



Lincolnshire County Council

Hunan Report

7th July 2016

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Executive Summary

Forty years ago China was one of the world's least economically productive countries which eschewed the west. Today it is the world's second largest economy and is globally important for trade and investment. Yet, because of this rapid change and our unfamiliarity to how China approaches business, the country and market opportunity is still unfamiliar to many in the west.

Lincolnshire County Council has embarked on a relationship with one part of China - Hunan Province. This province is by geographic and population size similar to the UK but with a GDP of about one-fifth. However, the economic growth rate is still close to double digit, as Hunan was not one of the first wave of China's regions to benefit from opening to the west and many of the conditions causing an overall deceleration of growth across China do not apply in Hunan.

Hunan's priorities are set out in a range of policies which follow Chinese national guidelines but reflect the local needs of Hunan economy and social development. These policies have been reviewed to identify Hunan's unique requirements, what needs they have, why those needs exist, and so where there is potential for Lincolnshire companies to work with Hunan.

As a province in China's second wave of economic development, social issues such as the quality of environment and the impact of pollution in both urban and rural regions, and economic issues such as industrial strategy, now need to be addressed.

Traditionally Hunan is a centre of Chinese agriculture and industrial production of heavy duty trucks and vehicles. These industries are now in need of modernisation.

Primary healthcare has made great progress but has now created the difficulty of an aging population in need of more appropriate social infrastructure and direct care. This has been made more acute due to the province being affected by a drain of young workers away from rural areas to the cities and even other provinces.

Underlining all of Hunan's development policies is an understanding that development should be both resource and environmentally sensitive. This is referred to in China as 'Two-Oriented Society' development and from this principle other industry and social policies develop.

This report has highlighted several areas of opportunity for Lincolnshire companies. Following discussion with and receiving feedback from the Council and stakeholders the recommended priorities to take forward are:

Agri Tech - products and services which not only offer greater yields but also show a reduced impact on water resources. This includes new crop varieties, pesticides, fertilisers, feeds, machinery, methods for husbandry and harvesting and also products and services which improve efficiency in harvesting, storage, processing, packaging and distribution. A specific area of opportunity is in 'aviation' technology for agriculture which combines drone and digital technology to inspect and monitor crop development and servicing requirements.



Elderly Care – new design and construction solutions for low-cost, sustainably built, and low-energy housing, be it for care homes, care communities or private residential property for the elderly. ‘Smart’ technologies are required for both monitoring the elderly and giving them access to social services such as transport, healthcare, or cultural activities. There is an overarching need for better healthcare services and medical equipment specifically for the elderly. Lincolnshire is moving to a management system where Healthcare and Social Care are brought together and this is an area where best practice in management and technology development can be shared between Hunan and Lincolnshire.

Education – supporting Agri-tech and Elderly Care development but also in other areas such as engineering there are possibilities to extend the links between Lincolnshire and Hunan via greater education collaboration. The University of Lincoln, Bishop Grossteste University, Lincoln College and other HEI's are well placed to create a platform for Lincolnshire companies to be involved through China-UK bilateral joint research or through the development of study programmes.

As is true with most western businesses, Lincolnshire companies may benefit from a better understanding of how China works. Western companies will mostly consider language differences when this is not a significant challenge. Issues related to Chinese business culture and business structure are often either overlooked or not understood in full. Of these issues the part to play of trust and trusted third-party introduction is an area where Lincolnshire County Council can create real value for local companies and the wider economy.

Lincolnshire County Council has a part to play in ensuring that detailed background information and full contact details of Lincolnshire companies is prepared to be shared with Chinese stakeholders and UK stakeholder in China such as UKTI and CBBC.

In order to show that Lincolnshire is 'open for business' the Chinese business community in London (including banks such as Agricultural Bank of China) and the Chinese Embassy Commercial Section should be engaged with in order to inform them of Lincolnshire interests and to show that Lincolnshire understands what China, specifically Hunan, wants and how to work with China.

Chinese companies are now major investors internationally. Successful Chinese industrial investments in the UK can all be traced back to a long standing trading relationship between two companies. It is therefore important that if Lincolnshire wants Chinese investment then export trade has to be prioritised.

The China-Britain Business Council (CBBC) is happy to support Lincolnshire County Council, local stakeholders and the business community with their individual development plans. Specifically, in relation to Hunan Province engagement, this can be aided through the CBBC office in Hunan's capital city Changsha.



I Background to Hunan and Lincolnshire Relationship

In September 2015, Hunan Province and Lincolnshire County Council signed a Friendship Agreement to further dialogue between the two regions. This relationship was furthered in March 2016 when a Hunan delegation again visited Lincolnshire.

The commitment to work together is based on a broad understanding of complimentary economic strengths and social issues such as agri-tech, engineering, adult social care, culture, and training.

