



ROYAL DANISH  
EMBASSY  
*Beijing*

# CHINA'S 14TH FIVE YEAR PLAN

A DANISH PERSPECTIVE







## Contents

Introduction .....	1
Food & Agriculture .....	2
Environment & Water .....	7
Sustainable Urban Development.....	12
Energy .....	18
Maritime.....	22
Health and Life Science .....	26
Contacts .....	27





# INTRODUCTION

On the 11<sup>th</sup> of March 2021, the National People's Congress of the People's Republic of China adopted the 14<sup>th</sup> Five-Year Plan (2021-2025) which sets the direction for China's economic development the next five years. For the first time, the Five-Year Plan has no hard targets for economic growth. This breaks with tradition and underlines that the Chinese government prioritises "qualitative" economic growth. The national level Five-Year Plan is also called "the plan of plans" because it is supplemented later on by more detailed Five-Year plans for each ministry, sector and province. Overall, the expectation is that China's economy the next five years will focus on ensuring innovation-based growth in addition to strengthening the domestic demand.

Among others, it is expected that China the next five years will pay attention to and prioritise the following themes:

- Increase the domestic consumption
- "Qualitative growth" over hard growth targets, i.e. improved living standards and public services
- Innovation-based economic growth, i.e. increased public and private investments in R&D and technology
- A continued high employment and reforms of the social welfare system, i.e. pension reform and hukou reform which also aims at strengthening urban-rural integration
- A green transition of the Chinese economy and society

Increased attention on domestic consumption is expected to expand the domestic market and the demand for products from most Danish companies. As the Chinese middle class continues to expand, it is expected that demand will increase for most products characterised by a high quality and a high degree of safety. This will create increased demand for Danish competences and solutions within fields such energy, health, food and environment.



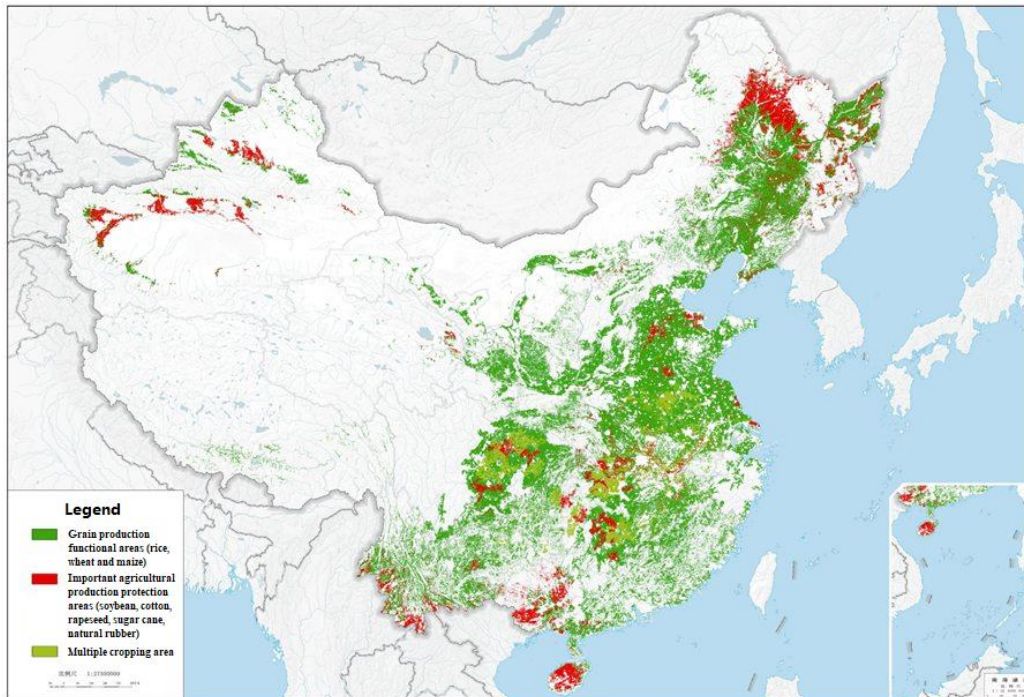
## FOOD & AGRICULTURE

***“TAKE THE ROAD OF SOCIALIST RURAL REVITALISATION WITH CHINESE CHARACTERISTICS, COMPREHENSIVELY IMPLEMENT THE RURAL REVITALISATION STRATEGY, STRENGTHEN THE USE OF INDUSTRY TO SUPPLEMENT AGRICULTURE, BRING THE COUNTRYSIDE WITH THE CITY, PROMOTE THE FORMATION OF A NEW INDUSTRIAL-AGRICULTURAL-URBAN-RURAL RELATIONSHIP OF MUTUAL PROMOTION, URBAN-RURAL COMPLEMENTARITY, COORDINATED DEVELOPMENT AND COMMON PROSPERITY, AND ACCELERATE THE MODERNIZATION OF AGRICULTURE AND RURAL AREAS.”***

***(14TH FIVE-YEAR PLAN)***



Being able to feed 1.4 billion people remains a political concern and the production and supply of high quality foods are critical and fundamental for people's lives. This particular focus underlines a continued Chinese domestic policy focus on agricultural and rural development, seeing that a steady development of the economy requires agriculture and food issues remains a top priorities in the 14<sup>th</sup> Five-Year Plan.



Layout of grain production functional areas and important agricultural production protection areas

## Food Production and Food Security

The 14<sup>th</sup> Five-Year Plan sets clear targets for food production and food security, saying there must be enough to feed the people of China.

Food Security Strategy is one of the components of the national economy safety guarantee. It includes self-sufficiency of grain, sufficient supply of food, agriculture technology development, breed upgrade, farmland protection, agricultural products procurement reform, national reserve facility build-up, anti-food loss and waste, international cooperation, and legislation on food security.

The 14<sup>th</sup> Five-Year Plan sets a target of grain production capacity of 650 million tons. According to Mr. Tang Renjian, Chinese Minister of Agriculture and Rural Affairs, this signifies the baseline to keep the *per capita* capacity above the international food security standard. In order to achieve the formulated target a range of tasks are listed, including more emphasis on farmland protection and upgrade of technologies. For example, strict guarantee of arable land of 120 million hectares has been announced for several years.



