This report does not necessarily reflect the opinion of the Consulate General of the Netherlands in Guangzhou, Guangdong Province, P.R.C., nor does it guarantee the accuracy of the data and figures given herein. The information used to prepare this report has been obtained from published- and unpublished sources.

This report is NOT FOR SALE
**Current situation**

Being the world’s biggest construction market, China though has very few sustainable and green buildings. On 5 March 2011, Premier Wen Jiabao mentioned in his work report to the People’s congress that the investment in existing building energy conservation should be further enhanced. The central government will actively improve energy efficiency in new buildings and largely promote recycling economy. China’s total building energy consumption accounts for more than 30% of the country’s total energy consumption. Both the governmental work report and the newly released national 12th Five-year Plan emphasize the significance of developing green buildings and eco-city, which shows huge market potential and great business opportunities in this industry.

The Ministry of Housing and Urban-rural Construction and its branches at all levels are in charge of the green building sector including new building and existing building reconstruction. Urban planning authorities at different governmental levels are responsible for eco-city planning and construction projects. On 1st of July 2006, China published its first national standards, called *the Evaluation Standards for Green Building (GB/T50378-2006)*, which have not been properly and strictly implemented. Under the direction of the Ministry of Construction, the National Green Building Association and the National Green Building Evaluation Label Administrative Office were founded in 2008. The latter has been authorized to do project evaluation and approve three-star green building label (GBL). Local green building associations are authorized for one-star and two-star label.

Vice Minister of Housing and Urban-rural Construction Chou Baosheng delivered a key-note speech themed China’s green building guidelines during the 7th International Green Building Expo early this year. He believes the 12th five-year period will be a perfect time to develop green buildings and to realize the transition from the beginning phase to high-speed development phase. The Ministry plans to encourage green building purchase by offering preferential loan rates to buyers, and green building and town development by offering project developers subsidies. In addition, the central government will release the Green Building Action Plan to further motivate the industry itself.

Although green building in China is still in its nascent stage, it has become very clear in recent years that the Chinese government is pushing “green” in its characteristic way. The sector itself has received increasing government attention with the draft revisions to Foreign Investment Catalogue pushing several additional “green” industries into the “encouraged” category and the 12th Five-year Plan declaring the “greenest in history” and signaling future opportunities for foreign companies in this field.

**Guangdong**

Based on the National 12th five-year plan, every province has released respective plan incorporating focus points of sustainable development and green building related issues. The four provinces in South China also response on this point with respective development plans and traits.

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1 http://news.xinhuanet.com/politics/2011-03/16/c_121193916.htm
As one of the strongest local economies and the highest energy-consuming provinces, Guangdong has been bothered by its energy overspending in buildings as well. Apart from Shenzhen City, the Province in general has only started its building energy conservation in recent years, but with rapid developments. The Guangdong Housing and Urban-Rural Construction Department especially its Science and Educational Department is responsible for the Province’s green building and building energy efficiency related works. The draft version of *the Guangdong Green Building Evaluation Standards* was compiled by the Construction Department in April and has been sent to relevant department and organizations for advice. In addition, *the Guangdong Civil Building Energy Conservation Regulation* was approved by the Provincial People’s Congress in March and has been valid as of 1 July 2011.

Apart from completing regional legal and standards systems of green building sector, the Provincial Government has also played a leading role in promoting the use of energy-saving products. The Construction Department has assigned the Guangdong Building Energy Conservation Association\(^3\) to compile *the Guangdong Energy-saving Technologies and Products Recommendation Catalogue*. The products and technologies recommended in this Catalogue will enjoy a privilege granted by the Provincial Government for new building and exiting building reconstruction projects in Guangdong. The detailed application procedures have been published on the official website of the Association, [http://www.gbeca.org/cms/GBECA/xinwenzixun/xiehuitongzhi/15td116a0jcim.xhtml](http://www.gbeca.org/cms/GBECA/xinwenzixun/xiehuitongzhi/15td116a0jcim.xhtml).

In Guangdong, a number of real estate developers represented by China Merchant Group and Wanke Group have made notable attempts in the construction of green buildings, comprehensive energy-saving compound, and renewable energy application in buildings. Although there are still problems arisen from renewable energy application, the implementation rates of energy conservation in building design and engineering phase has been steadily enhanced.

