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REPORT

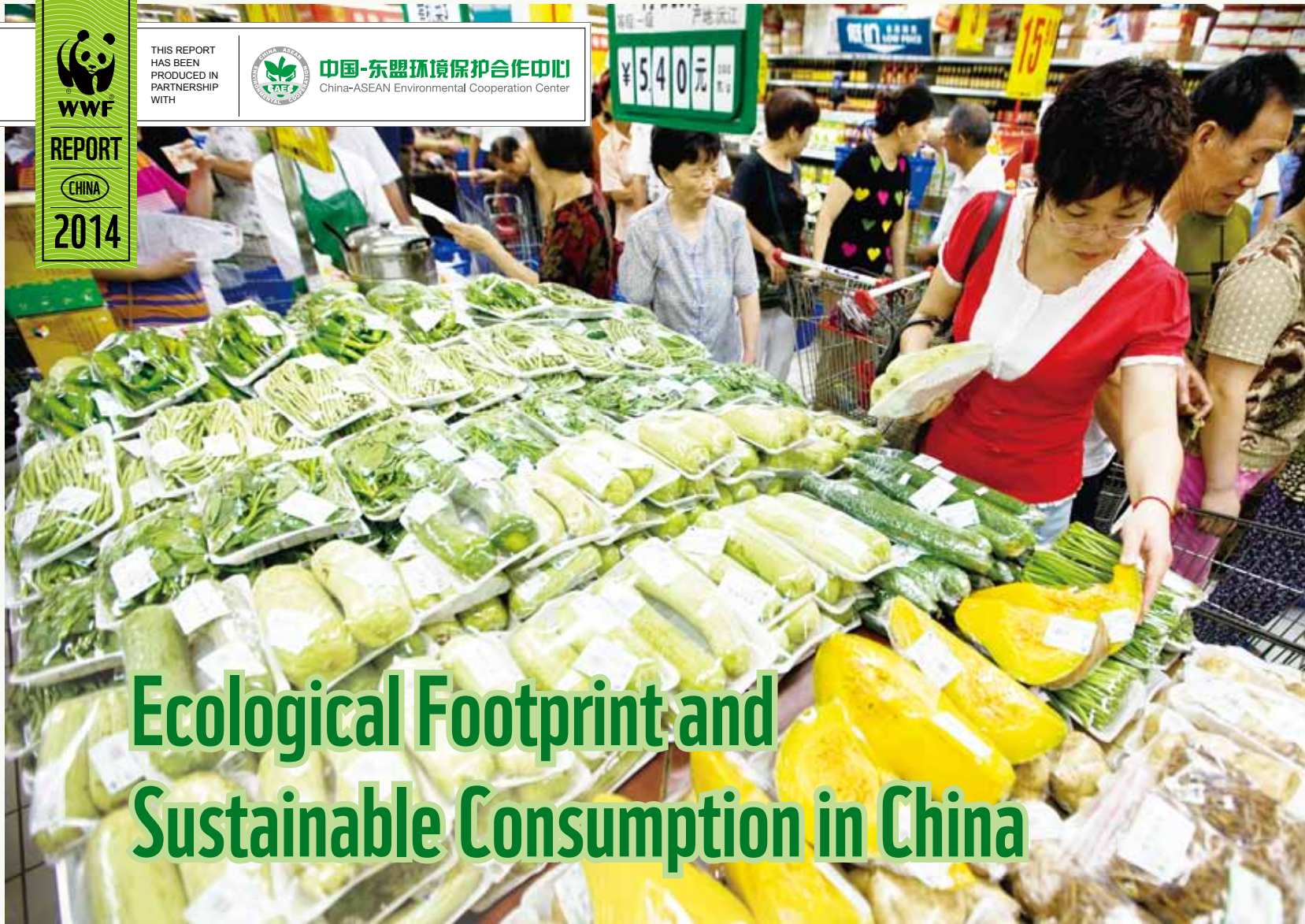
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China-ASEAN Environmental Cooperation Center



Ecological Footprint and Sustainable Consumption in China

China-ASEAN Environmental Cooperation Center

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World Wild Fund for Nature

WWF (World Wild Fund for Nature) is one of the world's largest and most respected independent non-government organizations dedicated to the conservation of nature. WWF boasts a global network active in more than 100 countries with nearly 5.2 million supporters.

WWF's mission is to stop the degradation of the Earth's natural environment and to build a future in which humans live in harmony with nature. Therefore, WWF is dedicated to conserving the world's biological diversity; ensuring that the use of renewable natural resources is sustainable; and promoting the reduction of pollution and wasteful consumption.

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FOREWARD

Our planet is our common home, but it is suffering from unprecedented pressure to provide natural resources to support our lifestyles. This increasing demand for natural resources, already far exceeds the Earth's regeneration capacity.

Unsustainable forms of consumption are part of creating this destructive pressure on the ecological system. Current consumption models, and the high and rising levels of individual consumption, ironically even threaten people's health and quality of life.

If our current and increasing consumption trends continue, we may need the equivalent of "two Earths" by 2030 to meet this increasing demand.

But we only have one Earth. The only thing we can do is create more sustainable consumption models and lifestyles and, as a result, enable humans and nature to live in harmony.

With fast economic development and urbanization, China's ecological system and natural resources are facing great challenges. Our future use of natural resources, and the nature of our consumption model, will strongly influence the future of China and its people.

In order to transform our economy towards more sustainable consumption, government at all levels, enterprises and other stakeholders will need to work together to create long-term commitments and joint solutions.

This report looks at current consumption trends in China and provides suggestions for how to create and promote sustainable consumption as part of China's goal to be an ecological civilization.



SUMMARY OF FINDINGS

As China's economy rapidly expands, people's incomes are improving and their levels of consumption rising. China's large population and current consumption model is placing huge pressures on available resources and the wider environment.

China's leadership is promoting 'ecological civilization'. This study supports this goal by looking at the impacts of China's current consumption model and suggesting ways to promote sustainable consumption as well as create appropriate and sustainable economic policy.

In order to analyze the relationship between China's increasing consumption and impacts on the environment, we have used the 'Ecological Footprint', an effective tool to measure people's demand for, and consumption of, natural resources. It tracks humanity's demand on nature by comparing

human consumption with the Earth's regenerative capacity or biocapacity. We have also looked at the different Ecological Footprints across China and compared these with consumption drivers and trends.

Our overall findings are that:

- Although China's per capita Ecological Footprint is below the world average, it has already exceeded a sustainable level. China's overall Ecological Footprint is 2.5 times its own biocapacity.
- This report compares the Ecological Footprint of China's consumption with that of the US, UK and South Africa. These countries are chosen because they represent two developed countries and an emerging economy in different geographical regions.
- China has relatively inefficient resource use compared with the US, UK and

South Africa. Every 1000 USD of Chinese consumption generates about four a half times more Ecological Footprint than the US and UK and over twice as much as South Africa. China will therefore need to transform to a model of consumption which is much more resource-efficient.

- If we look at the different contributions of categories of consumption across these same four countries, China has relatively less service consumption and relatively more infrastructure investment. A shift towards more services (which are relatively resource-light), as well as a reduction in resource-intensive infrastructure, will help lower China's Ecological Footprint.
- Ecological Footprints vary considerably across China and the highest footprint areas tend not to have high biocapacity or Ecological Function Zones. Provinces

with high economic development and high Ecological Footprints therefore tend to consume not only their own biocapacity but that of others, particularly from those areas with high biocapacity which tend to also have low economic development, such as provinces in West China. It is therefore necessary to either reduce the environmental impact of resource use through, for example, sustainable certification and increasing consumer awareness, or by promoting forms of ecological compensation between areas.

- Urbanization is a major driving force of China's ecological overshoot. Changing consumer trends for urban populations between 2000 and 2010 show a large increase in car ownership, as well as greater use of computers and the internet. China ranks the highest in the world for

carbon emissions. There seems to be a relative decline of cultural, education and recreational services as a proportion of the economy, indicating their relatively slow development compared to resource-intensive industries. There are also widening differences between the Ecological Footprints of urban and rural populations.

There is therefore a need for government policy which creates and supports a sustainable system of consumption and production, promotes more service-based consumption, balances consumption levels between different geographical areas, and ensures urban planning with strongly reduced environmental impact.

CHAPTER ONE: ECOLOGICAL FOOTPRINT UNDER GLOBAL CONTEXT

1.1 Ecological Footprint And Consumption

The Ecological Footprint measures humanity's demand on the biosphere by calculating the geographical area required to produce the renewable resources that people consume (whether cropland, fishing grounds, or grazing land), the area occupied by infrastructure, and the area of forest required to sequester (or store) that part of CO₂ emissions from human activities that is not absorbed by the oceans (Figure 1).