## **Agriculture Infrastructure: Green and Efficient**

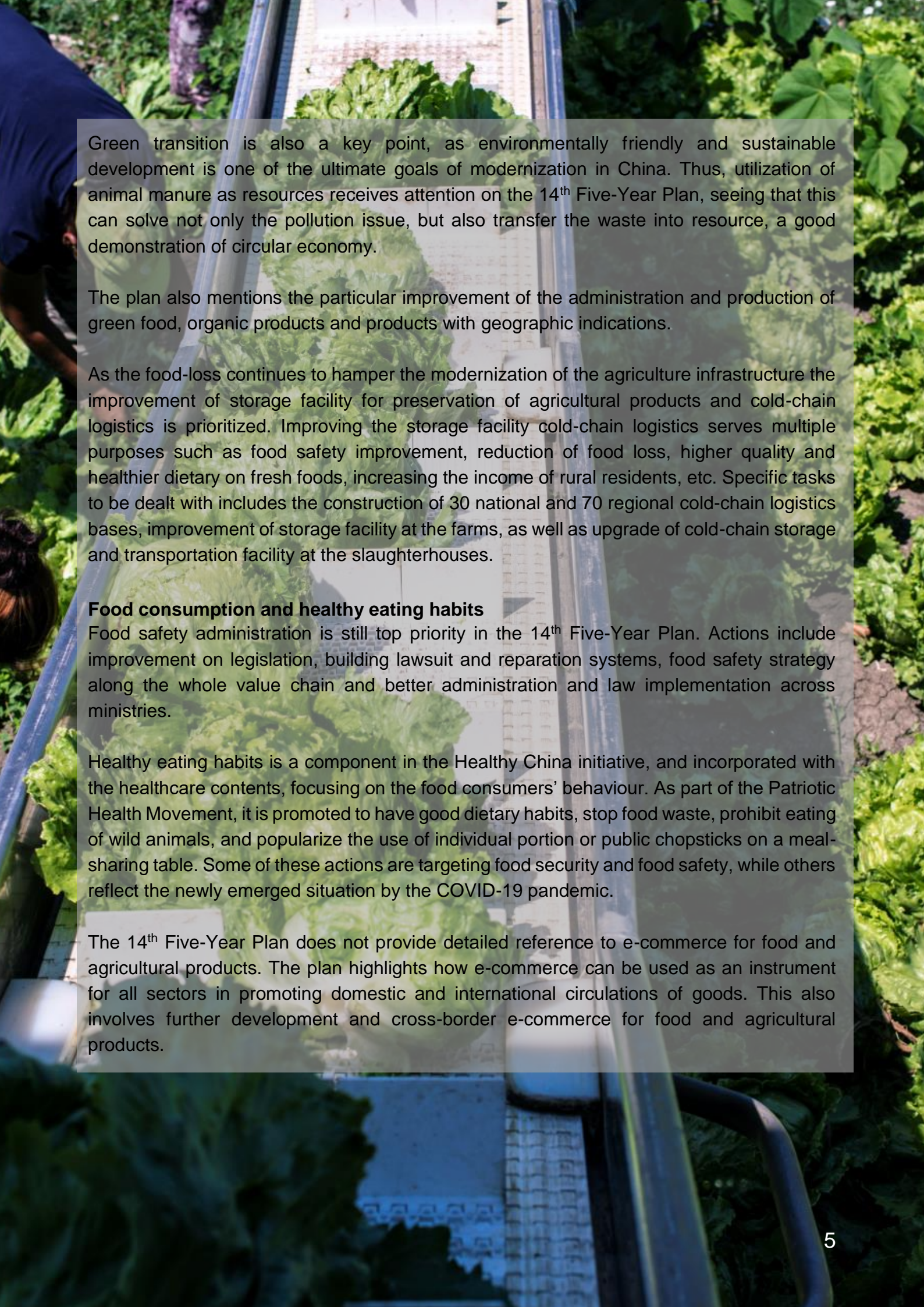
The agricultural mechanization rate is set to 75% indicating a strong aspiration to continue previous years modernising of the agricultural sector. In addition, the plan stipulates the establishing of 300 demonstration counties for crop production with the whole process mechanized and 300 demonstration counties for agriculture and animal production with the whole process mechanized. Next to more traditional agriculture machinery, the 14th Five-Year Plan highlights smart agriculture hence combining the mechanization with AI and digitalization.

Domestic germplasm protection and utilization as well as breed upgrade also attracts a lot of attention, showing that China will increase the self-sufficiency of seeds and breeding animals, with the construction of seed bases, germplasm banks and national breeding farms, as well as a series of policy supports.

Animal husbandry, animal health and biosafety are also of high importance for livestock and poultry production. Modern animal husbandry is a major focus for the agriculture structural adjustment, with scientific planning for areas of promotion/restriction/prohibition for animal production. These are in line with the growing demand for animal products such as dairy and meat, as well as the disease challenges the Chinese animal husbandry is facing.







Green transition is also a key point, as environmentally friendly and sustainable development is one of the ultimate goals of modernization in China. Thus, utilization of animal manure as resources receives attention on the 14<sup>th</sup> Five-Year Plan, seeing that this can solve not only the pollution issue, but also transfer the waste into resource, a good demonstration of circular economy.

The plan also mentions the particular improvement of the administration and production of green food, organic products and products with geographic indications.

As the food-loss continues to hamper the modernization of the agriculture infrastructure the improvement of storage facility for preservation of agricultural products and cold-chain logistics is prioritized. Improving the storage facility cold-chain logistics serves multiple purposes such as food safety improvement, reduction of food loss, higher quality and healthier dietary on fresh foods, increasing the income of rural residents, etc. Specific tasks to be dealt with includes the construction of 30 national and 70 regional cold-chain logistics bases, improvement of storage facility at the farms, as well as upgrade of cold-chain storage and transportation facility at the slaughterhouses.

### **Food consumption and healthy eating habits**

Food safety administration is still top priority in the 14<sup>th</sup> Five-Year Plan. Actions include improvement on legislation, building lawsuit and reparation systems, food safety strategy along the whole value chain and better administration and law implementation across ministries.

Healthy eating habits is a component in the Healthy China initiative, and incorporated with the healthcare contents, focusing on the food consumers' behaviour. As part of the Patriotic Health Movement, it is promoted to have good dietary habits, stop food waste, prohibit eating of wild animals, and popularize the use of individual portion or public chopsticks on a meal-sharing table. Some of these actions are targeting food security and food safety, while others reflect the newly emerged situation by the COVID-19 pandemic.

The 14<sup>th</sup> Five-Year Plan does not provide detailed reference to e-commerce for food and agricultural products. The plan highlights how e-commerce can be used as an instrument for all sectors in promoting domestic and international circulations of goods. This also involves further development and cross-border e-commerce for food and agricultural products.



## Evaluation

The 14th Five-Year Plan shows a clear direction of the agriculture and food sector in China with focus on advanced technology, high quality and self-sufficiency. The emphasis on food self-sufficiency requires massive investments in the upgrading of the Chinese agriculture and food production. This in turn gives continued opportunities for cooperation for Danish providers of agricultural technologies and knowhow, agricultural machineries and smart agriculture, green/organic and sustainable agriculture, high quality of breeding animals, feed, advanced food industry and food safety administration, cold-chain and logistics along the food value chain, experiences and knowhow on reduction of food-loss and waste, etc.

Furthermore, even though the Chinese government are aiming at self-sufficiency and production within the country, the consumer demand is still there for imported high quality food products such as pork, dairy, fish, etc.