II Report Requirements

This report covers areas which will give greater understanding to Lincolnshire County Council, their stakeholders and companies in the county. This includes:

- An overview of Hunan Province
- Hunan Province economic and social priorities
- Lincolnshire economic strengths in a China context
- Opportunities for collaboration

III An Overview of Hunan Province

- Hunan 湖南 is a southern-central province of China. In the north of the province is a large shallow lake, Dongting, which is fed by 4 major rivers before the lake flows out into the Yangtze River. Hunan means 'South of the Lake'
- The Xiang river flows south north through Hunan province and the capital city Changsha before entering Dongting lake. Therefore Xiang 湘 is often used as an abbreviated form of Hunan
- Provincial Capital Changsha 长沙 – meaning 'Long Sands'
- The cities of Changsha, Zhuzhou and Xiangtan almost completely merge and so work as a massive city cluster referred to as CZT (Chang-Zhu-Tan) with a combined population of 13.5 million
- There are 10 other cities with populations between 1.5 and 7 million
- China's 7th largest province by population (67 million) - equivalent to France
- China's 10th largest province by GDP (RMB 2.7 trillion in 2014 (£290 billion / US\$420 billion) – equivalent to Austria or Thailand, would rank as the world's 28th largest country
- China's 10th largest province by area (80,000 square miles) – equivalent to the UK
- GDP Growth 9.5% 2014 yoy growth
- GDP composition: 12% primary sectors, 46% secondary sectors, 42% service sectors
- Foreign Direct Investment £6.5 billion in 2014 (up 18% year-on-year)
- Foreign trade £19 billion in 2014. Exports £12 billion (up 34% yoy) and imports: £7 billion (up 5% yoy)



III.I Key local companies

- Zoomlion (construction machinery) www.zoomlion.com
- Sany (construction machinery) www.sanygroup.com
- Sunward (construction machinery) www.sunward.com.cn
- CRRC (railway rolling stock) www.crrcgc.cc
- Valin (iron and steel) www.valin.cn
- Jianglu Machinery (construction machinery) www.jianglu.com.cn
- CHTC Jove Heavy Industry (drilling machinery) www.chtcjove.com
- Osaint Heavy Industry (drilling machinery) www.en.osaint.com.cn
- Sinoboom Heavy Industry (construction machinery) www.sinoboom.com
- Broad (air purification, environmental construction) www.broad.com
- Farsoon (3D printing) www.farsoon.com
- Hunan 'Mango' TV (broadcasting) www.mgtv.com
- Also divisions of Aviation Industry Corporation (AVIC) and Guangzhou Automotive (GAC), and two leading cigarette manufacturers – Baisha, Fu Rong Wang

III.II 13th Five Year Plan

China's economic and social planning is guided by the national government under a series of Five Year Plans. In early 2016 the 13th Five Year Plan (2016-2020) was published. Shortly after, Hunan Province published their own 13th Five Year Plan following the guiding principles of the national plan.

The following is a summary of Hunan's interpretation and localisation of the national 13th Five Year Plan:

Guiding ideology and overall requirements

1. Centre on "five development ideas" of innovation, coordination, green development, opening-up, and sharing.
2. Understand the new orientation of the "One Belt One Road" initiative – Hunan's central position between the eastern and western zones within China which then extends overseas.
3. Specify the new requirements of a moderately prosperous society through balanced improvement of economic aggregate, economic development quality, and average per capita share.
4. Uphold the new development path of simultaneously promoting industrialisation, digitalisation, urbanisation, agricultural modernisation and the ecological/green agenda.



New targets to create a 'well-off' society

1. Maintain a medium to high rate of economic growth
2. Improve the economic structure
3. Improve people's standard and quality of life
4. Improve and extend cultural activity
5. Improve the ecological environment
6. Improve government and institutional mechanisms

Innovation and new drivers

1. Increase Consumption, Investment and Export to drive economic growth
2. Promote Innovation-Driven growth
3. Modernise key manufacturing sectors
4. Modernise service industries
5. Modernise agriculture
6. Modernise infrastructure
7. Promote and commercialise innovation
8. Explore new energy

Coordination

1. Integrate planning and management of the Changsha-Zhuzhou-Xiangtan cluster of cities
2. Link rural areas with urbanisation development
3. Expand cultural activities for commercial and social development

Energy saving and environmentally friendly

1. Encourage a resource conserving and environmentally friendly society – 'Two-Oriented Society'
2. Promote a low carbon economy
3. Promote the re-cycling industry
4. Improve ecological protection
5. Improve environmental treatment

Developing a powerful province in five aspects

Manufacturing, internet economy, tourism, culture, and skills.

Building five networks

1. Transport - road, rail, water and air
2. Energy - oil, gas, electricity and coal
3. Water (conservation) - rivers, lakes and reservoirs
4. IT – social services and e-commerce industry
5. Urban=Rural – link all above networks between the urban and rural communities



III.II.I Points of interest in Hunan's 13th Five Year Plan

Priority of the Changsha-Zhuzhou-Xiangtan cluster region – Hunan's most developed region is in need of much improvement to coordinate management of all social and economic issues, and Urban=Rural Networks. Lincolnshire companies need to recognise this cluster region as a Provincial priority and that propositions should reference benefit to all three cities. Under this definition a 'city' is not an urban centre but an administrative region centred in a city including smaller towns, suburban and rural regions.

Reference to a 'Two-Oriented Society' – a 2005 national policy introducing China's social and economic response to environmental issues, and Water Conservation. Lincolnshire companies need to recognise the importance placed on water conservation in both a rural and urban environments and how these are regarded as a whole system.