This area is then compared with the Earth's biocapacity – the amount of productive area available to generate the resources required as well as to absorb wastes.

Both the Ecological Footprint and biocapacity are measured in 'global hectares' (gha). One

global hectare represents the productive capacity of one hectare of available land at global average biological productivity levels.

The 'biocapacity deficit' or surplus of a country or region depends on the relationship between the Ecological Footprint and the biocapacity of that region or country. Biocapacity surplus exists when the available biocapacity exceeds the Ecological Footprint generated by the people living in that area. With a biocapacity deficit the Ecological Footprint exceeds the available biocapacity.

At the national level, the Ecological Footprint is based on 'net' consumption, meaning that it takes into account the

Ecological Footprint for imported goods and services minus that of exports. (See WWF's China Ecological Footprint Report 2012 for further details of the methodology.)

If there is a biocapacity deficit, the extra resource use must therefore come from trade, whether within countries or through imports from other countries, or from over-using current resources which affects their availability for future generations.

To reduce the gap between local and national Ecological Footprints and the available biocapacity, consumption levels would need to reduce, and/or the efficiency of resource-use in the creation of goods and services dramatically increase.

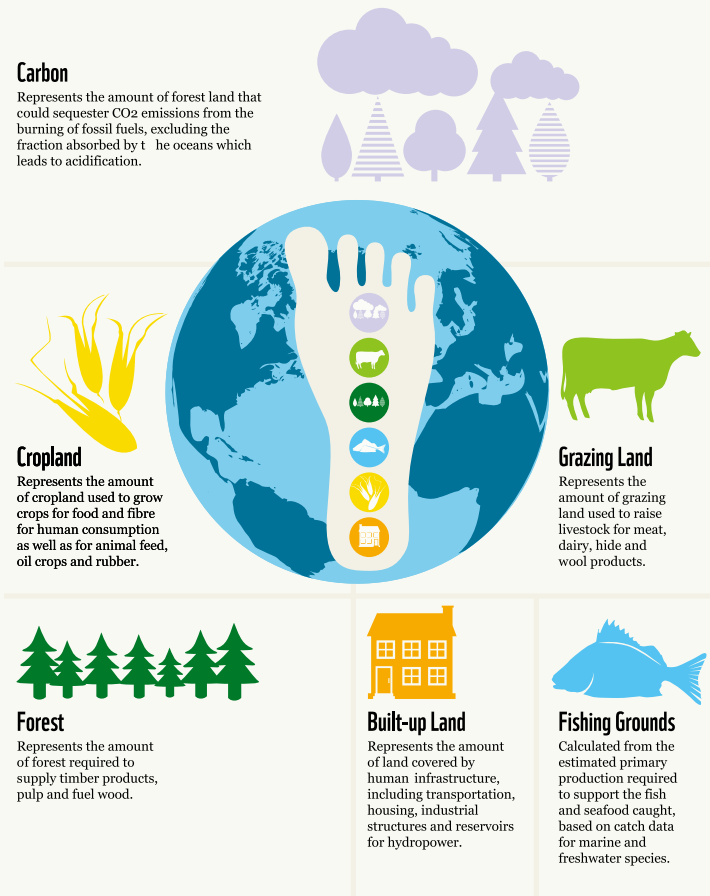


Figure 1 Components of the Ecological Footprint, Global Footprint Network.

Every human activity uses biologically productive land and/or fishing grounds. The components of the Ecological Footprint are: cropland, grazing land, forest land, built-up land, fishing grounds and carbon.

Data source: Global Footprint Network, 2011

1.2 Global Ecological Footprint: Long- Term And Serious Overshoot

Since around 1970, the world has been in a state of ecological overshoot (Figure 1.2). Human's demand on the Earth's ecosystems has exceeded its regenerative capacity. In 2008, the Earth's total biocapacity was 12 billion gha, or 1.8 gha per person, while the Ecological Footprint worldwide was 18.2 billion gha, or 2.7 gha per person.

This means that it would take 1.5 years for the Earth to fully regenerate the renewable resources that people use in one year. In other words, we use the equivalent of 1.5 Earths to support our current consumption.

Nearly 90 countries have a per capita Ecological Footprint which is greater than the available global average biocapacity (1.8 gha).

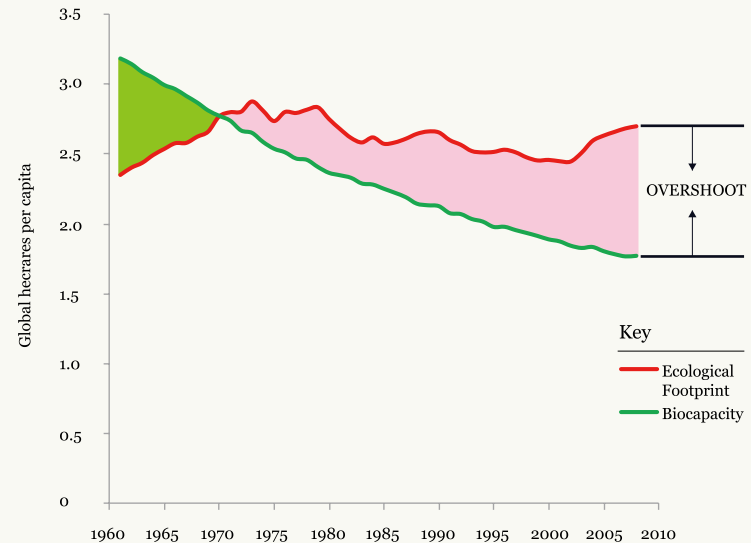


Figure 1-2 Trends in global average per capita Ecological Footprint and biocapacity from 1961 to 2008

(Data source: Global Footprint Network, 2011)

1.3 The Ecological Footprint In Asia: Fast Growth

Asia's available biocapacity at 2.87 billion gha accounts for 24% of the world's total. However, Asia's per capita biocapacity, at 0.72 gha, is less than half the world's average, because of its high population. In fact, relative to other continents, Asia has the world's lowest per capita biocapacity (Data source: Global Footprint Network).

Asia's large population (about 60% of the global population) creates 40% of the world's Ecological Footprint. From 1961 to 2007, Asia's total Ecological Footprint increased nearly 340% to about 5.1 billion gha, while per capita Ecological Footprint increased by about 30% at the same time as Asia's total population more than doubled.

However, because of different economic development and consumption models, Ecological Footprints vary significantly. For example, the UAE has a per capita ecological footprint of 10.3 gha, the highest in the world, whilst Pakistan's per capita Ecological Footprint is only 0.75 gha.

Currently, Asia's Ecological Footprint is around 2.5 times that of its biocapacity. China has the largest total Ecological Footprint in the world, followed by India.

Within Asia, this biocapacity deficit is closely related to the overuse of resources and loss of ecosystem services. The biocapacity deficit also arises from imports which embody resource use, therefore using

up other regions' biocapacity and land area. Countries in Asia tend to have net imports of biocapacity. In other words, they import more biocapacity than that used in exports. The biocapacity imported from other regions accounts for about 12% of Asia's total Ecological Footprint.

While population increase is an important reason for increasing total Ecological Footprint, the increase of per capita Ecological Footprint through consumption has played a significant role. Compared with other regions in the world, Asia has the fastest growing Carbon Footprint, a significant part of total Ecological Footprint.

CHAPTER TWO: CHINA'S CONSUMPTION ECOLOGICAL FOOTPRINT

2.1 China's Per Capita Ecological Footprint Is 2.5 Times Its Biocapacity

China's total biocapacity has remained stable over the last 50 years, although its per capita biocapacity has slightly declined in line with its population increase. At the same time, rapid economic development has caused China's Ecological Footprint, whether total amount or per capita volume, to sharply increase to become the highest in the world at 2.9 billion gha in 2008.

Since 1970, the biocapacity deficit has continued to rise. In 2008, China's per capita Ecological Footprint reached 2.1 gha, 2.5 times as much as the available per capita biocapacity in the country of 0.87 gha (Figure 2-1).