## ENVIRONMENT & WATER

***“ADHERE TO THE CONCEPT THAT LUCID WATERS AND LUSH MOUNTAINS ARE INVALUABLE ASSETS. ADHERE TO RESPECT, FOLLOW AND PROTECT NATURE. ADHERE TO THE PRIORITIES OF RESOURCE CONSERVATION, ENVIRONMENTAL PROTECTION AND RESTORATION OF NATURE. IMPLEMENT SUSTAINABLE DEVELOPMENT STRATEGIES. IMPROVE THE OVERALL COORDINATION MECHANISM IN THE FIELD OF ECOLOGICAL CIVILIZATION, AND BUILD AN ECOLOGICAL CIVILIZATION SYSTEM. PROMOTE A COMPREHENSIVE GREEN TRANSITION OF ECONOMIC AND SOCIAL DEVELOPMENT, AND BUILD A BEAUTIFUL CHINA.”  
(14TH FIVE-YEAR PLAN)***



China is setting new goals for a greener development in the new 14<sup>th</sup> Five-Year Plan with new specific targets for selected areas covering water conservation, clean production, environmental protection and upgrading of infrastructure within wastewater and waste management.



### **Environmental Protection and Pollution Management**

Environmental protection has a high priority in the new plans both when it comes to strengthening land space planning including making permanent farming land and new urban boundaries but also projects for the protection and restoration of important ecosystems. It is mentioned specifically that ecological protection and management of Yangtze River, Yellow River and other major rivers, lakes and wetlands will be strengthened during the next five years setting specific targets for i.e. amounts of land for afforestation or amount of land for restoration of grassland.

For the region of Yellow River Basin, special focus will be to carry out major environmental protection projects, and projects for upgrading waterways and with focus on water source saving. The over abstraction of groundwater in this area will also receive special attention.

For the Yangtze River Economic Belt and the Delta area, environmental problems and restoration of ecosystems will be addressed. A special effort to curb pollution from industry, agriculture- non-point sources as well as increase treatment of urban sewage and waste in the area. A Yangtze River Conservation Law will be publicised and enforced accordingly.





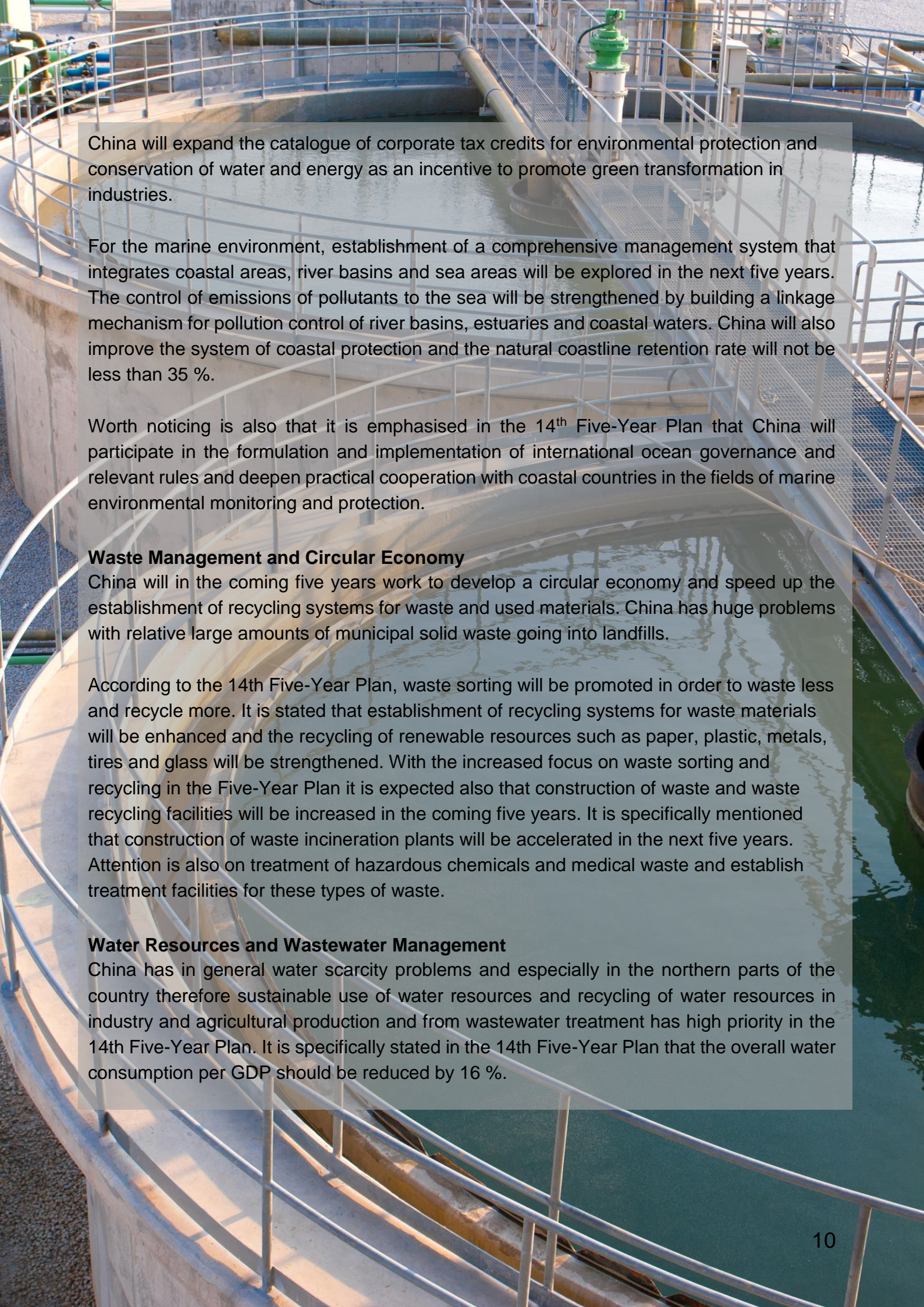
According to the 14<sup>th</sup> Five-Year Plan pollution prevention and control has high priority and environmental governance system will be improved within the next five years. According to the Five-Year Plan, formulation of a three-year plan for establishment of a modern environmental governance system will be implemented. This will among other things include building a system for oversight of fixed pollution sources based on emission permits.

There are binding targets for air quality with the ratio of days with good air quality in cities at prefecture level or above has to be 85,7 % and also the concentration of fine particles (PM<sub>2.5</sub>) should be reduced by 10% and the total emission of nitrogen oxide and volatile organic compounds should be reduced more than 10%.

For surface water quality, covering lakes, rivers and wetlands, the binding target is 85 % reaching class III or above currently only 75 % of surface waters in China reaches class III or above (class I is the best quality and with class V being the worst). In addition, afforestation in China is having a high priority with binding target for forest coverage in China that has to increase from 23.01 % to 24.1 % over the next five years.

In March 2020, the State Council issued the “*Guiding Opinions on Building a Modern Environmental Governance System*” and implementation of a modern environmental governance system is mentioned in the 14<sup>th</sup> Five-Year Plan. Full implementation of an emission permit system, issuing emission permits for all fixed pollution sources and permit for discharges of industrial pollution sources with time limits are some of the new environmental management systems mentioned in the 5-year plan. Improvement of monitoring systems is also mentioned as areas of environmental governance that will be strengthened.





China will expand the catalogue of corporate tax credits for environmental protection and conservation of water and energy as an incentive to promote green transformation in industries.