III.III Made in China 2025

The national 'Made in China: 2025' (MiC25) programme is a very ambitious development plan to upgrade technology in 10 key industries including: Agricultural Machinery, Rail, Aerospace, Automation and Robotics, New Materials, Low-Energy Vehicles, and others.

As Changsha is a key manufacture base in China, the city published a two year working plan in regard to the national MiC25 programme. Changsha was the first city in China to do so. The overall aim is to aid all manufacturing industries to cut material costs, production time, and deficiencies by 30%. Adoption of Automation and Robotics, and New Materials are the two key areas which Changsha has prioritised in the period 2015-2018.

Two national pilot projects have been awarded to Hunan. These are in 'intelligent manufacturing of construction machinery' – to be led by Sany, and 'industrial 3D printing' – to be led by Farsoon.

III.III.I Points of Interest in Hunan's Made in China 2025 Plan

Hunan industry has recognised their deficiencies compared to western counterparts. This leads to opportunities for Lincolnshire companies who offer:

New Materials

Advanced Engineered Components

Advanced Engineering Systems – automation, 3D design

Engineering Consultancy Services bringing materials, components and systems into an integrated manufacturing process.

III.IV One Belt One Road

The One Belt One Road (OBOR) programme is an attempt to bring China and overseas markets closer together. The routes of the programme are both overland (connections through central Asia and south-east Asia) and by sea. The overall aim is that through better road, rail, air and

E: research@cbbc.org

T: +44 (0)20 7802 2000



sea transport, better distribution of energy (oil, gas, electricity), better communications (telephone, broadband), then goods and technology can move and develop more efficiently.

Hunan is not one of the border or coastal cities which are immediately thought of in relation to OBOR, but President Xi Jinping made it clear that Hunan is a central China hub connecting the border provinces of the north-west and south-west to the coastal provinces in the south and east of China.

III.IV.I Points of Interest in Hunan's One Belt One Road Plan

There is demand for Hunan to deliver better waterway transportation and to improve all forms of distribution and communication networks. Due to the topography of the province existing links are predominantly on a north-south axis following the Xiang River leading into Dongting Lake and the Yangtze River (High Speed Rail runs through Changsha and Hunan Province on a north-south axis from Guangzhou in Guangdong Province in the south to Wuhan in Hubei Province in the north). East-west communication networks are limited due to mountainous regions and have to follow closely river courses. This leads to different engineering solutions required depending on the regional need.

IV Lincolnshire Economic Strengths

We have assessed the companies in Lincolnshire by sector and subsector in relation to general China needs and the specific needs of Hunan Province.

We have found that there are significant numbers of Lincolnshire companies in the Agri-Tech and Food & Drink sectors, Advanced Manufacturing, Low-Carbon Manufacturing, Housing and Construction and Care Homes, which have clear links to the issues facing Hunan and which they have prioritised.

One clear example is of EminoX who have recently agreed a distribution joint venture in China for the clean air diesel engine systems.

EminoX announces cooperation with Chinese distributor

[Although their joint venture is with a company in Shandong for retrofitting engines, which is a large industry in Shandong, the huge volume of diesel engine machinery which is produced in Hunan would almost certainly benefit from such systems too. This would be an example of fulfilling two key agendas in Hunan - introducing new manufacturing technology and working towards a cleaner environment.]

Gainsborough-based EminoX, a leader in the manufacturer of exhaust after-treatment technology for heavy duty diesel vehicles, and Calan Environmental Technology [Shandong Province], a specialist automotive distributor, have signed a distribution venture agreement to supply Diesel Particulate Filter solutions in China.

The cooperation will involve EminoX providing its market-leading Diesel Particulate Filter (DPF)



technologies, which have been developed and refined over the last 20 years. The DPF range, including CRT® and FBC®, have shown in real world tests to reduce particulate matter by both mass and number, including ultra-fine particles that are most damaging to health.

Air pollution is a major environmental challenge in China; in order to curb emissions an increasing number of provinces are introducing retrofit schemes. These tough, new emission standards have already been introduced in Shandong province where Calan Environmental Technology is based.

Shandong Province aims to reduce air pollution by 50 per cent in 2020 and EminoX's technology will now play a part in achieving this target as its DPF technology has been proven to remove more than 90% of particulate matter.

"As a leader in exhaust after treatment systems, EminoX is reinforcing its market presence globally, and this Joint Venture with Calan creates a strong foothold in the Chinese heavy duty diesel vehicle retrofit market," said Nick Lyons, Deputy Managing Director of EminoX. "We are confident that our alliance will enable us to further develop opportunities across the region. By leveraging the expertise of both companies, we have the scope to make a real difference to air quality in the most polluted parts of China."

Zhaohan Ding, Managing Director of Calan Environmental Technology Ltd., said: "We are looking forward to working with EminoX in our new enterprise. The Joint Venture will strengthen Calan's current market presence as well as play a key role in enhancing our proposition to existing and new customers. It brings together both companies' expertise in automotive distribution and exhaust after-treatment systems."