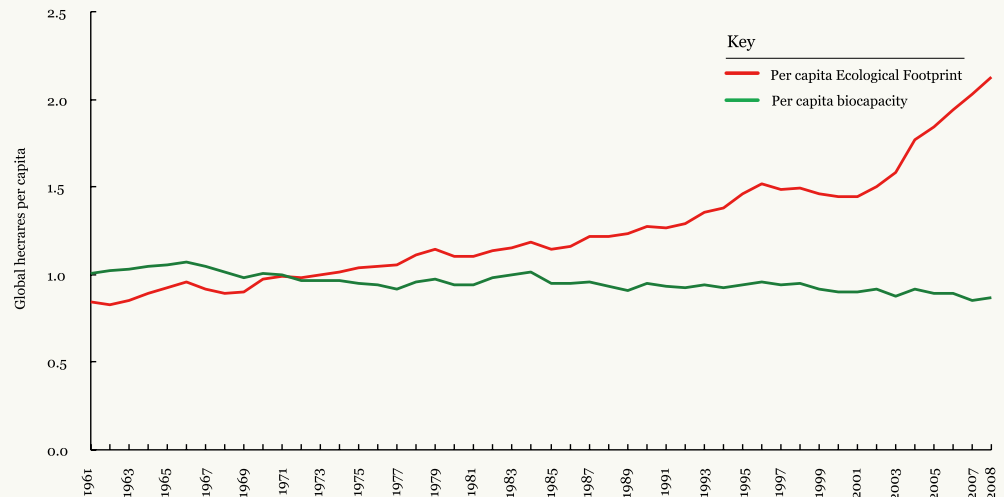


Figure 2-1 China's per capita Ecological Footprint and biocapacity from 1961 to 2008

(Data Source: Global Footprint Network, 2011)

2.2 China's Resource Use Is Relatively Inefficient

In 2008, China's per capita Ecological Footprint was 2.1 gha, nearly 80% that of the global per capita average of 2.7 gha. However, China's per capita household consumption was 879 USD, less than 24% of global per capita expenditure by households. These differences suggest that China's per capita consumption of ecological resources per \$ is relatively high, suggesting low resource-use efficiency (Figure 2.2). If these trends persist, its per capita natural resource consumption will very quickly exceed the average global level.

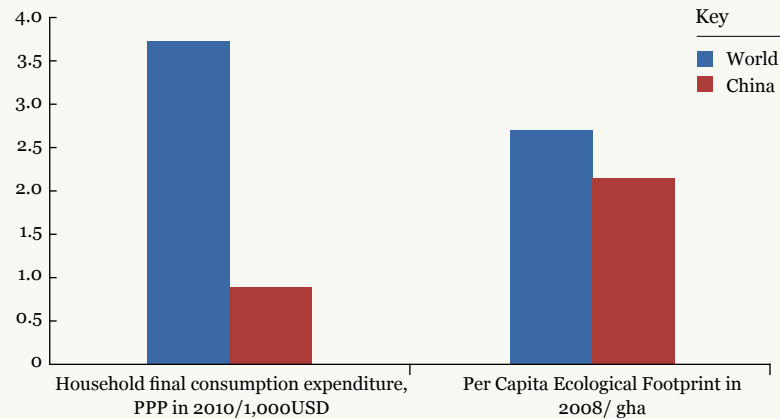


Figure 2-2 Comparison of China's and global per capita GDP and Ecological Footprint (2008)

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences & World Bank WDI Database, 2008)

2.3 The Relative Resource Efficiency Of Consumption Expenditure Across Four Countries

We can further explore China's relative resource efficiency by looking at the relationship between per capita consumption and Ecological Footprint for China, the USA, UK and South Africa.

Across these four countries, the level of Ecological Footprint is roughly proportional to per capita household and government consumption (Figure 2.3).

If we look in more detail at the figures, in China, every 1000 USD of consumption produces 0.77 gha of Ecological Footprint. This impact is much higher than that of the US and UK at 0.17 gha and 0.16 gha respectively, and over twice as high as South Africa (0.35 gha) which is at a comparable level of development to China. This analysis supports the previous conclusion that China has a relatively low efficiency of resource use which therefore needs to increase in order to create more sustainable consumption and reduce environmental pressure.

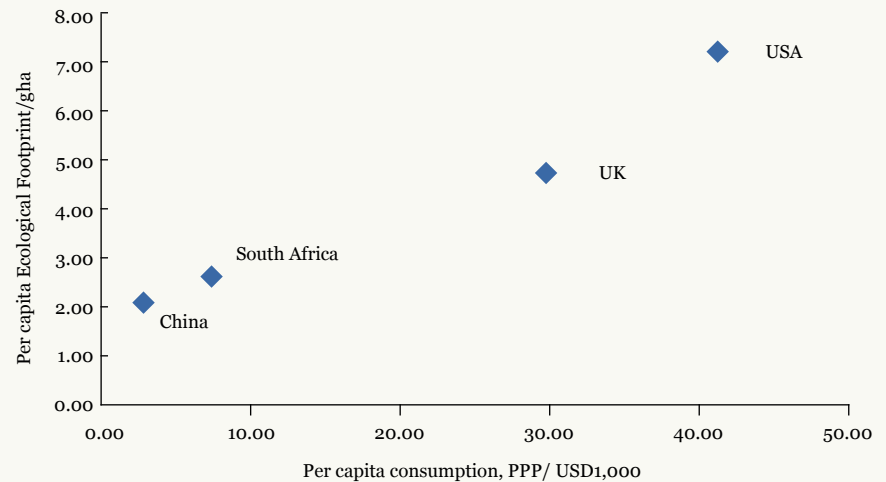


Figure 2-3 Relationship between per capita consumption (PPP) and per capita Ecological Footprint for China, the USA, UK and South Africa

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences & World Bank WDI Database, 2008)

2.4 China Has Relatively Low Consumption Expenditure Relative To Investment In Infrastructure

Figure 2.4 shows that China has relatively low levels of current consumption expenditure compared with capital investment if we look across China, USA, UK and South Africa.

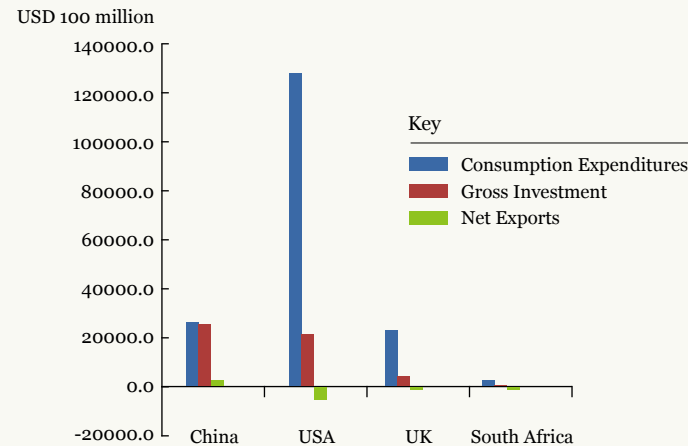


Figure 2-4 GDP components of China, the USA, UK and South Africa

(Data Source: World Bank WDI Database, 2010)

We can also look at consumption-to-GDP levels. In 2010, China's household consumption accounted for 34.4% of GDP, while government consumption (mostly public procurement) accounted for 11.7%. Compared with consumption-to-GDP ratios in the USA and UK (both developed countries) and in South Africa (emerging market), Figure 2-5 shows that China's household consumption-to-GDP ratio was the lowest among the four countries, and about half that of the USA and UK.

According to China's 12th Five-Year Plan, China's economic growth model will change from being investment and export-led to one driven by domestic demand. As a result, household consumption is likely to become the main driver of future growth in China's Ecological Footprint.

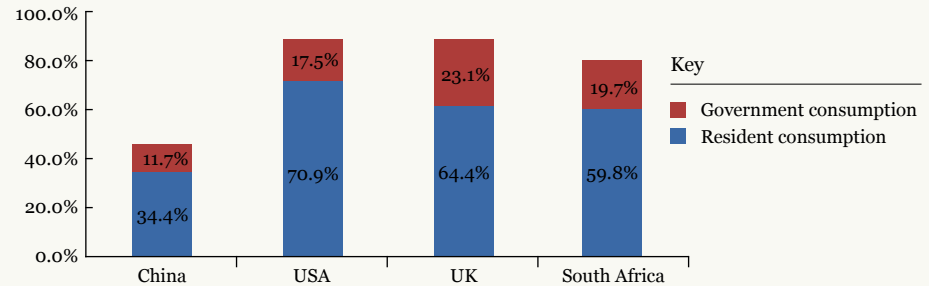


Figure 2-5 Comparison of the consumption-to-GDP ratios of China, the USA, UK and South Africa

(Data Source: World Bank WDI Database, 2010)

2.5 China Has Relatively Less Service Consumption

The consumption elements of the Ecological Footprint have been broken down by the Global Footprint Network into the household consumption categories of: clothing, food, housing, transport and services. Food consumption includes consumption inside or outside the home; residential consumption includes housing services, housing energy and water use as well as consumption of appliances and devices which improve comfort and convenience; transport can be direct or indirect (in other words household use or transport involved in moving goods and services); and services include cultural and entertainment services, medical and health care services, as well as use of public services. On these measures, food, housing and transport generate most of the world's Ecological Footprint.

Expenditure on food, transport and

housing account for nearly 80% of per capita consumption in China, whereas in the USA, UK and South Africa, there is relatively more consumption of culture, entertainment and other services (Figure 2.6). Food consumption alone in China accounts for 41% of the Ecological Footprint, which is 10% higher than that in South Africa, also an emerging economy.