For the marine environment, establishment of a comprehensive management system that integrates coastal areas, river basins and sea areas will be explored in the next five years. The control of emissions of pollutants to the sea will be strengthened by building a linkage mechanism for pollution control of river basins, estuaries and coastal waters. China will also improve the system of coastal protection and the natural coastline retention rate will not be less than 35 %.

Worth noticing is also that it is emphasised in the 14<sup>th</sup> Five-Year Plan that China will participate in the formulation and implementation of international ocean governance and relevant rules and deepen practical cooperation with coastal countries in the fields of marine environmental monitoring and protection.

### **Waste Management and Circular Economy**

China will in the coming five years work to develop a circular economy and speed up the establishment of recycling systems for waste and used materials. China has huge problems with relative large amounts of municipal solid waste going into landfills.

According to the 14th Five-Year Plan, waste sorting will be promoted in order to waste less and recycle more. It is stated that establishment of recycling systems for waste materials will be enhanced and the recycling of renewable resources such as paper, plastic, metals, tires and glass will be strengthened. With the increased focus on waste sorting and recycling in the Five-Year Plan it is expected also that construction of waste and waste recycling facilities will be increased in the coming five years. It is specifically mentioned that construction of waste incineration plants will be accelerated in the next five years. Attention is also on treatment of hazardous chemicals and medical waste and establish treatment facilities for these types of waste.

### **Water Resources and Wastewater Management**

China has in general water scarcity problems and especially in the northern parts of the country therefore sustainable use of water resources and recycling of water resources in industry and agricultural production and from wastewater treatment has high priority in the 14th Five-Year Plan. It is specifically stated in the 14th Five-Year Plan that the overall water consumption per GDP should be reduced by 16 %.



According to the Five-Year Plan China will in the coming years work towards more water-conserving cities. Water desalinisation and utilisation of seawater is also mentioned as an area that should be scaled up in the coming five years.

In January 2021, the National Development and Reform Commission (NDRC) published new regulation for wastewater management over the coming years and the targets are repeated in the Five-Year Plan. The overall goal is that national sewage collection efficiency will be significantly improved by 2025 and it will meet the needs of local economic and social development.

There is an increased focus on reclaimed water from wastewater treatment, and binding targets for the utilization rate of recycled water in cities at prefecture level or above shall reach 25% and for Beijing-Tianjin-Hebei region, this utilization rate should reach 35%. It is also stated that the utilization rate of sewage sludge should be increased and that 90 % of urban sludge should be treated to a quality used for land purposes currently only 67 % of urban sludge is being utilised today for land purposes. This will lead to less sludge ending up in landfills with soil pollutions as a result.

For the Yangtze River Economic Belt and the Yellow River Basin there is special focus is on accelerating wastewater treatment and recycling water utilisation in the coming five years.

## **Biodiversity**

With China hosting the UN biodiversity conference (COP15) in Kunming in 2021 it is no surprise, that biodiversity is also high on the agenda in the 14<sup>th</sup> Five-Year Plan. China plans to implement major biodiversity conservation projects and improve policies for nature protection.







# SUSTAINABLE URBAN DEVELOPMENT

***“KEEPING ON TAKING THE ROAD OF NEW  
URBANIZATION WITH CHINESE CHARACTERISTICS,  
DEEPLY PROMOTE THE NEW URBANIZATION STRATEGY  
CENTRED ON PEOPLE,  
RELYING ON URBAN AGGLOMERATIONS AND  
METROPOLITAN CIRCLES TO PROMOTE THE  
COORDINATED LINKAGE AND CHARACTERISTIC  
DEVELOPMENT OF LARGE, MEDIUM AND SMALL CITIES  
WITH SMALL TOWNS, SO THAT MORE PEOPLE ENJOY  
HIGHER QUALITY URBAN LIFE.”  
(14TH FIVE-YEAR PLAN)***





The 14<sup>th</sup> Five-Year Plan provides concrete indications as of the direction of urbanisation in China. From an urban development perspective the headlines of the plan are: quality, greening (environment, climate and biodiversity), controlled urbanisation, integrated urban-rural development and liveability.

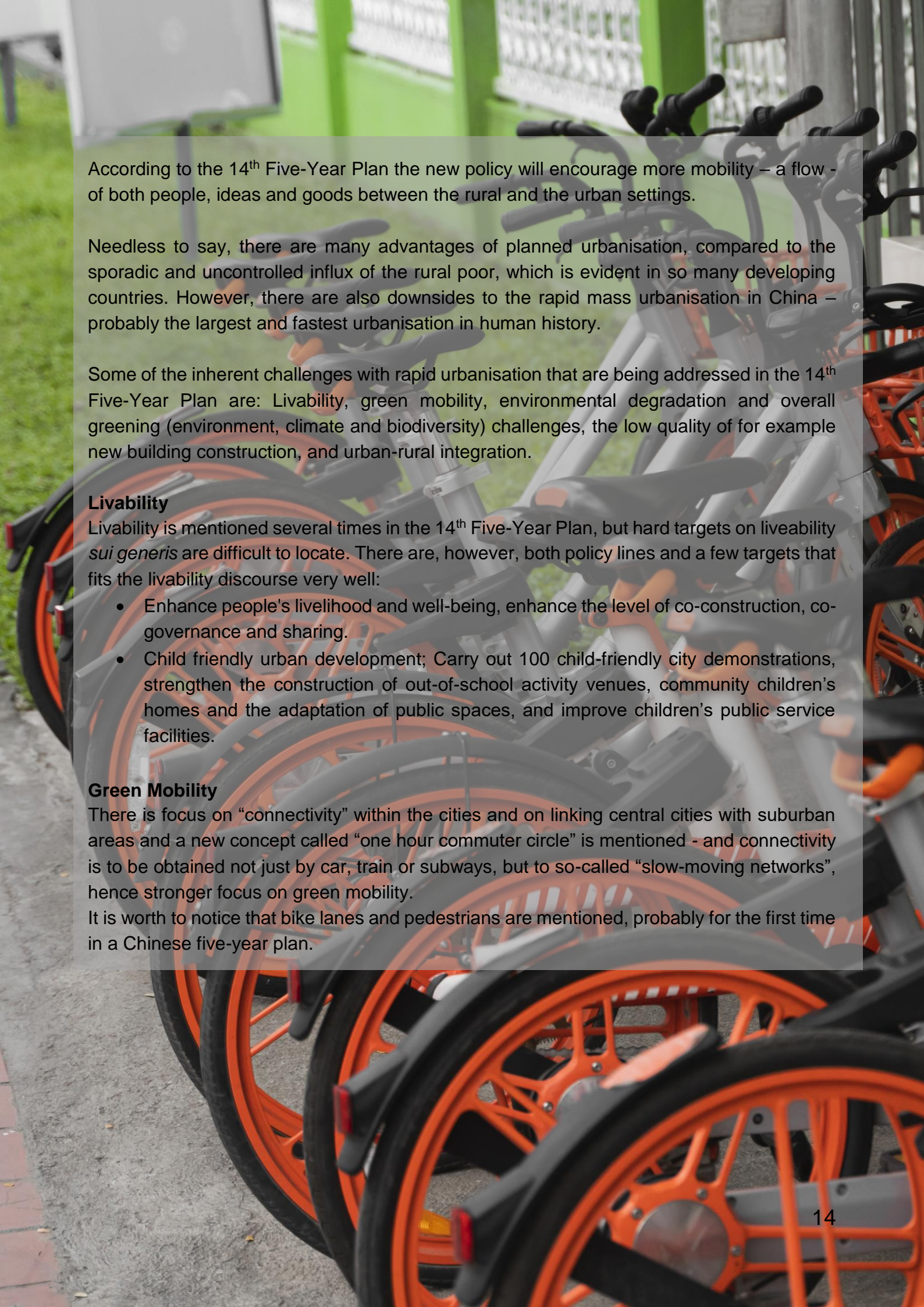
For years China has had a strong focus on controlled mass urbanisation, and the Five-Year Plan is an extension of that political line. It dictates a 65% urbanisation by 2025 based on a population of 1.4 billion people.