Air pollution in China is a growing problem and accounts for around 1.6 million premature deaths every year, equivalent to killing nearly 4,400 people every day. Air pollution alone accounts for 17 per cent of all the country's deaths. Motor vehicles in China emit around 52.27 million tonnes (2010 figures) of pollutants each year and the number of vehicles registered is growing at 10% annually.

EminoX's CRT® system is the world's leading retrofit diesel particulate filter (DPF) with around 60,000 systems installed on buses and trucks worldwide. It enables vehicles as old as China III to be upgraded to the particulate matter (PM) standards of a China VI vehicle. The CRT® system contains a specially formulated catalyst and a wall-flow ceramic filter. This technology captures particulate matter within the wall flow filter and then continuously oxidises it, at typical exhaust gas temperatures, into harmless gas using patented chemical technology.

A full list of Lincolnshire companies follows by sector in Appendix I.



V Opportunities

In order to match the offer from Lincolnshire companies with the demand from Hunan it would be best to view the four priorities of Hunan not as individual development streams but as development themes which cross over and work together.

From the analysis work, we can draw out the following priorities of Hunan. These are:

- The Green Agenda – Water Conservation, Recycling
- Agriculture – Efficient Crop Production and Distribution
- Rural and Suburban Development – Sustainable Housing, Elderly Care
- Advanced Manufacturing – New Technologies, Materials, Operating Systems

V.I The Green Agenda

An underlying theme for Hunan is the Green Agenda or as it is expressed in China – ‘Two-Oriented Society’.

The Two-Oriented Society is more prominent in Hunan development plans compared to other regions of China. It is important for Lincolnshire companies to reference this in their proposals to Hunan companies and to recognise the Chinese need to find a more holistic solutions for the benefit of society and industry.

From the China Daily – Two-Oriented Society

In 2005, as part of the 11th Five Year Plan, China adopted a principle of building a resource-conserving and environment-friendly society as a strategic plan for the national economy and for social development. This is referred to as a ‘Two-Oriented Society’.

A Two-Oriented Society refers to a resource-conserving and environment-friendly society. A resource-conserving society means that the whole society adopts ways of production, life and consumption in favour of resource conservation. It takes comprehensive measures to improve resource utilization efficiency in production, circulation and consumption.

It maximizes the economic and social benefits with minimal resources and then realizes sustainable development of economy and society. An environment-friendly society refers to the whole society adopting ways of production, life and consumption in favour of environmental protection. Resource-conservation and environment friendliness are complementary to each other and it is necessary to combine their connotations into one concept, namely a resource-conserving and environment-friendly society.

Building a Two-Oriented Society will require a scientific approach to development. A scientific approach is a strategic measure to promote sustainable utilization of resources and ensure economic security. It is a necessity for meeting economic globalization and dealing with new trade protectionism. It is also an efficient way of increasing employment.



V.II Agriculture

A detailed description of Hunan's agriculture is included in Appendix II of this report but a summary of main areas includes:

Rice, sweet potatoes, corn (maize), barley, potatoes, garden peas, millet, broad beans, rape seed, cotton, jute, citrus fruits, pigs

Hunan's agricultural industry is 20 to 30 years behind the UK and there is a need to modernise agricultural methods and systems and also consider the environmental impacts. Hunan is also concerned about the need to develop efficient distribution of crops from field to market. This will include areas of harvesting, storage, processing, packaging, and ICT systems to track product through a distribution cycle.

Opportunities include:

- **Products and services which show a reduced impact on water resources in terms of crop varieties, fertilisers, feeds, machinery, methods for husbandry and harvesting.**
- **Products and services which improve efficiency in harvesting, storage, processing, packaging and distribution**
- **Clean water course management, technology and equipment solutions**

V.III Rural and Suburban Development

Though perhaps not as we would in the UK, in the case of Hunan there is a need for combining the issues of elderly care and housing together as a single issue.

With an aging population, a movement of populations (particularly younger) from rural to urban areas, unsuitable housing in urban areas, poor housing in rural areas, and inefficiencies or gaps in healthcare provision, there is a social need to review all aspects of elderly care provision.

There is also a recognition of better resource management across all utilities but with an emphasis on water. This also includes urban and industrial waste management.

Opportunities include:

- **For housing, low-cost, sustainably built, low-energy are all priorities, be it for care homes, care communities or private residential property for the elderly.**
- **Introducing ICT or 'Smart' technologies for both monitoring the elderly or giving them access to social services such as transport, healthcare, cultural activities, etc. is also required**
- **There is also the need for better bespoke healthcare services for the elderly**
- **Utility water management, technology and infrastructure solutions**
- **All forms of waste management solutions**



V.IV Advanced Manufacturing

The greatest number of large Hunan engineering manufacturers are involved in construction machinery. This mainly includes: earth moving equipment, large trucks and pilling machinery.

In order to compete both domestically and internationally these companies need to address the issues of reliability and cost. This means that they will have to adopt new technologies and materials.