The Ecological Footprint generated by service consumption (including entertainment and recreation services) accounts for less than 10% of the total Ecological Footprint in many countries around the world. However, in developed countries, the output value of the service industry can account for nearly 80% of total economic value, indicating that service industries can generate relatively high economic benefits. At the same time, services tend to use fewer resources.

In China, the output value of the service industry currently accounts for around 50% of GDP and the Ecological Footprint generates a relatively low economic value. This suggests that China's economic development and domestic consumption could include a greater proportion of services.

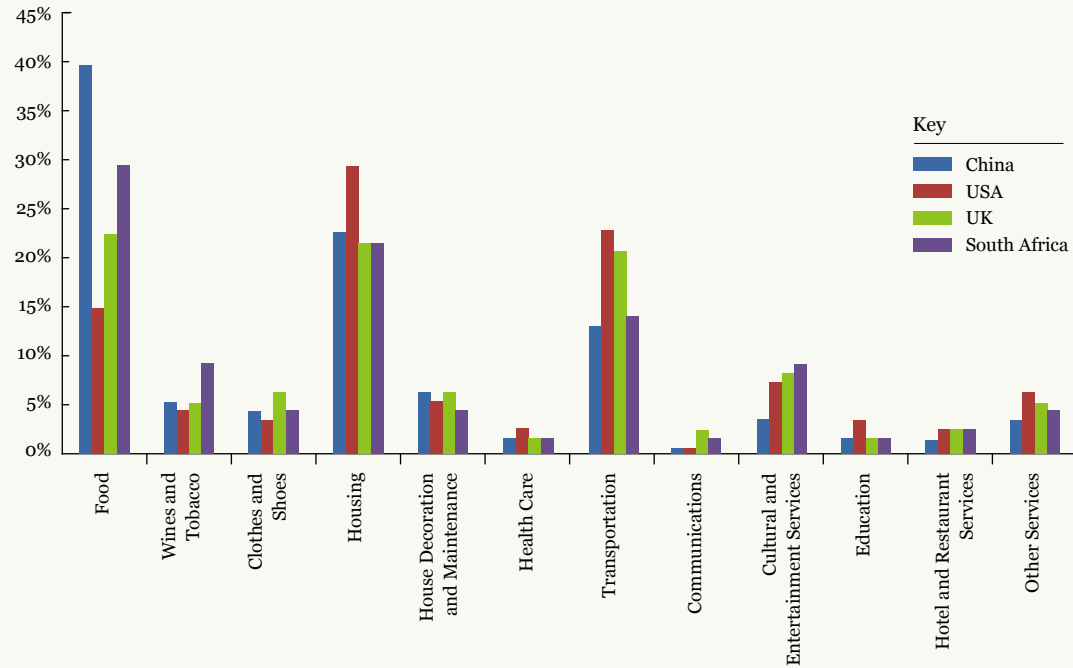


Figure 2-6 The impacts of different kinds of household consumption on the Ecological Footprints of China, USA, UK and South Africa.

(Data Source: Global Footprint Network, 2011)

CHAPTER THREE: ECOLOGICAL FOOTPRINT COMPARISON ANALYSIS IN CHINA

3.1 Ecological Footprint Is Unevenly Distributed Across China

Ecological Footprint is closely related to per capita GDP across China

Ecological Footprints and per capita GDP of different provinces, municipalities and autonomous regions show positive correlations (Figure 3-1).

In 2009, five provinces Guangdong, Shandong, Jiangsu, Henan and Zhejiang -consumed 35% of the Ecological Footprint of China. Of these, Jiangsu and Zhejiang are also in the top five provinces for GDP per capita, while the other three also rank

highly: Guangdong (7th), Shandong (10th) although Henan is 23rd. Guangdong alone accounts for nearly 10% of the national Ecological Footprint.

The Tibet Autonomous Region, Qinghai, Ningxia, Hainan and Gansu together account for only about 3% of total Ecological Footprint (Figure 3.2). These areas also have relatively low per capita GDP.

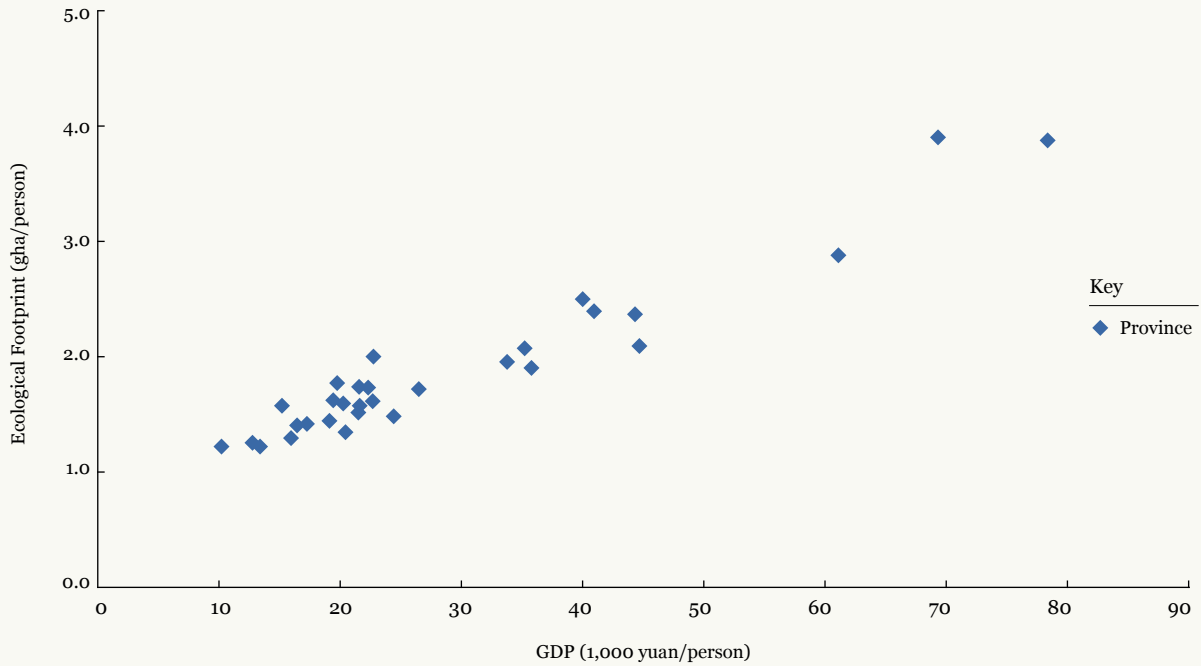


Figure 3-1 Relationship between per capita Ecological Footprint and per capita GDP (2009)

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences)

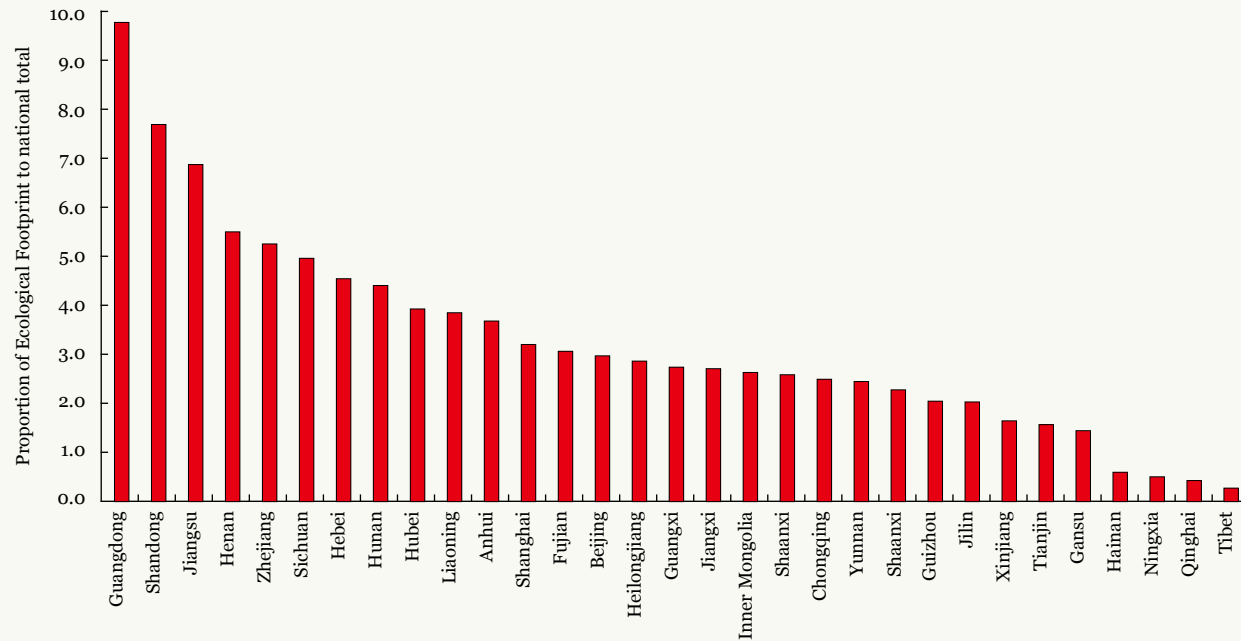


Figure 3-2 Proportion of Ecological Footprint to national total in different provinces, municipalities and autonomous regions of China (2009)

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences)

Only six Chinese provinces, municipalities and autonomous regions can satisfy the demand of local people for resources.

