Circular Economy concept was introduced to China
- In 2002, The central government officially adopted Circular Economy as a new national development strategy.
- Most publicly accepted definition of the CE : Reduce consumption, reuse, resuselization activities in economic production, circulation and consumption.
- Concept boundary **larger** than what used in EU, Janpan and other countries.

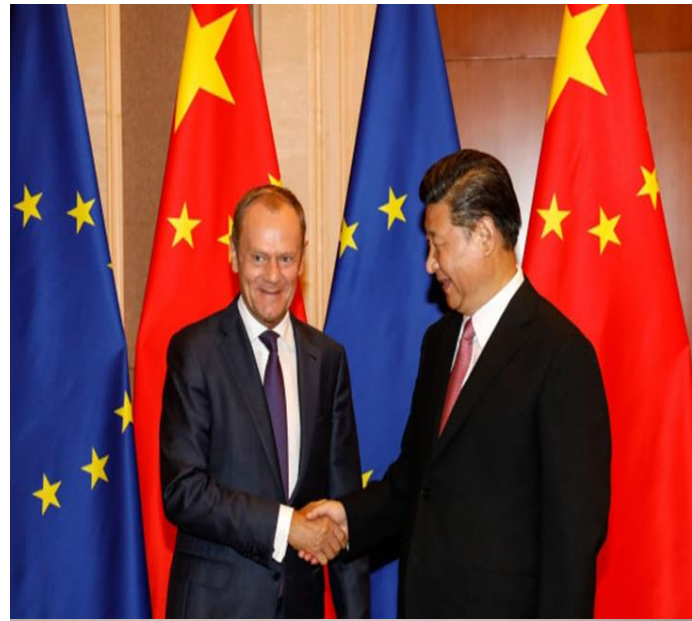
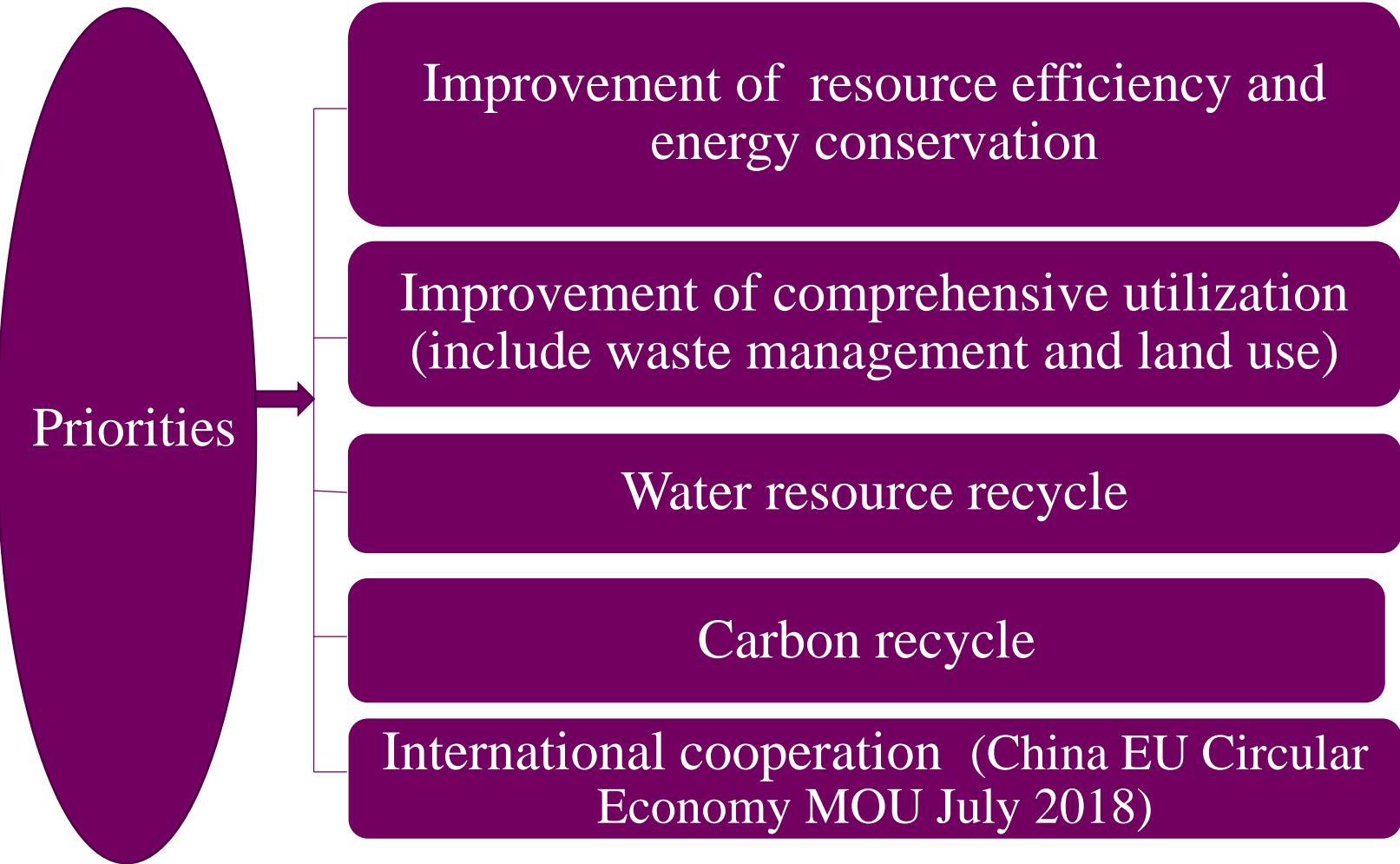
2.2 Policies