Opportunities:

- **For companies who can offer new solutions within the supply chain and therefore become integrated within the development and future production and growth of indigenous Chinese companies**
- **New materials or components made of new materials which may be lighter in weight or more durable therefore increasing the life-span of manufactured products**
- **Energy efficient, energy saving and low emission solutions for all forms of manufacturing industries**

VI Engagement Models

Chinese commerce and industry adopts a long-term engagement strategy. The eventual goals will follow the social and economic plans of Chinese national and regional government. The most far-sighted being the development of world-class technology finding global markets under the direction of the Made in China 2025 policy. However, Chinese companies will approach international engagement, as they do at home, with an exceptionally high emphasis on working with people they trust. This trust is initiated by recognised third parties and then constructed in stages of collaboration. This differs from a western approach where the eventual goal can be moved to in one step.

Western companies often have a common misconception of the Chinese need to start a commercial relationship before building the scale of engagement. The western interpretation is that large scale trade can start immediately but the first few shipments need to be on very favourable terms. The expectation from China is that small scale trade can start immediately on balanced terms and then build up volume. Chinese companies can abuse the western misinterpretation.

Building a trading relationship over a number of years has proven to be a critical aspect of Chinese investment decision making process as can be seen by the case studies listed in Appendix IV. These are usually made through Merger and Acquisition not Green Field investments.

These investments can be described as a 'Circular' relationship where the trading relationship has led to investment in jobs, manufacturing, and R&D, which subsequently lead onto further trading opportunities – not just between China and UK but also in third party countries.



Dynex Semiconductors

Zhuzhou CSR Times Electric Co Ltd's 2008 acquisition of **Dynex Semiconductors** in Lincoln initially safeguarded 180 jobs. In 2012 this was followed by a further £1.8 million investment in a new UK R&D centre for new generation silicon wafers for the power transfer industry, creating 40 additional jobs. Increased output has benefitted local Lincolnshire electronic component, material and equipment suppliers and has led to better collaboration between CSR and Alstom. In 2014, Dynex played a leading role in CSR Zhuzhou setting up a new £160 million next generation IGBT production line in China.

Dynex had been a supplier to Zhuzhou CSR Times Electric for a number of years before the acquisition was made. Senior management, engineers and sales staff knew each other well with many bilateral visits each year. The acquisition was initiated by the Chinese side in order to bring their supply chain, R&D and UK / European expansion in house.

In early 2015, **Zhuzhou CSR Times Electric Co Ltd** continued their investment in the UK with the acquisition of **SMD (Soil Machine Dynamics)** in Wallsend, who specialise in offshore marine inspection equipment. Zhuzhou CSR benefited through the acquisition of SMD's world leading subsea vehicle technology. SMD's Wallsend location is now the global headquarters of Zhuzhou CSR's deepwater equipment division and SMD now have access to a substantially enlarged market, with the financial backing to approach this with confidence.

It is believed the link between these companies was also due to management knowledge and a business relationship between Dynex and SMD.

Covpress

In 2013, Coventry-based **Covpress** announced a £5 million rescue investment from **Dongying Yongtai**, safeguarding 50 jobs. The automotive body panel manufacturer then received further investment in 2014 for £15 million to expand the existing manufacturing and jobs to 150. In 2015 a further investment financed the acquisition of nearby brown field site for expansion.

The owners of Covpress had been purchasing from Yongtai for a number of years before they invited the acquisition from China.

In 2015, Dongying Yongtai extended their investment in the UK through acquisition of car parts firm **UYT** for £30 million. This deal safeguarded another 400 jobs in Coventry.

Planned investment aims to double the number of people employed at both sites within the next 3 years.

Opportunity:

- **Lincolnshire County Council has a part to play in ensuring that detailed background information and full contact details of Lincolnshire companies is prepared to be shared with Chinese stakeholders and UK stakeholder in China such as UKTI and CBBC.**



VII Supporting Inward Investment

The UK, with a very open economy, transparent financial processes and stable political environment, is now the largest recipient of Chinese Outbound Foreign Direct Investment (OFDI) in Europe.

Between 2000 and 2014, Chinese companies spent £33 billion across 1,047 direct investments projects in the 28 EU countries. The UK is by far the biggest recipient of Chinese OFDI, with a cumulative total of £8.7 billion over that period. Germany is second with £4.9 billion and France third with £4.2 billion.

OFDI comes from three sources: institutional investment of government wealth (e.g. sovereign wealth funds); institutional investment of private wealth (e.g. insurance and mutual funds); and non-institutional investment (e.g. private corporations). Of these three groups, the ones with the most conducive environment to invest are the sovereign wealth funds (SWFs).

The two main official SWFs are the China Investment Corporation (CIC) and the State Administration of Foreign Exchange Investment Company (SAFE-IC). These two companies have accounted for 40% of all Chinese OFDI to date and the majority has been in real-estate and infrastructure.

CIC's real-estate investments include 19% of Songbird Estates (Canary Wharf) - £290 million, 100% of Deutsche Bank's London HQ - £260 million. Infrastructure investments include 9% of Thames Water - £600 million, 10% of Heathrow Airport Transport £470 million.

SAFE-IC's real-estate investments include 100% of Drapers Gardens - £280 million, 49% of One Angel Square - £70 million, 40% of UPP Group - £540 million. Infrastructure investments include 10% of Veolia Water - £130 million.