In 2009, six Chinese provinces, municipalities and autonomous regions had an ecological surplus-Tibet, Qinghai, Inner Mongolia, Xinjiang, Yunnan and Hainan (Figure 3.3) and 25 provinces had a biocapacity deficit.

Among the 25 provinces, municipalities and autonomous regions with a biocapacity deficit, Shanghai, Beijing, Tianjin, Guangdong, Zhejiang, Chongqing and Jiangsu had a per capita biocapacity deficit of more than 1.4 gha, while Anhui, Jiangxi, Guizhou, Sichuan, Henan, Jilin, Guangxi, Gansu and Heilongjiang had a per capita biocapacity deficit of less than 0.7 gha. The per capita biocapacity deficit of other provinces, municipalities and autonomous regions was between 0.7-1.2 gha (Figure 3.4).

Of the seven provinces and municipalities with a per capita biocapacity deficit

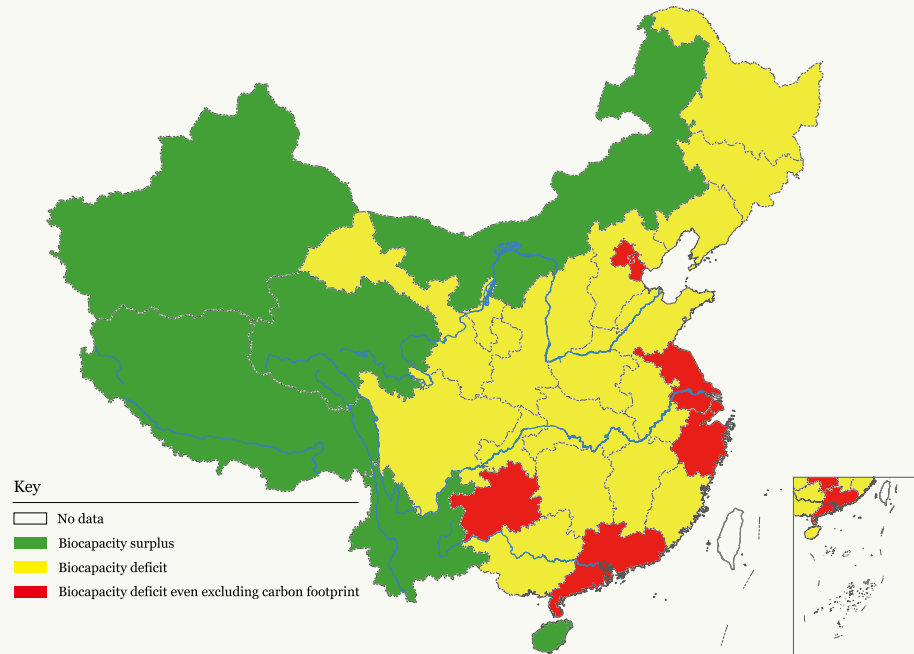


Figure 3-3 Biocapacity surplus / deficit by province (2009)

Twenty five provinces in China are in biocapacity deficit (yellow and red). The six provinces highlighted in red are in biocapacity deficit even before carbon footprint is accounted for: Beijing, Shanghai, Chongqing, Guangdong, Jiangsu and Zhejiang. Six provinces enjoy a biocapacity surplus: Hainan, Inner Mongolia, Tibet, Xinjiang, Yunnan and Qinghai.

Data source: IGSNRR, 2012

larger than 1.4 gha, Tianjin, Shanghai, Beijing, Jiangsu and Zhejiang are the top 5 provinces for per capita GDP nationwide, and Guangdong the seventh. Of the six

provinces and autonomous regions which have an ecological surplus, Tibet and Yunnan rank among the lowest 4 in per capita GDP.

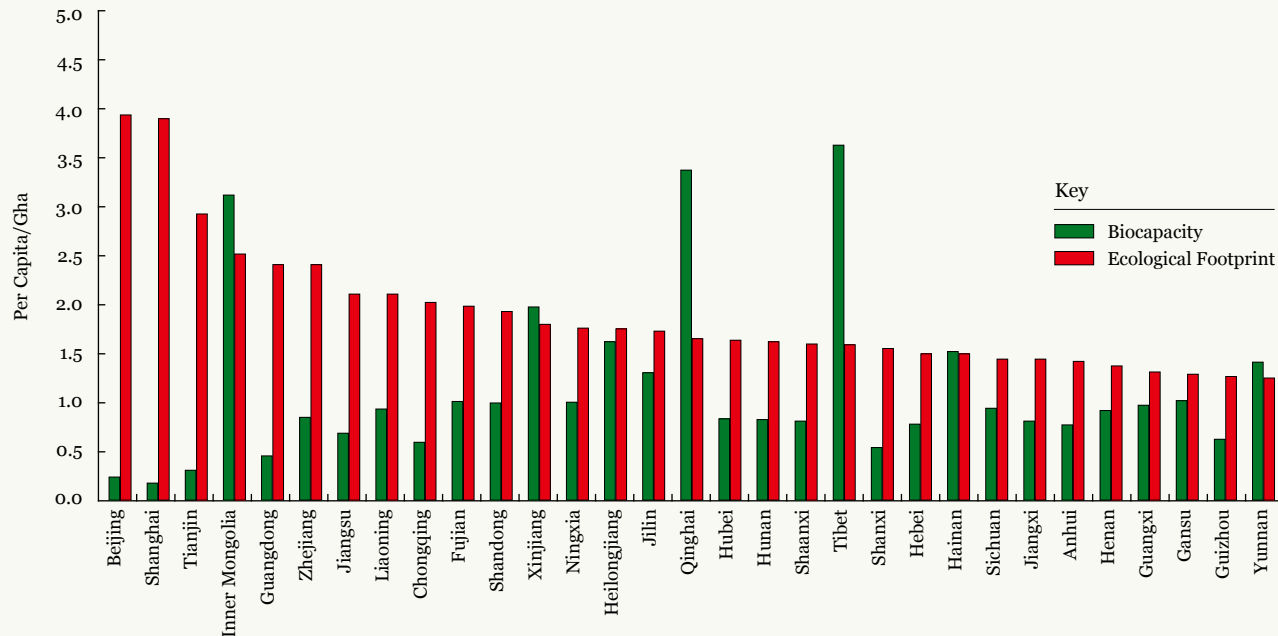


Figure 3-4 Contrasting levels of per capita Ecological Footprint and per capita biocapacity for different provinces, municipalities and autonomous regions in China

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences, 2009)

3.2 Provinces with high Ecological Footprints tend to have few or no Ecological Function Zones

If we look at the Ecological Footprints of different provinces, municipalities and autonomous regions alongside the location of China's Ecological Function Zones, there is a mismatch (Figure 3.5). For example, Guangdong, with an Ecological Footprint accounting for 10% of the national total, only has a functional zone for biodiversity in its northern mountainous area. Shandong, Jiangsu, Henan and Zhejiang have no national Ecological Function Zones, but the Ecological Footprint of these provinces respectively accounts for more than 5% of the national total.

On the other hand, although Tibet, Qinghai, Ningxia and Gansu have the most important Ecological Function Zones in China, their Ecological Footprints together only account for less than 3% of the national total. To

some extent, these variations reflect the differences between the east and west of China in terms of relative economic development and ecological function of the area.

Overall, this mismatch of Ecological Function Zones and regions of high Ecological Footprint means that the latter not only use their own biocapacity but also that of others, suggesting the need for greater ecological compensation.

Consumers often do not realize that the environmental impact of their goods and services affects the natural resources and ecosystem services of other regions. China therefore also needs to promote sustainable product certification so that consumers can be encouraged to engage

in sustainable consumption. Certification enables consumers to know whether or not particular goods have been produced sustainably throughout the entire supply chain. One example is that of a clear logo on those products which have met standards for sustainable wood use as developed and promoted by the Forest Stewardship Council.