This is fully in line the general estimate that China will be 70% urbanised by 2030 and that already during the 13<sup>th</sup> Five-Year Plan (2016-2020) 100 million additional citizens were granted “hukou” (the Chinese household registration system that categorizes the population in either “urban” or “rural” based on place of birth) in cities with less than 3 million citizens.

According to the 14<sup>th</sup> Five-Year Plan a deeper reform of the hukou system is in motion. Hence, a reform of the current hukou system will be used as a tool to move millions of rural citizens from the rural areas to the urban areas where the “carrot” is, that they will obtain the rights and privileges of urban hukou holders.

The reform is not fully formulated , but for cities with 3 million citizens or less *all* hukou restrictions are lifted, in cities with between 3-5 million citizens hukou restrictions are partly lifted, and for cities above 5 million people an elaborate point gathering system for obtaining hukou is to be implemented.





According to the 14<sup>th</sup> Five-Year Plan the new policy will encourage more mobility – a flow - of both people, ideas and goods between the rural and the urban settings.

Needless to say, there are many advantages of planned urbanisation, compared to the sporadic and uncontrolled influx of the rural poor, which is evident in so many developing countries. However, there are also downsides to the rapid mass urbanisation in China – probably the largest and fastest urbanisation in human history.

Some of the inherent challenges with rapid urbanisation that are being addressed in the 14<sup>th</sup> Five-Year Plan are: Livability, green mobility, environmental degradation and overall greening (environment, climate and biodiversity) challenges, the low quality of for example new building construction, and urban-rural integration.

### **Livability**

Livability is mentioned several times in the 14<sup>th</sup> Five-Year Plan, but hard targets on liveability *sui generis* are difficult to locate. There are, however, both policy lines and a few targets that fits the livability discourse very well:


- Enhance people's livelihood and well-being, enhance the level of co-construction, co-governance and sharing.
- Child friendly urban development; Carry out 100 child-friendly city demonstrations, strengthen the construction of out-of-school activity venues, community children's homes and the adaptation of public spaces, and improve children's public service facilities.

### **Green Mobility**

There is focus on “connectivity” within the cities and on linking central cities with suburban areas and a new concept called “one hour commuter circle” is mentioned - and connectivity is to be obtained not just by car, train or subways, but to so-called “slow-moving networks”, hence stronger focus on green mobility.

It is worth to notice that bike lanes and pedestrians are mentioned, probably for the first time in a Chinese five-year plan.





## **Environmental Degradation and Greening (Environment, Climate and Biodiversity) Challenges**

The 14<sup>th</sup> Five-Year Plan introduces new ambitious control targets for air, water and soil pollution, and a renewed focus on waste management, sludge and sewage management, reduction of landfills, waste sorting and incineration, tree planting, climate change adaptation and overall circular economy. Seven large ecosystems will be restored and protected within the 14<sup>th</sup> Five-Year Plan. These measures cover both urban and rural areas, but some of the challenges are especially evident in urban areas and are in themselves enhanced by urbanisation such as air pollution, loss of biodiversity and more household waste, construction waste and sewage as a result of growing urban populations (please see the chapter on environment and water). Climate change adaptation (sponge city in Chinese terminology) is highlighted as an important focus area for especially urban areas in the five-year plan. China suffers from both lack of water incl. declining groundwater levels, flooding and severe drought as a result of urbanisation and the effects of climate change. Climate change adaptation as an integrated part of urban planning is gaining impact.

### **Building Construction**

In the 14<sup>th</sup> Five-Year Plan the focus is on stability and quality when it comes to economic growth. The same mantra is applied to all other sectors. Hence, from having had a focus on fast and large economic development, and rapid and large scale urbanisation now urban (and rural development for that matter) shall be endowed with quality. Quality is the new mantra.

New buildings in China may have a blueprint lifespan of 50 years, but according to MoHURD the realtime lifespan is 25-30 years. The 14<sup>th</sup> Five-Year plan is not very specific when it comes to buildings and construction, but one thing is made very clear; quality is to be the guiding principle in all types of construction development in both urban and rural settings. Just tearing down the old and building new is becoming less desirable; renovating and retrofitting of older buildings, renovation and preservation of cultural heritages sites, scenic areas and hutong areas, and new buildings with a higher quality are the directions provided in the five-year plan.

Circular economy as a concept is mentioned in relation to the reduction of overall waste, but it is not evident if circular construction is part of the five-plan, even though it is estimated that between 40-80 percent of the total waste in China is construction waste.



## Urban-Rural Integration

The five-year plan addresses the challenge of keeping the social balance and stability, as the rural areas can easily be perceived as “missing out” on the fast-paced development and economic and social growth in the cities. For decades, Chinese migrant workers have gone to the cities and left children and elderly back in the rural areas, a development that has had high social costs. This issue is to a certain extent being addressed in the 14<sup>th</sup> Five-Year Plan, which almost echoes the UNSDGs catch phrase “*Leave no one behind*” as the new mantra is “integrated urban-rural development” under headlines such as: “*Persist in giving priority to the development of agriculture and rural areas, comprehensively promoting rural revitalization*” (14<sup>th</sup> Five-Year Plan).