From discussions with Chinese investors and the management of their UK operations (both UK and Chinese nationals) it is clear that there is a mismatch in the support which the Chinese require. They make clear that they need support in identifying companies with whom they could start a trading relationship. After they have established an investment they would then look for support in continuous networking and business introductions. This need for support is different from the perception held that investments need nurturing or hand holding through a period of negotiation.

An oft-repeated complaint from Chinese companies investing into the UK is that they are unaware what regional bodies – such as Council, Chambers or UKTI – can actually do to support them once their investment has been made. The Chinese party would expect a high profile and to be supported with careful attention and regular communication from local government agencies, as would be the case for foreign companies investing in China. Such support could take the shape of regular policy updates, financial support for recruitment, training, local land taxes, tax rebates, subsidies for both overseas and domestic trade events, public relations promotion and new business introduction or networking.



The 'aftercare' which Chinese companies can expect to receive in China following a significant or head-line investment is obviously much more in-depth and regular compared to what is offered by UK regional trade and investment support agencies. It is worth noting that Chinese companies without much foreign investment experience would expect this to be normal practice on the back of their own experiences in China.

Opportunity:

- **In order to show that Lincolnshire is 'open for business' the Chinese business community in London (including banks such as Agricultural Bank of China) should be engaged with in order to inform them of Lincolnshire interests.**
- **The Chinese Embassy Commercial Section should be met to inform them not just of Lincolnshire interests but to show that Lincolnshire understands what Chinese wants and how to work with China.**



Appendix II Hunan Agriculture

Land Relief

More than one-fourth of Hunan's terrain lies at an elevation above 1,640 feet, and much of it is well over 3,000 feet above sea level. The uplands of the west, south, and east fall steadily in elevation toward the plain of Dongting Lake in the north, which is contiguous with the Hubei Plain and forms part of the floodplain of the Yangtze River. The part of the plain within the borders of Hunan has an area of some 3,800 square miles; it has been formed by silt carried down from the mountains by the Yangtze and its right-bank tributaries. Dongting Lake is a broad and shallow seasonal lake, consisting of the remnants of a former inland sea that once filled the Yangtze basin. Its area varies considerably between summer and winter, and the lake has dried up significantly since the 1950s. Nonetheless, it is still the second largest freshwater lake in China, surpassed only by Lake Poyang in Jiangxi.

Drainage

Hunan's entire river system drains into Dongting Lake, with the exception of the Lin Stream, which divides into two parts, with one distributary draining directly into the Yangtze River and the other into Dongting Lake. Much of the low-lying land around Dongting Lake is subject to flooding when the rivers come down in spate during the summer months. The system of dikes built to contain the floodwaters is supplemented by a vast network of electric pumping stations. These pumps drain the fields when waterlogged and irrigate them in times of drought. In the dry hill lands, numerous large and medium-sized water-control projects have been built. In these projects, valleys are dammed and "mountain pools" are formed, from which channels are led to the arid land. One of these schemes—the Shaoshan Irrigation System—diverts some of the upper waters of the Lian Stream, thus irrigating the dry hill land, and also controls flooding in the river's lower reaches; the irrigated area has been converted from single-crop to double-crop rice land.

Soils

The soils of the province are largely pedalferic (rich in alumina and iron) and are mainly lateritic (leached, iron-bearing) yellow earths or red clays. In the hilly regions of central and southern Hunan, the soils are for the most part lateritic clays that are strongly acidic and poor in organic material. The alluvial soils of the northern plains are less acidic and are used for growing rice.

Climate

The north generally experiences more extreme weather conditions than does the south. In winter, occasional waves of cold air from Mongolia sweep southward, injuring tea bushes and fruit trees in northern Hunan. The average minimum winter temperature is 43 °F (6 °C). Summers are long and humid, the average maximum summer temperature being 86 °F (30 °C). The north has an average of 260 frost-free days per year, while in the south the average is 300 days. Precipitation (almost entirely as rain) is ample, with the maximum precipitation occurring between spring and summer. The total annual rainfall of 56 inches (1,420 mm) decreases from south to north. Hunan lies in the path of the wet monsoons, which pass from west to east along the Yangtze basin in summer, bringing with them at times long periods of heavy rain, resulting in extensive flooding of low-lying lands.



Deforestation

The natural vegetation of Hunan was originally dense deciduous and coniferous forest. Over the centuries, as the population has increased, all the lowlands and much of the highlands have been cleared to make way for cultivation.

Agriculture, forestry, and fishing

Although mining and industry have been developed since 1949, Hunan's economy remains mostly agricultural. Hunan ranks first among China's provinces in rice production. Most of Hunan's arable land is farmed using modern techniques, including mechanized irrigation and chemical fertilization. Most farms are small, however, and mechanization has been confined to the use of simple machines and tools, such as rice transplanters, foot-operated rice-threshing machines, and a tube water raiser that is replacing the old wooden trough and paddles.