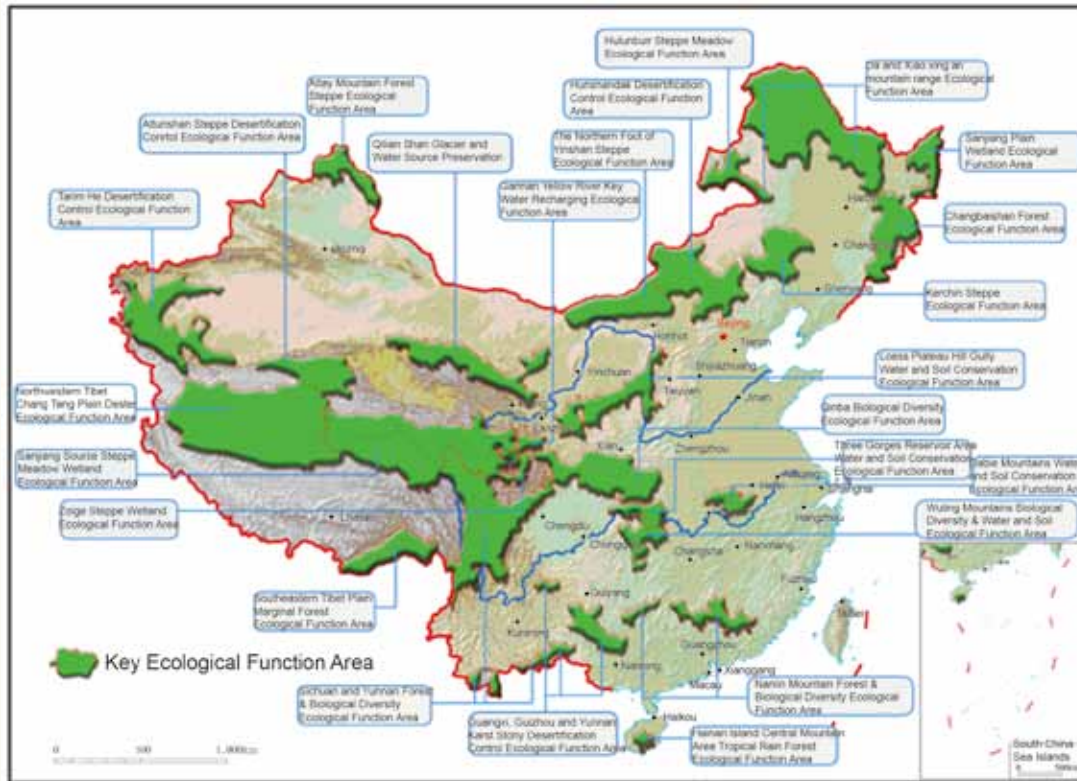


Figure 3-5 National Ecological Functional Zones of China

3.3 Ecological Footprints Are Affected By Different Kinds Of Consumption Across China

The Ecological Footprints of 5 provinces and municipalities at different economic levels were compared: Beijing, the political, high-tech and economic development center of China; Shanghai, the financial center of China and manufacturing center of the Yangtze River Delta; Guangdong, the manufacturing center of the Pearl River Delta; Henan, the largest province in for agricultural development and population in the middle of China; Guizhou, part of Western China (Figure 3.6)

The main factors affecting per capita Ecological Footprint are: housing and food, which is highest in Beijing and Shanghai (Figure 3.7). However, food, as a proportion of total footprint has the highest percentage in Guizhou at 41% compared to 28.7% in Beijing. The per capita Ecological Footprint

for services is closely related in amount and percentage of total footprint to the level of economic development; again, it is the highest in Beijing (16.4%) and Shanghai (12.7%) and with the lowest proportion in Henan at 3.7%.

Transport makes up relatively more of the total footprint in Beijing, Shanghai and Guangdong than in Henan and Guizhou.



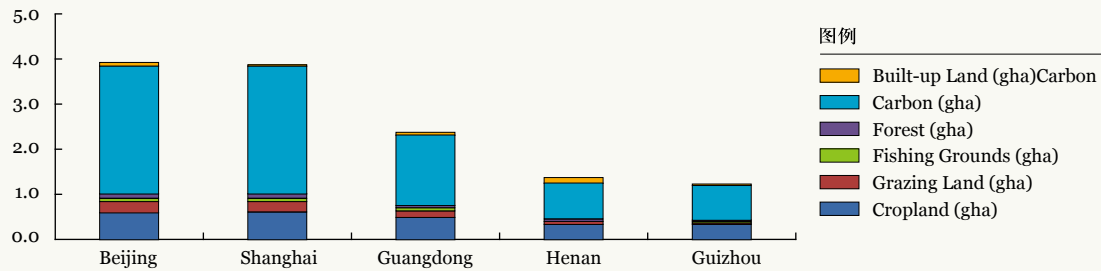


Figure 3-6 Breakdown of per capita Ecological Footprint in 2009 by components (gha)

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences)

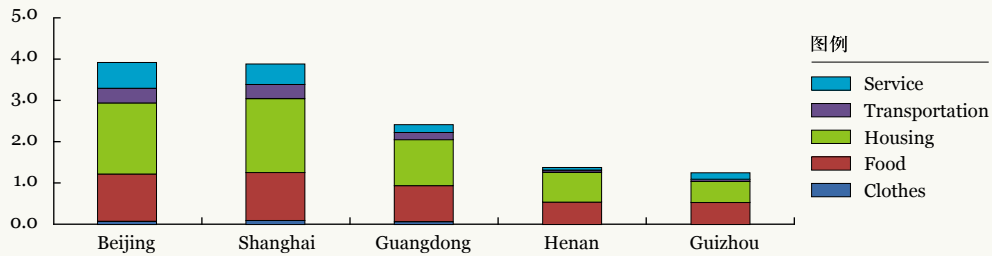


Figure 3-7 Breakdown of per capita Ecological Footprint in 2009 by consumption types (gha)

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences)

CHAPTER FOUR: URBANIZATION AND ECOLOGICAL FOOTPRINT

4.1 Urbanization Is A Major Driving Force Of China's Ecological Overshoot

Urbanization tends to drive an increase in people's income which leads to increased consumption and therefore a larger Ecological Footprint. From 1980 to 2011, the urbanization rate in China increased from 26% to 51.3% of the population, while the proportion of urban residents within total consumption increased from 40% to nearly 80%.

The rising per capita Ecological Footprint has kept roughly in line with this increase in urbanization (Figure 4-1).

Appendix 1 also shows the varying relationships between urbanization and the different dimensions of the Ecological Footprint across China.

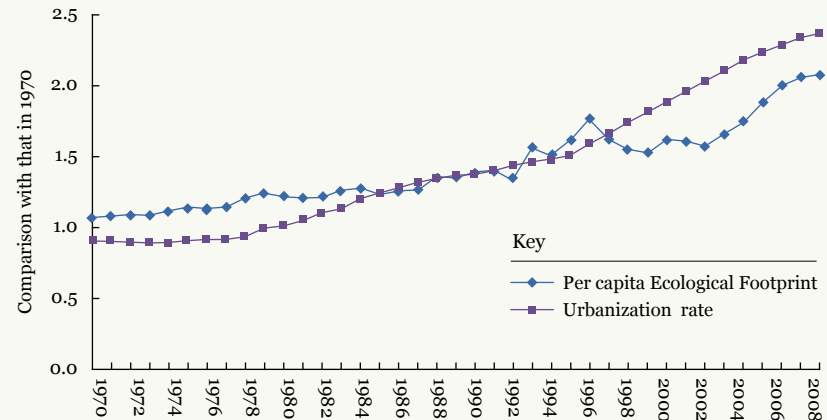


Figure 4-1 Per capita Ecological Footprint and urbanization coverage rate in China

(Data Source: Institute of Geographical Sciences and Natural Resource Research, Chinese)

4.2 Widening Differences Between The Ecological Footprints Of Urban And Rural Populations In China

According to the China Statistical Yearbook 2012, the consumption of the urban population is about three times that of the rural population.

Figures 4-2 and 4-3 compare the consumption of urban and rural populations between 2000 and 2010. Both show similar trends but at different levels.

Looking just at Figure 4.2 for urban areas, from 2000 to 2010, the changes in urban consumption were:

- Large increase in car ownership and use which increased the Ecological Footprint

for transport;

- Greater use of computers and the internet in urban families (above 70%);
- Relative decline in consumption of cultural, education and recreational services and food. This indicates that in China, the development of the service sector has been relatively slower than that of the industrial sector.



