Environmental Friendly Planning Practices Implemented in China's Ultra High-Rise Structures——Planning & Implemental Process of "606meters" Wuhan Greenland Centre, China

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Abstract

With China's fast economic development in the past decade, China now has more than 350 ov er 200 meters high-rise buildings and seven of them are in the present highest skyscrapers. Ult ra high-rise building projects plays an important role in economic growth of China as the urban area development space is becoming more limited and also other resources. Ultra high rise buildings are the substantial and spiritual symbol for the region which can push forward development of different areas.

Therefore, with the development of information technologies used in fields in urban planning, architectural design and property management, problems like safety, cost,energy saving, and optimization of the structure have been continually thrown out and focused by world's leading experts.

Wuhan Greenland Center (606 meters height) ,the 2nd tallest structure in China and 4th in the world. The 300,000 m2 urban complex consists of cultural spots, residential apartment, hotel, offices, shopping center and tertiary sectors like finance, creative studio, etc. The project aim to generate a new city sub-centre as well as the revitalization of this area. And Being a key participant in the Wuhan Greenland Center project, this article will share details during the pre-stages of decision making, site selection, environmental evaluation and social economic effects, functional compound, etc. By the means of modern information technologies and cutting edge tools, which benefits in settle the public needs and shorten the processing period.

1. Introduction

In the past decades, hundreds of ultra high rise buildings have arise China. It s not only the spiritual symbol of a city but also beco economics and revitalizing some downgrading region.

Being one of the world s ultra high rises building properties owner, July 18th 1992 with its headquarters in Shanghai China, Greenland enterprise tenet of Greenland, create better life in the past 22 years and f government advocates and what the market calls for, forming the curren which features highlight on the real estate, integrated development of rele including business, finance and metro through a two pronged development meth management and capital management and ranking the 268th place in 2014 the 40th place of the Chinese mainland enterprises on the list. In income amounted to 402.1 billion RMB(1USD=6.1RMB), total pre tax profit total assets 478.4 billion RMB at the year end, of which the real area of 21.15 million square meters and a sum of 240.8 billion RMB industry champion.

The real estate business of Greenland Group is taking the lead natio development scale, product type, quality and brand. It is also far ah rise buildings, large urban complex projects, high speed rail station industrial park development. Of the present 23 ultra high rise urban still under construction), 4 enters the world top ten in terms of development projects have covered 29 provinces and 80 odd cities with construction up to 82.33 million square meters. Closely following t globalization, Greenland Group expands its business overseas in a st covering 4 continents, 9 countries including USA, Canada, UK and Aust becoming the top runner of global operations of China s real estate industry.

In addition to ensuring its leading position in the real estate indu develops secondary pillar industries including finance, business, hot investment and energy resource, acquires Greenland Hong Kong Holdings (00337) company in Hong Kong Stock Exchange, and fulfils its strategic layout resources. It accelerates the overall pace of going public, propelli internationalization of itself.

Greenland Group will drive growth at a higher starting point, strive t operating income and over 50 billion profit by 2020, ranking among the Meanwhile, Greenland Group will build itself into a respectable transna sustainable development, outstanding benefit, global operation, pluralis continuous innovation, and complete the significant transformation from China s the World s Greenland .

Well experienced in building ultra high rises and leading in project s Greenland Group constantly refreshes the city skyline with its corporat leading operator in developing ultra high rises in China. There are buildings completed or under construction by Greenland, four of which highest buildings in the world. All of them have become the new la around the world.