- The *Law for the Promotion of the Circular Economy* was passed on August 29, 2008
- The Circular Economy Development Strategies Action Plan was created on January 23, 2013
- Leading Circular Economy Development action 2017



Sources:Jing Liu Tuhua Univeristy 2017

2.3 Circular Economy Development Priorities in 13th Five-Year Plan(2016-2020)



MEMORANDUM OF UNDERSTANDING ON CIRCULAR ECONOMY BETWEEN THE EUROPEAN COMMISSION AND THE NATIONAL DEVELOPMENT AND REFORM COMMISSION OF THE PEOPLE'S REPUBLIC OF CHINA

The European Commission and the National Development and Reform Commission of the People's Republic of China (NDRC) hereinafter referred to as "both sides":

Noting the importance of circular economy as a tool to realise sustainable economic growth, resource efficiency and sustainable development at global level;

Acknowledging the fact that the EU and China face common challenges in developing more resource efficient policies;

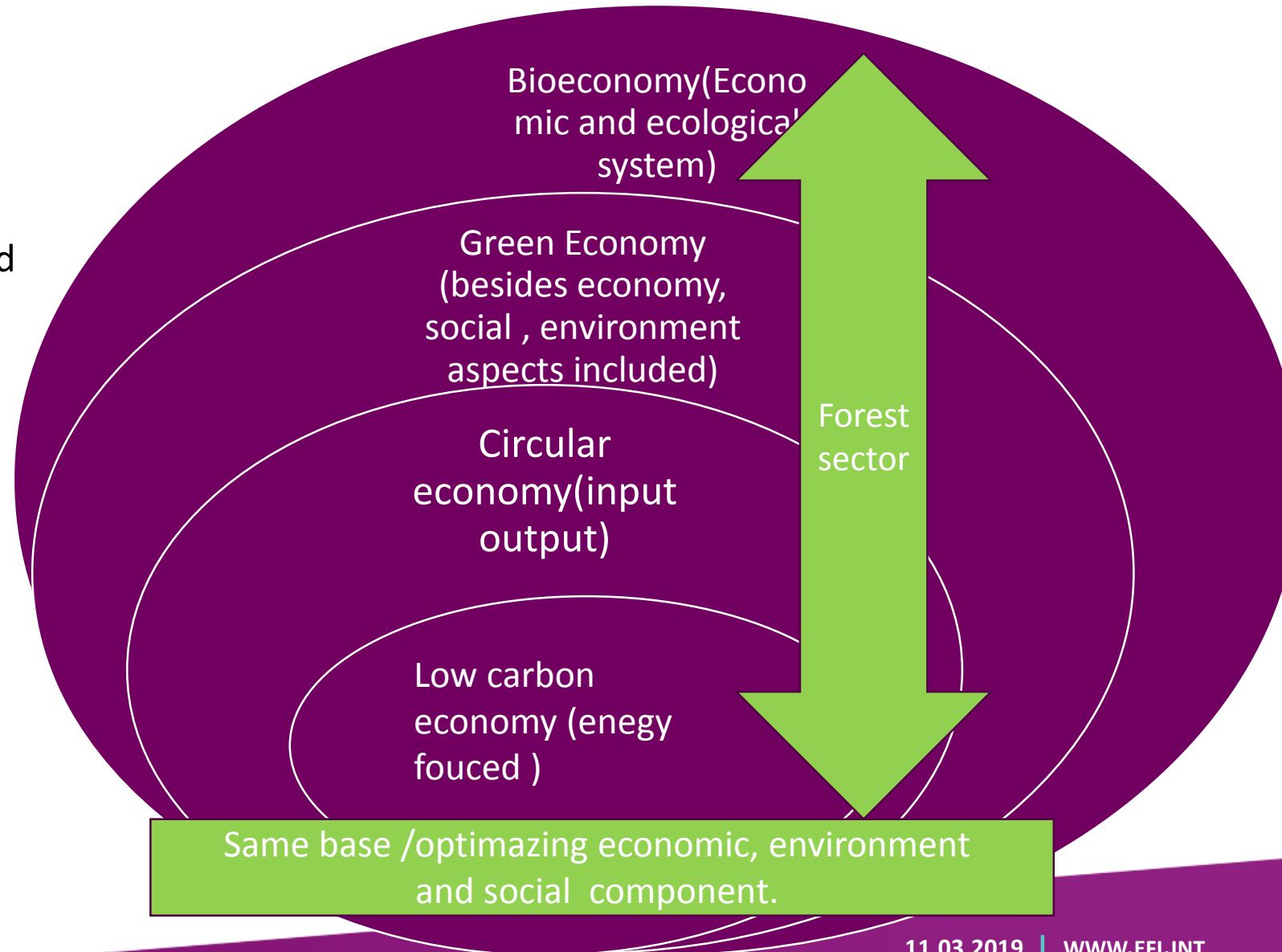
Noting with appreciation the independent scientific assessments provided by the International Resource Panel on the sustainable use of natural resources;

Wishing to strengthen cooperation on circular economy by setting up a high level policy dialogue on circular economy (hereinafter referred to as "the Dialogue") with the aim to promote understanding and cooperation on circular economy issues;

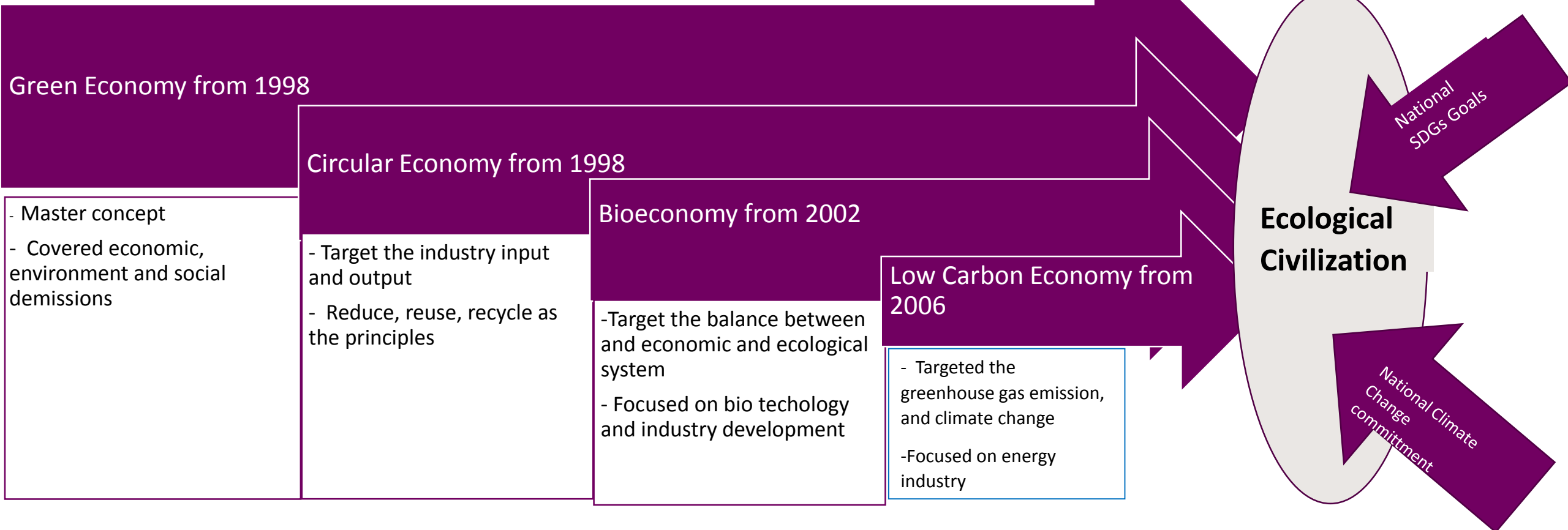
Intending that the high level policy dialogue on circular economy should contribute to the implementation of the EU-China 2020 Strategic Agenda for Cooperation and the 2030 Agenda for Sustainable Development;