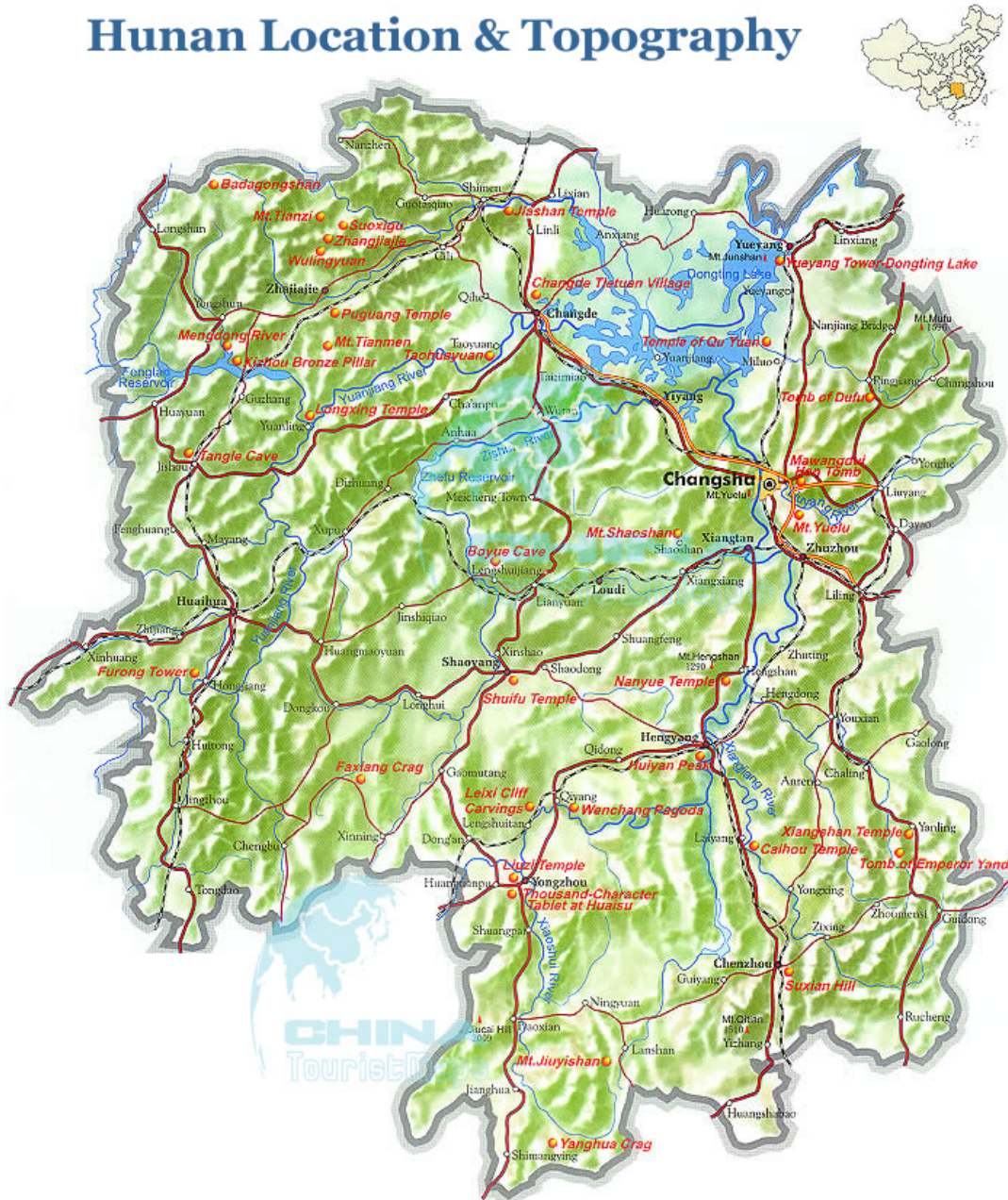
Hunan consistently ranks first nationally in rice output and exports a large surplus to other provinces. It is estimated that most of the province's cultivable land is devoted to paddies (wet-rice fields), a great many of which in the south produce two crops of rice per year and demand careful cultivation. Other food crops include sweet potatoes, corn (maize), barley, potatoes, kaoliang (a variety of grain sorghum), buckwheat, garden peas, millet, and broad beans.

Among the industrial crops, rape—an herb grown for its seeds—is cultivated mainly in the upper valleys of the Xuefeng Mountains, while ramie (a shrub that yields a fibre used in textile manufacture), cotton, and jute are produced around Dongting Lake. Red and black tea are grown on the foothills of the Xuefeng Mountains and on Mount Mufu on the eastern border. Peanut (groundnut) cultivation is widespread, and tung trees and tea seed shrubs are grown for their oils in the western and southern highlands. A variety of fruits is grown throughout the province, including citrus, pears, peaches, and chestnuts.

During the early 20th century, heavy and wasteful cutting of Hunan's timber reserves occurred. Since then, stricter control of cutting has been enforced, and some reforestation has been carried out. Fish are taken in large quantities from lakes, rivers, and village ponds. The most common varieties are carp, silver carp, and "silver fish." The full exploitation of fishpond culture was developed in the early 1970s. Cattle, including water buffalo, are used almost exclusively for draft purposes. Hogs are concentrated mainly in the central and eastern areas, where the population is densest. The swine industry is a significant source of rural cash income.