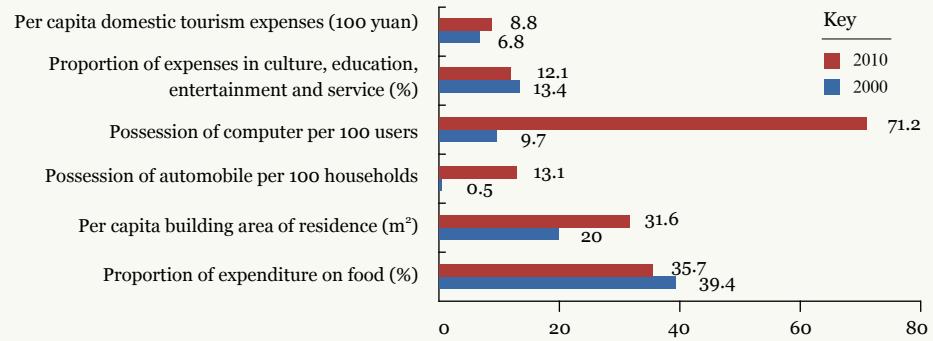


Figure 4-2 Changes in the consumption of China's urban population from 2000 to 2010

(Data Source: China Statistical Yearbook, 2012; China Report on Cities, 2012/2013)

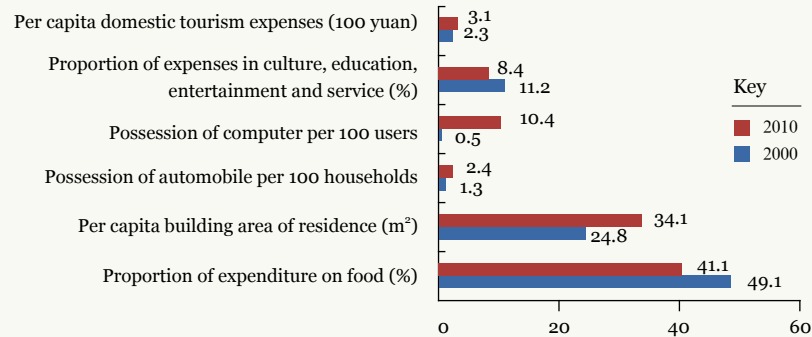


Figure 4-3 Changes in the consumption of China's rural population from 2000 to 2010

(Data Source: China Statistical Yearbook, 2012)

4.3 China's Car Use And Ownership Is Rising Rapidly And Creating High Co2 Emissions

The car market rapidly developed during the 11th Five-Year Plan period which ran from 2005 to 2010, with a Compound Annual Growth Rate (CAGR) of over 25%. Some cities even planned for the automobile industry to be a key growth sector. In urban areas, on average, every 100 households owned 13.1 automobiles in 2010, rising by over 60% to 21.5 in 2012. In Beijing, in 2012, every 100 households owned more than 60 private cars.

This rapid increase in car consumption has resulted in huge carbon emissions. OECD statistics show that in 2011 Shanghai was the highest ranked global city for CO₂ emissions (more than 25 million tons). Beijing and Tianjin ranked fourth and fifth, each with a CO₂ emission level of more than 15 million tons (Figure 4-4). These emissions have serious impacts on air quality and health.

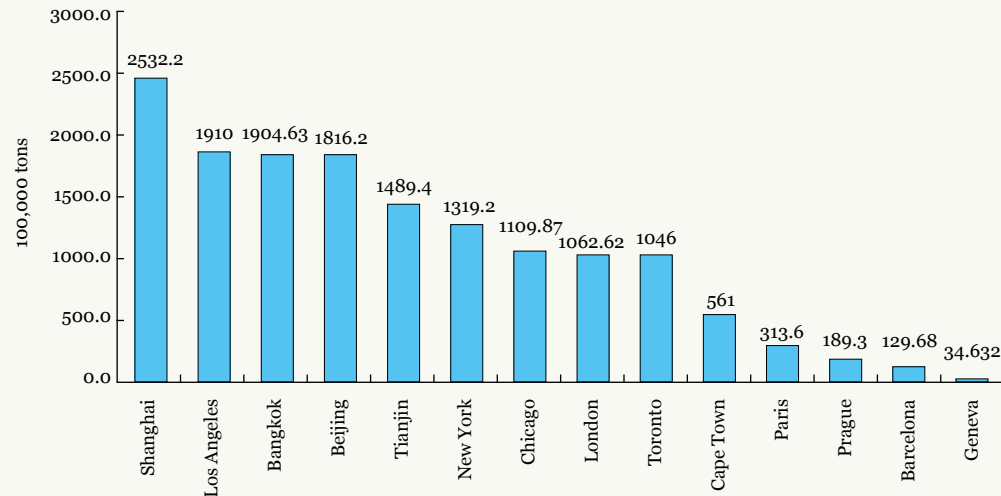


Figure 4-4 CO₂ emissions from transport in international major cities in 2011

(Data Source: OECD, Cities and green growth)

CHAPTER FIVE: POLICY RECOMMENDATION

By looking at the different relationships between the Ecological Footprint and consumption structure across China, we can better suggest ideas for how to create an ‘ecological civilisation’.

The Ecological Footprint is closely related to levels of economic development and urbanization. Rapid increases in both will put further pressure on China’s environment. China’s consumption model needs to change, particularly because of the excessive use of resources and the slow increase in service consumption.

In order to develop an ecological civilization and realize sustainable development, we suggest government policies to promote sustainable consumption and guide the transformation of the current consumption model.

I. Improve resource consumption and environmental efficiency, and promote transformation towards sustainable consumption

Compared with developed countries, China generates far less economic benefit from consumption of natural resources. China’s household consumption also accounts for a much smaller percentage of the economy relative to more developed countries, and there is also a relatively smaller percentage of services. Both the consumption structure and efficiency of resource use could be improved through:

1. Policy guidance and support for the development of low resource-use services such as education, culture and entertainment, to transform China’s consumption model from high resource use

to more service consumption;

2. Policy guidance and encouragement to drive the improvement of resource use efficiency through, for example, green taxes and subsidies, the introduction of new green technologies, and development of industrial standards;

3. Wide application of resource efficiency indicators by local governments and enterprises within policy planning and implementation, as well as integration of resource efficiency indicators into the assessment systems for local government officials.

II. Coordinate local economic development with resource and environmental protection, leading to sustainable consumption and more balanced development levels across China.

Ecological Footprints correlate positively with per capita GDPs across different provinces, municipalities and autonomous regions of China. The eastern area with insufficient biocapacity is consuming the biocapacity of the less developed western areas. Major Ecological Function Zones, which tend to be in relatively less economically developed areas, are under great pressure. China needs to better balance, or harmonise, the relationship between economic development and the environment, taking into account the characteristics and situations of different areas.

Appropriate local policies should take into account the available biocapacity, current level of economic development, the consumption models and location of particular development Zones.

We encourage market-based methods for promoting a sustainable ecological system, alongside frameworks of appropriate and enforced regulation, as well as infrastructure and supportive policy. Great efforts should also be made to use national-level ecological compensation mechanisms between different areas to promote improved coordination between economic development and environmental protection.

III. Control urban Ecological Footprint

The positive relationship between the Ecological Footprint and level of

urbanization indicates that urbanization causes great pressure on resources and ecosystem services. The increasing urbanization rate will clearly exacerbate this trend. Planning should promote low-carbon and more ecological urban development, be coordinated between rural and urban areas, and promote environment-friendly consumption.

Planning, layout and control of urban and rural residential space and transport models will be core elements of this strategy, particularly in order to reduce the extremely high levels of carbon emissions. Space should also be limited for urban and rural development in order to avoid excessive land-use.

IV. Promote transformation of the economy towards sustainable consumption, particularly through public participation

1. Advocate and promote low-carbon and environment-friendly consumption which would include: encouraging moderate consumption; adopting economic incentives for certified green products; ability to choose environment-friendly products and services; and supporting the establishment and development of markets for ecological products. The Chinese Government should also set a good example through their own green purchasing and energy-saving practices. It should also introduce green infrastructure planning and improve the

long-term service capacity of infrastructure in order to reduce the amount of repeat and low-quality construction.

2. Promote Ecological Footprint and sustainable consumption concepts, and boost sustainable consumption through public participation techniques such as community promotion, roundtables and public dialogues.