Name	Native name	City	Height	Floors	Year	Pinnacle height	Roof height
Shanghai Tower	上海中心大厦	Shanghai	632 m (2,073 ft) (topped out)	121	2014	632 m (2,073 ft)	
Shanghai World Financial Center	上海国际金融中心	Shanghai	492 m (1,614 ft)	101	2008	492 m (1,614 ft)	492 m (1,614 ft)
International Commerce Centre	環球貿易廣場	Hong Kong	484 m (1,588 ft)	118	2010	484 m (1,588 ft)	484 m (1,588 ft)
Greenland Center-Zifeng Tower[3]	绿地广场·紫峰大厦	Nanjing	450 m (1,480 ft)	89	2010	450 m (1,480 ft)	381 m (1,250 ft)
Kingkey 100	京基100	Shenzhen	441.8 m (1,449 ft)	100	2011	441.8 m (1,449 ft)	441.8 m (1,449 ft)
Guangzhou International Finance Center	广州国际金融中心	Guangzhou	440.5 m (1,445 ft)	103	2010	437.5 m (1,435 ft)	432.0 m (1,417.3 ft)
Jin Mao Tower	金茂大厦	Shanghai	421 m (1,381 ft)	88	1998	421 m (1,381 ft)	370 m (1,210 ft)
Two International Finance Centre	國際金融中心二期	Hong Kong	416 m (1,365 ft)	88	2003	416 m (1,365 ft)	392 m (1,286 ft)
CITIC Plaza	中信广场	Guangzhou	391 m (1,283 ft)	80	1997	391 m (1,283 ft)	323 m (1,060 ft)
Shun Hing Square	信兴广场	Shenzhen	384 m (1,260 ft)	69	1996	384 m (1,260 ft)	325 m (1,066 ft)
Central Plaza	中環廣場	Hong Kong	374 m (1,227 ft)	78	1992	374 m (1,227 ft)	309 m (1,014 ft)
Bank of China Tower	中銀大廈	Hong Kong	367 m (1,204 ft)	72	1990	367 m (1,204 ft)	305 m (1,001 ft)
The Pinnacle	广晟国际大厦	Guangzhou	360 m (1,180 ft)	60	2011	360 m (1,180 ft)	311.9 m (1,023 ft)
The Center	中環中心	Hong Kong	346 m (1,135 ft)	73	1998	346 m (1,135 ft)	292 m (958 ft)
Tianjin World Financial Center[4]	津塔	Tianjin	337 m (1,106 ft)	76	2011	337 m (1,106 ft)	337 m (1,106 ft)
Shimao International Plaza	上海世茂国际广场	Shanghai	333 m (1,093 ft)	66	2005	333 m (1,093 ft)	247 m (810 ft)
Minsheng Bank Building	民生银行大厦/武汉国际证券大厦	Wuhan	331 m (1,086 ft)	68	2007	336 m (1,102 ft)	290 m (950 ft)
China World Trade Center Tower III	国贸3期/国际贸易中心3期	Beijing	330 m (1,080 ft)	74	2009	330 m (1,080 ft)	330 m (1,080 ft)
Nanqing Village of Huaxi	空中华西村	Wuxi	328 m (1,076 ft)	74	2011	328 m (1,076 ft)	328 m (1,076 ft)
Deji Plaza Phase 2	德基广场二期	Nanjing	324 m (1,063 ft)	62	2014	324 m (1,063 ft)	324 m (1,063 ft)
Wenzhou World Trade Center	温州世贸中心大厦	Wenzhou	322 m (1,056 ft)	72	2010	322 m (1,056 ft)	
Nina Tower	如心廣場	Hong Kong	319 m (1,047 ft)	80	2007	319 m (1,047 ft)	319 m (1,047 ft)
One Island East	港島東中心	Hong Kong	308 m (1,010 ft)	70	2008	308 m (1,010 ft)	308 m (1,010 ft)
Gate to the East	东方之门	Suzhou	302 m (991 ft)	74	2014	302 m (991 ft)	282 m (925 ft)

Figure 1. China Current Ultra-High Rise Building
Source: Wikipedia

Under construction [edit]

Name	Pinnacle height	Floors	Completion	City
Suzhou Zhongnan Center	729 m (2,392 ft)	137	2020	Suzhou
Ping An Finance Centre	660 m (2,170 ft)	115	2016	Shenzhen
Wuhan Greenland Center[6]	636 m (2,087 ft)	125	2017	Wuhan
Shanghai Tower	632 m (2,073 ft)	128	2014	Shanghai
Goldin Finance 117	597 m (1,959 ft)	117	2015	Tianjin
Tianjin Chow Tai Fook Binhai Center	588 m (1,929 ft)	98	2015	Tianjin
Baoneng Shenyang Global Financial Center	565 m (1,854 ft)	114	2018	Shenyang
Chow Tai Fook Centre	530 m (1,740 ft)	116	2016	Guangzhou
Rose Rock IFC	530 m (1,740 ft)	100	2015	Tianjin
China Zun	520 m (1,710 ft)	108	2016	Beijing
Kaisa Feng Long Center	518 m (1,699 ft)	92	2015	Shenzhen
Dalian Greenland Center	518 m (1,699 ft)	88	2016	Dalian
Hengqin Headquarters Tower 2	490 m (1,610 ft)	106	2017	Zhuhai
Tianjin R&F Guangdong Tower	468 m (1,535 ft)	91	2016	Tianjin
International Commerce Center 1	468 m (1,535 ft)	100	2016	Chongqing
Changsha IFS Tower T1	452 m (1,483 ft)	88	2017	Changsha
Wuhan Center	438 m (1,437 ft)	88	2015	Wuhan
Wuhan Tiandi A1	435 m (1,427 ft)	76	2016	Wuhan
JW Marriott International Finance Centre	431 m (1,414 ft)	102	2014	Chongqing
China Resources Headquarters	392 m (1,286 ft)	100	2017	Shenzhen
Dalian Eton Center[7]	384 m (1,260 ft)	81	2013	Dalian
Forum 66 Tower 1[8][9]	384 m (1,260 ft)	76	2013	Shenyang
Sino Steel Tower	358 m (1,175 ft)	80	2015	Tianjin
Forum 66 Tower 2	351 m (1,152 ft)	68	2013	Shenyang
Gezhouba International Plaza	350 m (1,150 ft)	69	-	Wuhan