3. Circular Economy vs Bioeconomy in China

- Circular economy is more mature concepts with necessary law, regulation and institutional support. Paralleling concepts include green economy, Low carbon economy
- Currently Bioeconomy concept is new and undeveloped in China with narrow focus on biotechnology and biomedical.
- Main philosophy is same but with different coverage and emphases.
- Bioeconomy is the new economic development aims to replace fossil fuel based products and materials with renewable products and materials.
- China's unique position in global commodity chain leave as important manufacture hub and consuming market leave huge potential for China to move global bioeconomy development with other partners.



Circular economy provide a foundation and pave the way for Bioeconomy discussion China with same goals



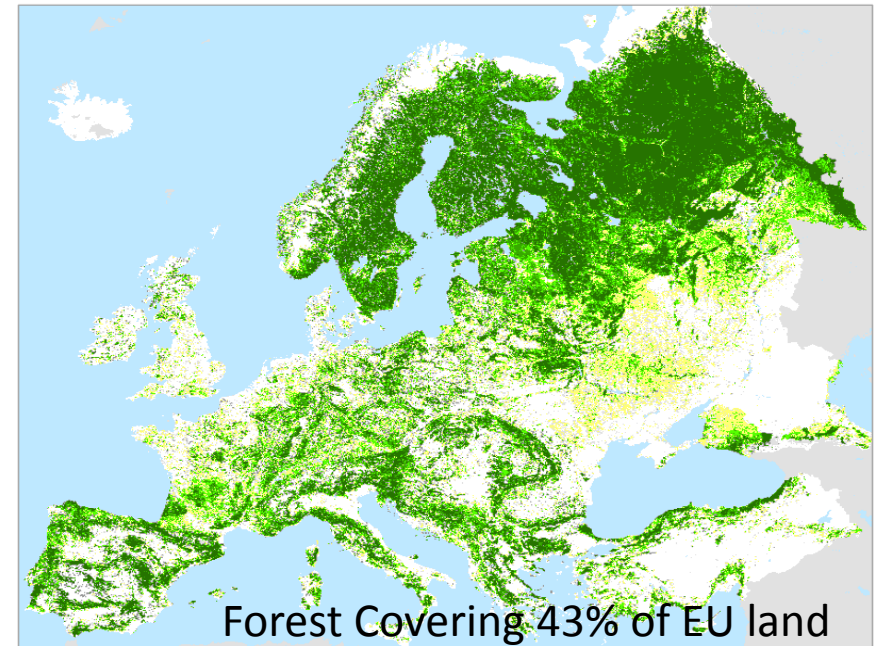
Green circular low carbon development repeated highlighted in 13th Five-Year Plan(2016-2020)
 More clear definition needed.

Forest fact in China

- Represent 5.2 percent of the planet's forest with 21.66% forest coverage rate and 208 million ha forest in 2016;
- Forest in China provide 600 million ton carbon sink annually;
- Consist of largest plantation forest in the world with area of 69.33million hectare in 2016 .