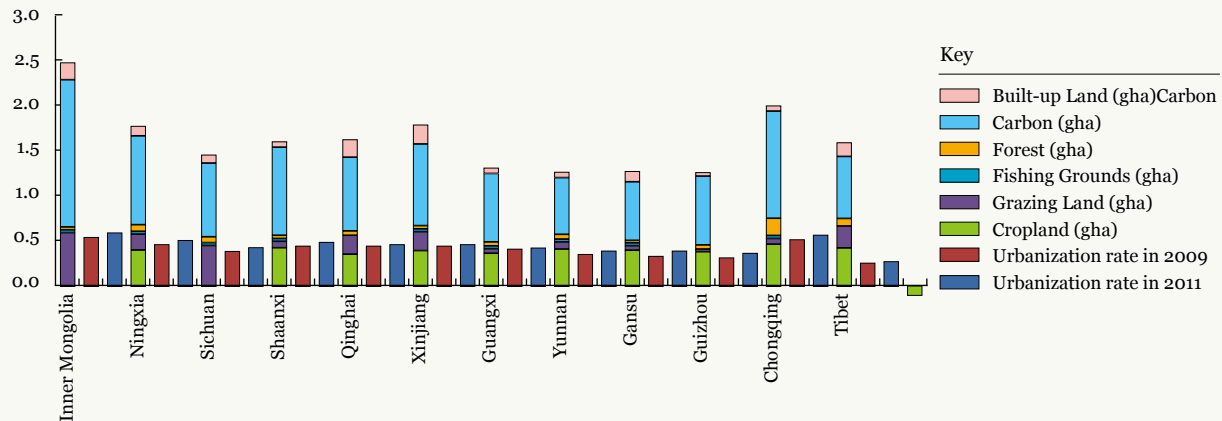
3. Release information about the environmental impact of products and expose enterprises which pollute heavily, have high energy use or large Ecological Footprints. This information will increase transparency and can also underpin the development of effective public supervision of enterprises to promote sustainable

consumption.

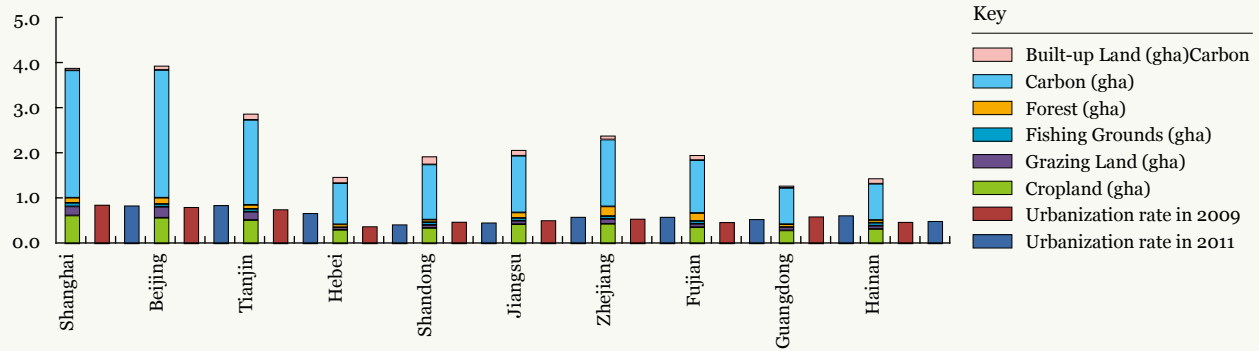
4. Make full use of media, environmental protection NGOs, and other non-governmental institutions, to promote the ideas and practices of sustainable consumption and Ecological Footprints.

APPENDIX 1

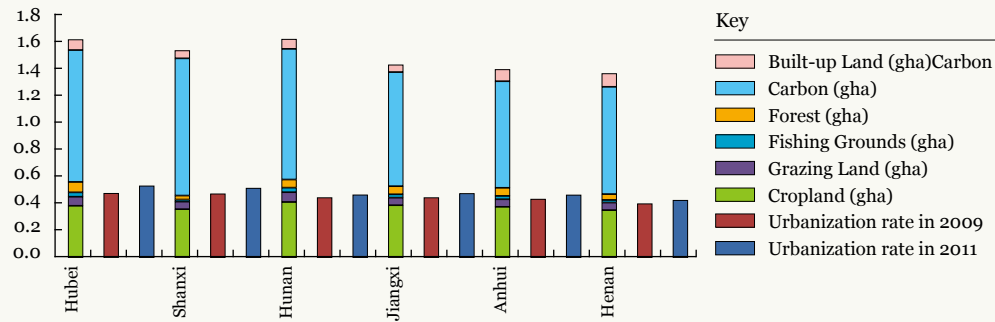
Urbanisation rates and a breakdown of ecological footprint dimensions for different regions in China



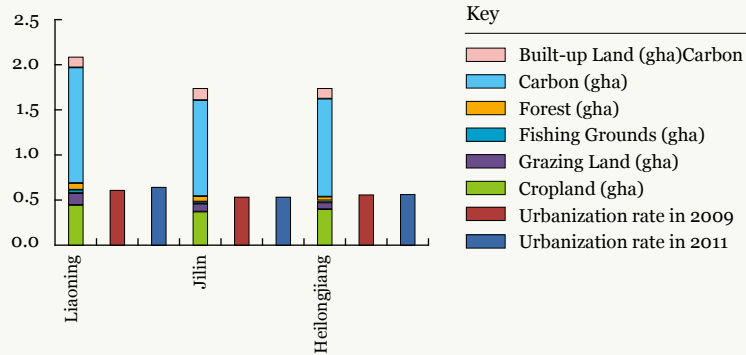
(a) Western Provinces, Regions and Municipality



(b) Eastern Provinces and Municipalities



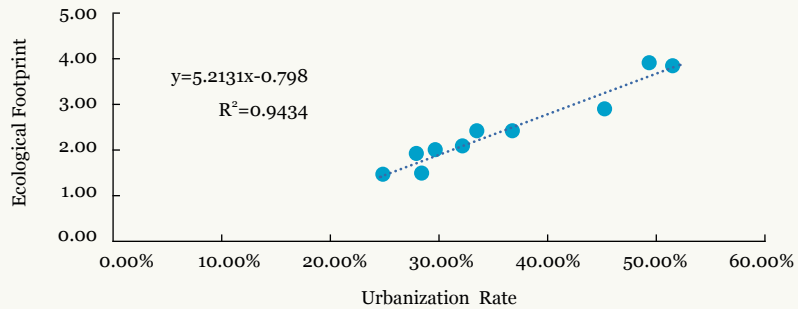
(c) Provinces in Central China



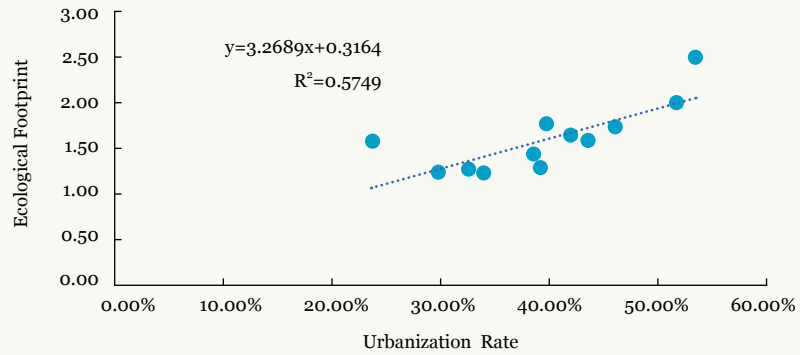
(d) Provinces in Northeastern China

Figure 4-5 Urbanization vs Per Capita Ecological Footprint, 2009

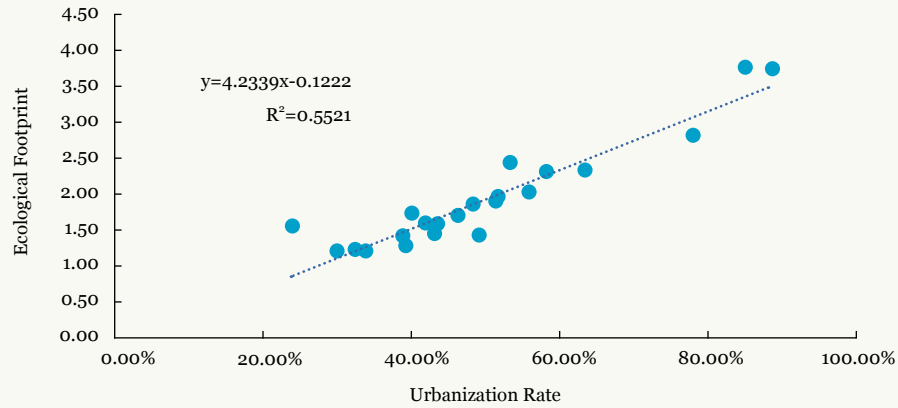
(Data Source: National Economy and Social Development Statistical Bulletins, 2009 and 2012; Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences, 2012)



(a) Eastern China



(b) Western China



(c) Provinces, Autonomous Regions and Municipalities of China

Figure 4-6 Correlation between Urbanization and Per Capita Ecological Footprint

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Data in the report come from Global Footprint Network, the World Bank, Geosciences and Resource Institute of the China Academy of Sciences, China National Statistical Bureau

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2015

Our goal: by 2015 China's trade, aid investment policies integrate solid environmental principles.

1980

WWF has been working in China since 1980. WWF China is headquartered in Beijing and has 9 field offices across the country.

+100

WWF is in over 100 countries, on 5 continents. 16 offices are in Africa.

1961

WWF was founded in 1961.



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