Figure 2. China in progress Ultra High Rise Builings
Source: Wikipedia

2. Development overview of Greenland Wuhan 606Center

Wuhan City, locates in the mid of China with the 2nd longest river

millions people, which is the largest city in mid of China. The proj

Figure 3. Spatial distribution of Wuhan City
Source: Baidu Map

Greenland Center is a 119 floor 606m mixed use tower under construct
June 2011, Adrian Smith + Gordon Gill Architects in conjunction wi
Engineers won the design competition to build the tower for Greenland
many energy saving features. The expected completion date is 2014.

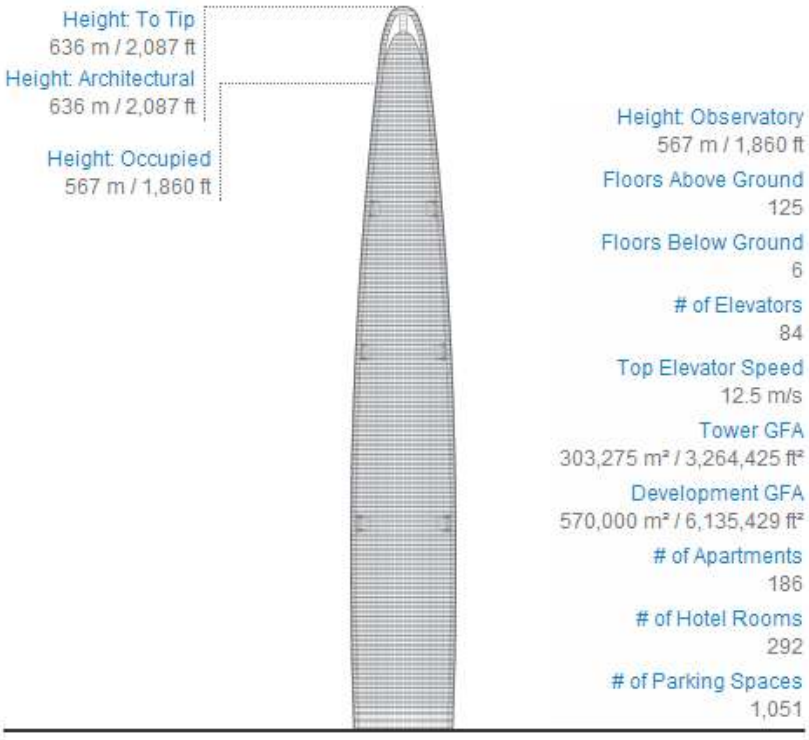

Figure 4. China in progress Ultra High Rise Builings

Source: Wikipedia

Figure 5. ChinaWuhan Greenland Center

3. Planning Practices

Spatial planning has now become a phrase that resonates throughout m
across the globe. Theoretically, though ambiguous and with no consensus
described as an ongoing, enduring process of managing change by a
interests of sustainable development. In the EU discourse, however, the
system and legally binding setting for formalising and implementing s
Rather, it can be seen as a meta narrative of the EU political
paradigmatic influence and to shape the shared mental models in the
towards more sustainable and spatially balanced economy within the EU
evidence shows that whilst there is a weak convergence at the nati
member states, regional imbalance within the member states is increas
decades. This is arguably due to the lack of legally binding tools o
policy which made no obligations to the hierarchically structured gove
strategic goals of spatial development in the national, regional and lo

4. Conclusion

With the means of various methods in different stages of the proje
Center illustrates ways that collaboration between local government, r
urban planner, architect, environmental experts and also local residents
in different process from the decision making, environmental assessm
construction stages and also the operating and administration of the a

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