Forestry Industry in China

- Represent around one third of the global forest product trade value with totalled USD 150 billion in 2017;
- Serve as **largest forest product processing hub** globally with import USD 62.4 billion and export USD 72.6 billion of forest products in 2016;
- Ranked as world's **largest log importer** (with 22.9% log import from Russia in 2016), **Largest pulp importer** with volume of 48.72 million cubic meter and 21.01 million ton in 2016;
- Remains **largest exporter** of wood furniture (USD 22.2billion), plywood (USD 5.27 billion) and flooring in 2016



4. Forest Bioeconomy Potential in China

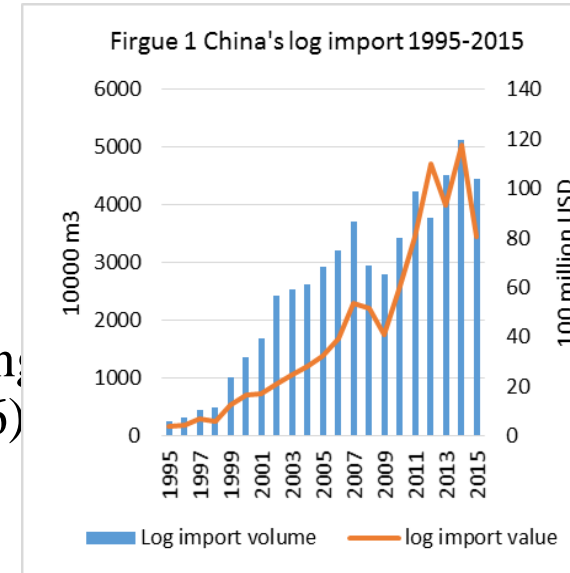
4.1 Traditional Forest Bioeconomy products

Log, sawn timber, paper, pulp, wood furniture, wood floor

World largest importer (**Log, sawn timber, paper, pulp**) and exporter (**wood furniture, wood floor**) and important consuming market. World largest plantation country: 69.33million ha.(2016)

Wood construction

- China annual new building construction is around 1.7billion m².
- Less than 0.2% of China new residential building are wood construction. However, in 2016 to in line with national objective on reduce CO₂ emission and environment protection 4 national police issued to support wood construction development.
- Huge market demand potential on green wood building technical and materials (like CLT application).



A plantation developed By APP China

Type	Areas (10thousand s m ²)	Market Value (100million USD)
Residential apartment	145	6.2
Parks	95	4.2
Public building	71	3.1
Other	308	0.09
Total	619	13.59

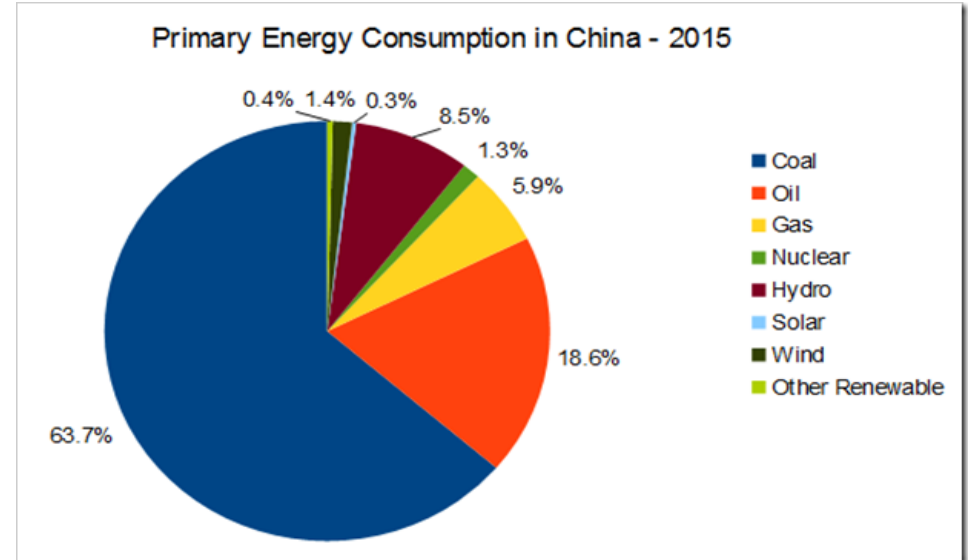


4. Forest Bioeconomy Potential in China

- **Forest biofuel**

- 2013 issued national forest bioenergy development outline (2011-2020). By 2020 build up 16.78million ha forest bioenergy forest, forest bioenergy(Biodiesel, biomass) account for 2% of country's renewable enegy.