Appendix III Map of Hunan

Hunan Location & Topography





Appendix IV Case Studies of Chinese Inward Investment – M&A

Plexus

Plexus is an Aberdeen-based company, whose wellhead technology is used on exploration and production wells. In July 2015, China's **Yantai Jereh Oilfield Services Group** invested £8 million in Plexus for a 5% stake and signed a licensing deal with the firm. This deal is reflective of a more recent trend in privately owned energy and engineering companies (as opposed to the previous SOE investment in UK energy sector) looking to secure collaboration with UK energy companies, often using equity investment as leverage. For Plexus, this has meant they now have a very strong partner in the Chinese market, which was previously untapped for them and shows great potential for growth. Low oil prices has meant that now is a good time for Chinese firms to come into this space and pick up some attractive deals as many technology companies are searching for both investment and new markets.

The two companies knew of each other as Plexus had been supplying services from the UK to Jereh in China for a number of years.

LendInvest

In 2015, London based **LendInvest** secured a £22m investment from Chinese technology firm Beijing **Kunlun Tech Co**. LendInvest was officially launched in May 2013 having been spun out of short-term mortgage lending business Montello, which was founded in late 2008. LendInvest is now the world's largest P2P marketplace for mortgages, having financed over £300m of mortgages in its first two years. Beijing Kunlun is a Chinese technology company that was originally backed by leading Silicon Valley VC Sequoia Capital, and has core businesses in gaming, social communications platforms and technology investments. The attraction of Beijing Kunlun to LendInvest was the experience which they bring in developing an expanding tech company.

In this instance it is believed the introduction between the two companies was made through Sequoia, which had a stake in both companies.

Sensewhere

In 2015, Chinese internet giant **Tencent** made a strategic investment in Edinburgh-based indoor mapping startup **Sensewhere**. The total amount of the deal was undisclosed, but the companies said that Tencent now has a license to use Sensewhere's indoor positioning software in Tencent Maps. Sensewhere will also be Tencent's preferred vendor for location-based advertising services in China. Sensewhere's technology provides location information in areas where there is little access to satellite GPS data. Instead, it relies on signals like Wi-Fi or Bluetooth. The company said Tencent's investment will allow it to quickly scale up the development of its indoor location database because it plans to integrate its software with all major apps made by Tencent and its affiliates.



It is understood that Sensewhere had been supplying services under contract to Tencent prior to an acquisition proposal being made.

Neul

In 2014, Cambridge-based **Neul** was bought by **Huawei** for a reported £10m. The investment is seen as part of Huawei's continuing investment into UK ICT sector, especially in the east of the country, following their acquisition of CIP Technologies in Ipswich in 2012.

It was reported that Neul had been working with Huawei for nine months on a narrow band cellular Internet of Things project and that as the relationship had progressed, the companies had grown closer together.

PTG Holroyd

In 2010, Rochdale-based **PTG Holroyd** was acquired by **Chongqing Machinery and Electric Co. Ltd. (CQME)**. As world-leaders in their respective niche markets, the two companies were natural bedfellows given the huge opportunities for investment and growth with CQME adding value and complementary products to PTG's already extensive range for entry into new markets in precision gear manufacturing. The clear objective of the partnership was to establish a strong foothold in international markets with the combined group continuing to invest and develop the technology, intellectual property and 'know-how' of the UK business, and to create products that meet the market's ever more demanding requirements, enabling them to compete with the major machine tool and precision components manufacturers worldwide.

London Taxis

The relationship between these two companies began as a trading link supplying hi-end products from the UK to China and more standard products from China to the UK.

In 2013, **London Taxis** became part of the **Geely Group**, with a new vision to see the iconic London Taxi on the streets of every major city across the world. London Taxis had gone into receivership, threatening nearly 300 jobs in Coventry. With the acquisition nearly half of the original work force was saved. In 2015 Geely announced a £250 million investment in London Taxis for a new factory to be built and investment into the development of a new electronic / hybrid version mainly for export markets. The new investment will see the workforce of London Taxi increase to approximately 500.

London Taxis had been in a partner trading relationship with Geely for a number of years, with components being supplied from China to the UK and kit cars being supplied from the UK for final assembly in China.



Appendix V The China-Britain Business Council

The China-Britain Business Council (CBBC) helps British and Chinese businesses and organisations work together in China, the UK and third markets around the world. With 60 years of experience, experts in 11 UK offices and 15 Chinese locations, and a diverse 1,000-strong membership, we operate alongside the British Chamber of Commerce in China to support companies of all sizes and sectors from multinationals to SMEs.

As the partner of choice for British companies working with China, CBBC delivers a range of events, tailored research and consultative services. We cooperate closely with UK Trade & Investment, the Foreign & Commonwealth Office and across government to highlight export opportunities for UK companies and investment opportunities for Chinese organisations.

CBBC Hunan – Changsha

Contact: Miranda Hou – Changsha Manager
Miranda.hou@cbbc.org.cn
+86 (0)731 8228 1511

CBBC UK

Contact: Claire Urry – Executive Director
Claire.urry@cbbc.org
+44 (0)7950 390207

Contact: Stewart Ferguson – Head of Research
Stewart.ferguson@cbbc.org
+44 (0)7932 698794

CBBC Head Office

3rd Floor, Portland House, Bressenden Place, London SW1E 5BH

enquiries@cbbc.org

+44 (0)20 7802 2000

www.cbbc.org