Fig. 1.1. (14<sup>th</sup> Five-Year Plan)

Column 11 New-type urbanization construction project	
01 Metropolitan Area Construction	Cultivate and develop a number of modern metropolitan areas in areas where the central city has a strong radiating role and a high degree of co-urbanization with surrounding cities, and promote infrastructure interconnection and share public services.
02 Urban Renewal	Complete the renovation of 219,000 old communities in cities and towns before the end of 2000, basically complete the renovation of old factories in big cities, renovate a number of large-scale old neighborhoods, and renovate a group of urban villages in accordance with local conditions.
03 Urban Flood Control and Drainage	Focusing on 31 key flood control cities and cities along the banks of major rivers, upgrade and transform flood control and drainage facilities such as flood storage and detention space, dikes, bank revetments, river courses, flood control projects, drainage pipe networks, etc. Sponge cities will be build according to local conditions to eliminate all serious section prone to waterlogging in cities.
04 Make up for shortcomings in the county	Promote the shortcomings of counties, county-level cities and urban areas and mega towns, improve general hospitals, disease control centers, elderly care centers, kindergartens, municipal pipeline networks, municipal transportation, parking lots, charging piles, sewage and garbage treatment facilities, and supporting facilities for industrial platforms. High-quality completion of 120 county-level demonstration missions to make up shortcomings
05 Modern community cultivation	Improve the service networks and online platforms of community pension and nursery, medical and health care, culture and sports, logistics and distribution, convenience stores and supermarkets, housekeeping and property management, and realize full coverage of comprehensive service facilities in urban communities. Implement the college student social work plan, 18 community workers for every 10,000 urban residents.
06 Urban-rural integration development	Construction of Jiaxing Huzhou, east of Fuzhou, Guangzhou Qingyuan, Nanjing Wuxi Changzhou, Jinan Qingdao, west of Chengdu, west of Chongqing, Xi'an Xianyang, Changchun Jilin, Xuchang, Yingtan and other national urban-rural integration development pilot areas, and strengthen reform authorization and policy integration.





## Conclusion

All other things equal; this means that the mass urbanisation already in motion will be enhanced during the 14<sup>th</sup> Five-Year Plan and especially smaller (less than five million people) cities are likely to experience a substantial growth, whereas larger cities (more than five million) and mega cities (more than 10 million people) will experience a more organic growth. The former's population growth will be based on masses from the rural areas, whereas the latter will be based on demographic growth of the current population. From a commercial perspective engineers, architects and companies specialising in or delivering technical solutions to any form of physical infrastructure development incl. roads, climate change adaptation, schools, energy retrofitting of buildings, wastewater treatment, sewage and sludge treatment, waste handling facilities, etc. may want to show even closer attention to cities of less than five million people. They may also want to follow the development of the "urban – rural integration", especially greening initiatives that can revitalize the rural areas, such as rural sewage treatment and rural waste management facilities are in focus.

That said, the mega cities (Tier-1 and Tier-2) are in fierce competition to attract both the most skilled workforce and national and foreign investment. High quality urban development and especially greening (environment, climate and biodiversity) and world-class architecture is increasingly being seen as parameters in that competition. Here Danish companies are already gaining the attention of Chinese developers and have a good selection of showcases in China.

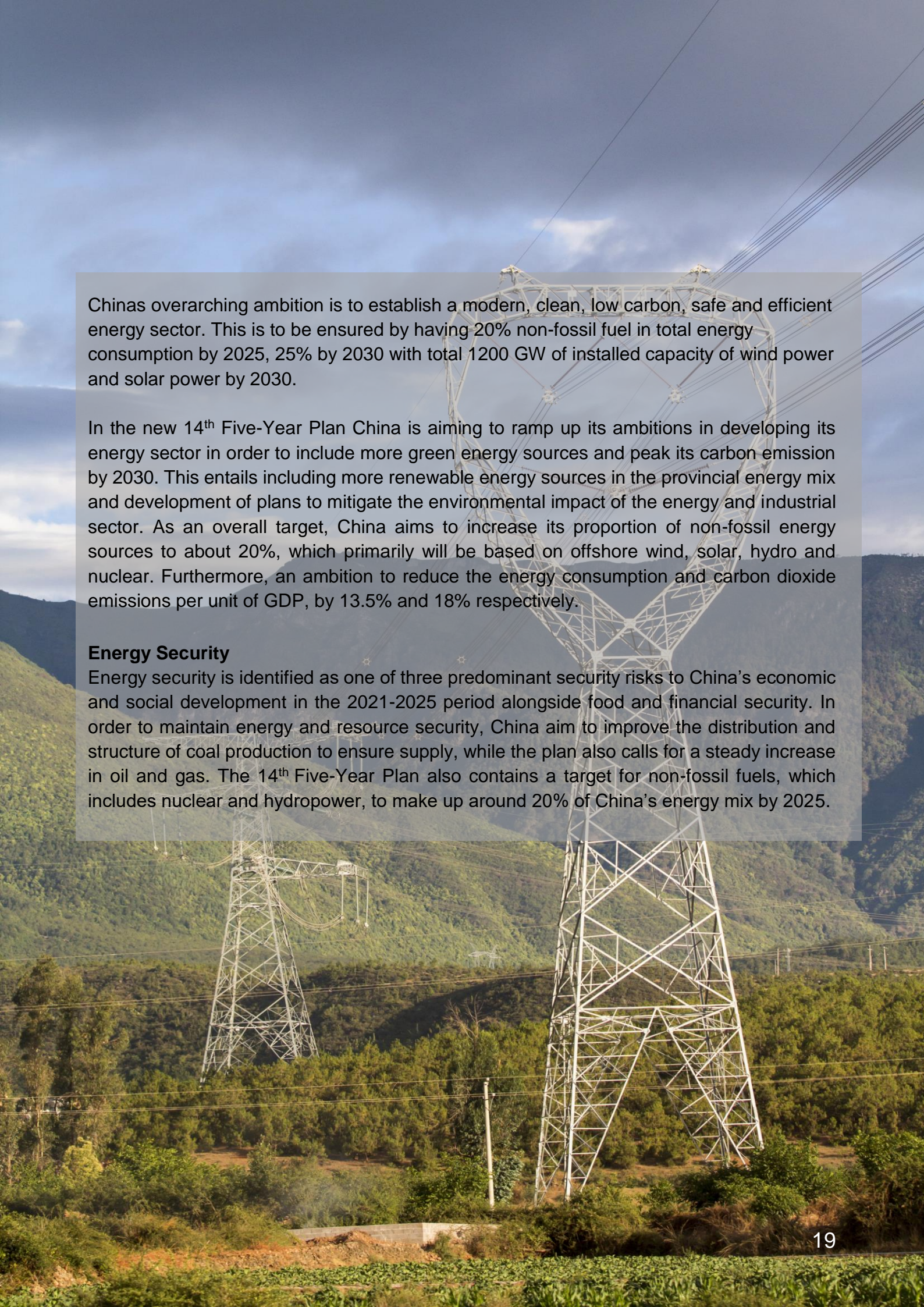




## ENERGY

***“RESOLUTELY CURB THE BLIND DEVELOPMENT OF HIGH-ENERGY-CONSUMING AND HIGH-EMISSION PROJECTS, AND PROMOTE GREEN TRANSFORMATION TO ACHIEVE POSITIVE DEVELOPMENT. EXPAND IN SECTORS SUCH AS ENERGY SAVING, CLEAN PRODUCTION, CLEAN ENERGY, ECOLOGY AND ENVIRONMENT, GREEN UPGRADING OF INFRASTRUCTURES, GREEN SERVICES ETC.”  
(14TH FIVE-YEAR PLAN)***





China's overarching ambition is to establish a modern, clean, low carbon, safe and efficient energy sector. This is to be ensured by having 20% non-fossil fuel in total energy consumption by 2025, 25% by 2030 with total 1200 GW of installed capacity of wind power and solar power by 2030.