- In development stage with big market potential.



source:Brian wang, 2017



4. Forest Bioeconomy Potential in China

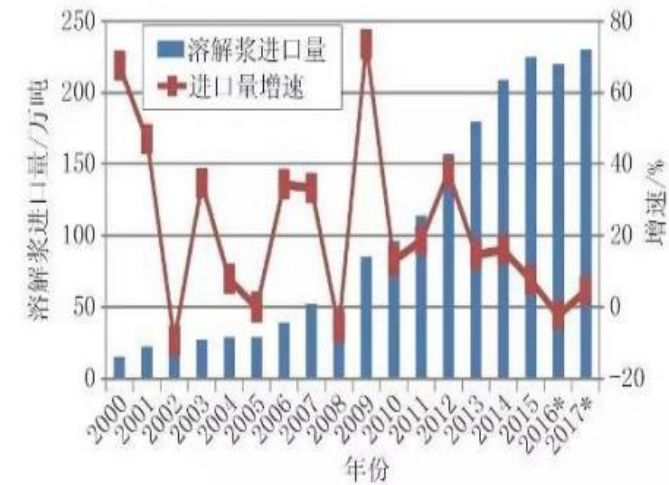
4.2 wood fibre based New forest Bioeconomy products

Wood-based textiles:

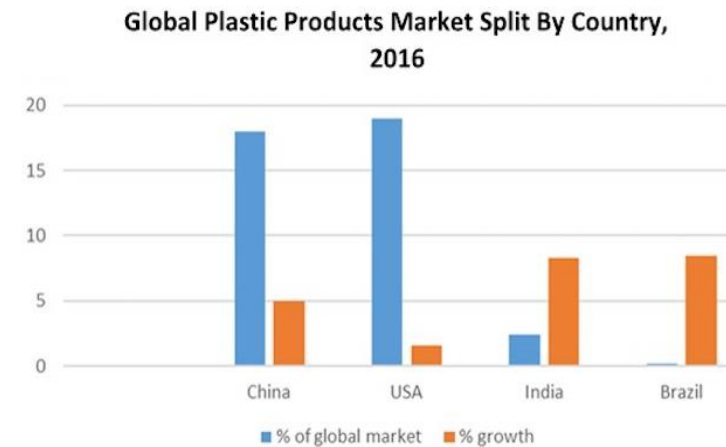
- China is largest cloth producing, processing and consuming country globally.
- China both is one of big pulp producing countries, and is also biggest pulp importing country in the world.
- Dissolving pulp demand increase quickly and mainly depend on import.
- World demand to grow by 3.9% per year, driven mainly by China
- Big market potential on technology and materials.

Bioplastics

- China is largest plastic produce(1/3) and consume country globally(1/4) .
- Plastic product recyling rate only 25%.
- Annual Waste plastics volume is 15million tons .
- Big market potential on technology.



Source: China textile association 2018



Source: The Business Research Company



The Way Ahead.....

- China is in cross road to shifting the economic development model, and ready to try different instrument to achieve the SDGs and Climate commitments include develop Bioeconomy ;
- Mapping Bioeconomy development road and strategy needed with the considering on how compromise and reinforce ongoing green, circular, low carbon development plan;
- China's demand on traditional forest bioeconomy products (timber, pulp and paper and bioenergy), and novel products (bioplastic, biotextile) will keep surge in next decade, and bring impacts to trade partner countries along the supply chain;
- China is also important investor on global bioeconomy development;
- Pressure on and resilience of forest resources needed to be considered with the plan to booming the bioeconomy development;
- Lack of supporting policies, difficult on cross sector cooperation, immaturity market, low technology transform rate and less appealing business model need to be overcome to shape the bioeconomy market.

Thanks!



Photo: Sanit Fuangnakhon / Shutterstock

For more information, please contact:
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