In the new 14<sup>th</sup> Five-Year Plan China is aiming to ramp up its ambitions in developing its energy sector in order to include more green energy sources and peak its carbon emission by 2030. This entails including more renewable energy sources in the provincial energy mix and development of plans to mitigate the environmental impact of the energy and industrial sector. As an overall target, China aims to increase its proportion of non-fossil energy sources to about 20%, which primarily will be based on offshore wind, solar, hydro and nuclear. Furthermore, an ambition to reduce the energy consumption and carbon dioxide emissions per unit of GDP, by 13.5% and 18% respectively.

### **Energy Security**

Energy security is identified as one of three predominant security risks to China's economic and social development in the 2021-2025 period alongside food and financial security. In order to maintain energy and resource security, China aims to improve the distribution and structure of coal production to ensure supply, while the plan also calls for a steady increase in oil and gas. The 14<sup>th</sup> Five-Year Plan also contains a target for non-fossil fuels, which includes nuclear and hydropower, to make up around 20% of China's energy mix by 2025.





## **Renewable Energy & Offshore Wind**

The future renewable energy development in China includes both centralized and distributed systems according to the provincial setup, which involves population intensity and space availability. The development of offshore wind in the coastal provinces is expected to continue to develop in an orderly manner and large-scale power bases will be established in provinces with large offshore wind potential such as Guangdong, Fujian, Zhejiang, Jiangsu, and Shandong. As a measure to boost the offshore wind development, the National Energy Administration (NEA) will in 2021 issue a planning and management measures for development of deep-sea and offshore wind power, and furthermore launch deep-sea offshore wind power demonstration projects. Meanwhile, NEA urges local authorities to actively introduce their own incentives and subsidy policies in order to support a sustained offshore wind development.

## **Need for More Energy Storage and P2X-Hydrogen**

For the first time, the 14<sup>th</sup> Five-Year Plan sets hydrogen and energy storage as cutting-edge technologies. The government will organize and implement plans for future industry incubation and acceleration. In order to utilize the full potential of renewable energy sources, especially when establishing offshore wind in the coastal provinces, it is necessary to decrease the high wind curtailment levels due to imbalance of energy consumption and production. Therefore, China plans to develop more hydrogen based P2X facilities in order to store surplus energy from wind, solar and hydropower in order to produce green hydrogen.

## **Comprehensive Measure to Ensure Clean Heating Commitments**

China has engaged in promoting clean heating measures in order to mitigate the heavy pollution levels by ensuring more involvement of renewables and clean energy sources in the Northern provinces. The government plan prescribes that clean heating will account for 70% of all heating in northern China, both consisting centralized and individual heating sources. This constitutes a major modernisation of the heating sector and establishment of geothermal sites in order to ensure non-fossil heat supply. A total budget of 27.5 billion yuan will be allocated for clean heating and air pollution control measures, with a priority given to encourage citizens and heat suppliers to prioritize clean energy sources.



## **Energy Efficiency**

Under the theme of green development, China is resolved to promote energy efficiency. That applies to multiple areas, but an emerging area such as data centres is specifically mentioned. The 14<sup>th</sup> Five-Year Plan also states an intent to optimize China's energy system and implement an energy saving technology transformation. In relation to smart energy, which refers mainly to intelligent upgrading of power plants, an energy efficiency analysis will be conducted in the coming years.

## **Green Buildings**

In the coming five-year period, China will promote urban design and implement applicable, economic, green, and beautiful building policies. To conform to new concepts and trends of urban development, pilot demonstration projects of urban modernization will be carried out for the purpose of building livable, innovative, smart, green, humanistic, and resilient cities. In addition, China will implement energy saving and low-carbon technology demonstration projects in industries, as well as demonstration projects on near zero energy consumption buildings.







***“ACTIVELY DEVELOP BLUE PARTNERSHIPS; DEEPLY PARTICIPATE IN THE INTERNATIONAL MARITIME GOVERNANCE MECHANISMS AND THE FORMULATION AND IMPLEMENTATION OF RELATED RULES, PROMOTE THE CONSTRUCTION OF A FAIR AND REASONABLE INTERNATIONAL MARITIME ORDER, AND PROMOTE THE CONSTRUCTION OF A MARITIME COMMUNITY WITH A SHARED FUTURE.”  
(14TH FIVE-YEAR PLAN)***



The maritime sector continues to be a core sector for China, with an increased focus on accelerating China's development as a maritime power by an amplified participation in global ocean governance and building international blue partnerships within e.g. maritime safety, environmental protection and scientific research to mention a few.

### **Marine Economy**

China envisage a modern marine industry system which is integrated with the shore side and engulfs ecological protection, break through on key core technologies like large scale utilization of marine energy and deep-sea strategic resources.

### **Modernising Manufacturing, Supply Chain and Infrastructure**

To strengthening China's manufacturing, emphasis will be put on modernization of the industrial supply chain. In a maritime context this entails marine engineering, where green and intelligent production become the mantras for innovative development within for instance new fuels and high end marine equipment. In shipbuilding, focus will be on cruise ship, large LNG carriers, vessels for the offshore wind industry, as well as deep-sea oil and gas production. It is, furthermore, the intention to construct world-class port clusters and integrate the intermodal and supporting infrastructure.







## **Green Harbours**

There is a dedicated desire to develop and promote infrastructure connectivity within China and to promote increased connectivity of land, sea, air and networks. This also includes an ambition to develop "world class" ports' which contributes to China continued path of developing a strong transportation network.

This development will naturally create a demand for technology and solutions which contributes to the five major elements within Chinese port development; a strong shipping centre, strong service, strong port enterprises, strong science and technology, and strong innovation. Coupled with China's overall climate ambition it will also lead to a strong demand for environmental solutions and technologies which contributes for Chinese ports path towards carbon neutrality.

## **New Technology and Digitalization**

China wishes to increase the governmental governance and efficiency by intensified use of digital technology, which in turn will improve decision-making and heighten the service deliveries to the society. To support the private sector the government intend to foster a sound digital ecosystem setting up standards on e.g. data resource property rights, cross-border transmissions, and security protection. Examples already in play are digitalized certificates for seafarers and ships.



## Evaluation

Denmark has extensive commercial cooperation with China regarding green solutions related to the Energy and Maritime sector, and China is probably one of the markets with the greatest sales potential in the short to medium term for Danish exporters. Exports of energy technology to China are already large and amounted to around DKK 4.6 billion in 2019, which made China the second largest export market outside the EU - surpassed only by the USA.

However, such statements largely underestimate the real importance of the Chinese market for Danish green technologies. Unlike the other large export markets for green technology, the Danish business community is largely represented with significant production capacity in China, a growing part of which is targeted at the Chinese market.

A comprehensive survey among Danish companies in China last year found that more than four out of five are "in China for China", and that three quarters expect to expand their capacity significantly in the coming years. This is not least due to the enormous market potential that exists in China due to the country's size and ambitions for sustainable economic growth.

The commercial opportunities for Danish exporters to China are therefore broad and many. Smart and sustainable technologies which contributes to China's ambition to become carbon neutral are in the forefront, and Danish green solutions and products are in a good position to supply such demand.

Especially within areas such as, renewable energy especially leading technology for Wind turbine Generators, floating offshore wind technology, service and technology for operation and management, technology providing increased efficiency and the adaptation of clean energy sources for district heating and cooling, energy efficiency and solutions applicable for increasing the energy efficiency within industries, upgrade and implementation of green buildings and storage technology for energy especially P2X, as well as (MARITIME) ballast and waste water systems, desulphurisation, advanced pumps and filters, robotics, maritime software and blockchain applications, and components used to reduce CO2 emission and greening e.g. electrification of port operation, new fuels and new ships design.





# HEALTH AND LIFE SCIENCE

***PUT THE PROTECTION OF THE PEOPLE'S HEALTH IN THE  
STRATEGIC POSITION OF PRIORITY DEVELOPMENT,  
ADHERE TO THE POLICY OF PREVENTION FIRST,  
IN-DEPTH IMPLEMENTATION OF THE HEALTHY CHINA  
ACTION PLAN,  
IMPROVE THE NATIONAL HEALTH PROMOTION POLICY,  
WEAVE A NATIONAL PUBLIC HEALTH PROTECTION NET,  
AND PROVIDE THE PEOPLE WITH A FULL RANGE OF LIFE-  
CYCLE HEALTH SERVICES  
(14TH FIVE-YEAR PLAN)***





China's 14th five-year plan has been published at a time when the COVID-19 pandemic has lasted over a year. Thus, it is not surprising that the plan reflects on China's pandemic preparedness and has as a separate objective to continue to expand and strengthen this both nationally and locally, in order for China to both maintain control of the ongoing pandemic and be well prepared to deal with future outbreaks of contagious diseases. To ensure this, the five-year plan prioritizes reforms of risk assessment systems and early warning systems in the event of outbreaks and the establishment of more laboratory facilities. However, the five-year plan leaves plenty of room to formulate objectives within other important areas in the field of health and life science.

#### **Increased competition within research and medical equipment**

China has big research ambitions in the field of health and wants to be at the forefront in research fields such as artificial intelligence (AI), neurology and brain-related matters, genetics and clinical medicine as well as in the major disease areas such as cancer, heart and respiratory diseases. In addition, China aims to be able to produce and be self-sufficient in high-end medical equipment, innovative medicines and vaccines. Overall, China strives to increase its competitiveness in areas where the country has so far been dependent on solutions and know-how delivered from outside. This means that Danish companies should prepare for increased domestic competition. It should be noted, however, that the five-year plan is a national strategy being rolled out from Beijing. The individual provinces and cities continue to look for good solutions from abroad, including Denmark. There are still many opportunities to bring strong and functional solutions and products to the Chinese market for many years to come.

#### **'Healthy China 2030' Plan still in Action**

Continued capacity expansion of the healthcare sector is an important priority in the five-year plan in order to, ensure more equal access to



healthcare across provinces and urban and rural areas in China.

The expansion applies both in the form of construction of new physical facilities and upgrading of existing ones, as well as more and better trained health personnel.

According to the five-year plan, China attempts to build several new local and regional health centres and hospitals to provide basic health services to the local community. Moreover, China wants to build specialized hospitals that can participate in international research and be at the forefront of the development of innovative treatment methods. Strengthened capacity within psychiatric care is a separate objective. China wants to build 100 new centres for the treatment of mental disorders in areas with poor access to treatment. The capacity expansion of the healthcare sector should be seen in connection with the ongoing work on implementing the health strategy 'Healthy China 2030', as the five-year plan emphasizes that this strategy remains an important priority. This means that China also in the coming years will focus on strengthened prevention and disease management, especially within the major chronic diseases.

### **Danish Solutions are Needed**

Overall, there are still favourable opportunities for Danish companies that provide solutions for the construction and operation of hospitals and health centres. Danish solutions within education and training of health personnel in both the secondary and primary sector will also be relevant, including in specialties where Denmark excels both on the corporate side and in the public authorities, such as general medicine, neurology, psychiatry and dermatology. Solutions and knowledge about prevention and health promotion at both the individual and the structural level will also be highly relevant to China. It concerns i.e. solutions that promote sports and movement in public spaces. In addition, Danish authorities and companies possess valuable knowledge about prevention, management and treatment of chronic diseases.





Here, Danish experiences with delivery and organisation of primary healthcare services can be a stepping stone from both a life science industry and a public perspective. In the field of medicines and medical devices, China intends to continue the reform of its procedures for the procurement, evaluation and authorization of medicines. The Danish regulatory cooperation on medicines and medical devices can continue to provide valuable knowledge contributions to China's work to strengthen the area of regulation of medicines and medical devices.

### **Changing Demographics means a Change in Solutions**

Another important issue in the five-year plan is the healthcare system's adaptation to demographic trends, i.e. the ageing population and declining birth rate. China plans to expand its elderly sector significantly and launch initiatives to encourage people to have more children. In the elderly sector, China wants to increase capacity and strengthen home care and nursing homes. Danish experiences and solutions, ranging from the operation and management of institutions and home help services to welfare technologies, will be relevant.

In order to increase the birth rate, the five-year plan also focuses on initiatives that improve the framework conditions for establishing a family and living a good family life. This means that Danish solutions and experiences in areas such as fertility treatment, maternity care, infant and child health care as well as the spread and operation of children's institutions will be in high demand.

### **Living with Physical Disabilities and the Links to the Winter Paralympics 2022**

In a separate chapter, the five-year plan launches initiatives to ensure better rights and conditions for people with disabilities. This can be seen as part of China's preparations for the Paralympic Winter Games in 2022, where there will undoubtedly be an international focus on China's actions in the field of disability. In the wake of this, there are good opportunities in China for companies that specialise in solutions within rehabilitation for people with disabilities at both basic and specialized level, e.g. in neuro-rehabilitation.







**ROYAL DANISH  
EMBASSY**  
*Beijing*

# CONTACTS



**Marie Louise Flach de Neergaard**  
Minister Counsellor  
Team Leader  
Food & Agriculture  
Environment and Water  
E-mail: marnee@um.dk



**Morten Kruse**  
Team Leader  
Energy and Maritime  
E-mail: morkru@um.dk



**Kristian Teglkamp**  
Team Leader  
Health  
E-mail: kriteg@um.dk



**Jeppe Juul Petersen**  
Sector Counsellor  
Food & Agriculture  
E-mail: jeppet@um.dk



**Anne Jensen**  
Sector Counsellor  
Environment  
E-mail: annjne@um.dk



**Christina Anderskov**  
Sector Counsellor  
Sustainable Urban  
Development  
E-mail: chrane@um.dk



**Hans Peter Glipman Jørgensen**  
Sector Counsellor  
Maritime  
E-mail: hanjor@um.dk



**Sune Kåre Sørensen**  
Special attaché  
Energy and Maritime  
E-mail: sunsor@um.dk



**Emrah Öztunc**  
Sector Counsellor  
Energy  
E-mail: emrozt@um.dk



**Nanna Cathrine Birk Hollensen**  
Sector Counsellor  
Health  
E-mail: nanhol@um.dk