**Shenzhen**

Shenzhen city is a frontrunner nationwide, leading in China’s green building development. “Making Shenzhen a green building and low-carbon eco city becomes one of core strategies to boost city’s development and industrial reorganization”\(^4\), introduced by Executive Vice Mayor Lv Rui feng, when headed the Shenzhen delegation to participate in the 7\(^{th}\) International Conference on Green and Energy-Efficient Building and New Technologies and Products Expo in March 2011. Shenzhen city made significant achievements in building energy conservation during the 11\(^{th}\) Five-year period, and the total saved energy was equivalent to 2.037 million tons SCE\(^5\). Till this moment, Shenzhen has developed about 80 green building demonstration projects and several most influential and symbolic buildings such as Jianke building, marked with China’s first three-star green building label (GBL), and Fraser Place, China’s first LEED (silver) certification. Guangming New Area has been jointly developed between Shenzhen government and the Ministry of Housing and Urban-rural Construction. The new campus of the Shenzhen University and the South University of Science and Technology are green eco-campus projects also jointly developed by the Ministry and the city government. In addition, many green buildings, green residential areas, green tourism parks are also founded.

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3 [http://www.gbeca.org](http://www.gbeca.org)


5 SCE: standard coal equivalent.
Shenzhen government strives for making Shenzhen a green building city with the detailed action plan covering green design, green engineering, construction of green community and green town, development of green building materials and environmentally-friendly treatment of building wastes. Relevant technical specifications and codes have been also made accordingly. Shenzhen has its own Green Building Appraisal Rules (SZJG 30-2009) and the first Green Building Association countrywide. At present, Shenzhen has been authorized to evaluate and grant one-star and two-star green building label, and currently is carrying out double-certifications based on both national and local green building standards. After the completion of technical standards and regulation system and the accumulation of technical innovation, the sector itself also boosts the development of urban planning and green transportation. Green building concept and practice has been also extended to green urban planning, green roads, green subway, green hospital, green campus and green lighting, almost every subsector of city’s infrastructure construction.

As a pilot city for energy-efficient monitoring systems of government office buildings and large-sized public buildings, Shenzhen has created a large-scaled public building energy consumption monitoring platform and a building energy consumption data centre, which are currently monitoring more than three hundreds public buildings. Shenzhen has kept this record ranking itself 1st all over the country. It is planned to monitor all large-sized public buildings very soon. Related building energy consumption quota standards are currently being drafted.

Building wastes treatment and renewable energy application in buildings have become focuses with increasing social awareness and concerns. Vice Mayor Lv Rui feng elaborated on how to comprehensively make use of building wastes. Shenzhen has already operated four building waste comprehensive utilization projects with an annual disposal capacity of 3 billion tons. The municipal government will strongly promote new pilot projects and cultivate emerging companies in this field in order to further enhance city’s building waste disposal rates and capacity. In 2010, 14 key projects such as Shenzhen University Xili Campus, Sports Stadiums of Shenzhen Universiade, Binhai Hospital and Shenzhen airport Terminal 3 project have used green products made of recycled materials. At the same time, Shenzhen government prioritizes green recycled building materials to be used for low-income housing projects, and plans to build up a building wastes harmless treatment park to further commercialize this industry in two or three years.

Shenzhen is also a national pilot city for renewable energy application in buildings. Solar energy has been widely used in buildings. In the past, only residential buildings lower than 12 floors should be equipped with solar water heaters. In 2010, Shenzhen government made a new action plan to compulsorily cover all new residential buildings and low-income houses.

The concept of green buildings will be realized in low-income housing projects as well. In 2010, Shenzhen government released compulsive rules to implement specific green building standards for low-income housing projects. The Longhua low-income housing project becomes the first nationwide low-income residential compound constructed under green building standards. It is also planned for the coming five years, 240,000 apartments will be constructed according to the standards.
Shenzhen also takes the lead in the development of green hospitals and recently hosted a high-end forum for hospitals directors in order to compile detailed green hospital construction standards. Hosting the Universiade 2011 provides Shenzhen an international stage to become the focus point of the world. 36 new and reconstructed sports stadiums are all marked in green. Apart from green buildings, Shenzhen is also a forerunner in developing the eco-city concept. A good example is the joint research regarding the Longgang District eco-city overall planning, which is carried out by TU Delft together with its Chinese partner Harbin Institute of Technology Shenzhen Graduate School.

Referring to international cooperation, Shenzhen is absolutely a prominent leader with an incomparable open mind and willing to learn from other countries and regions, which has been reflected through its coordination with the U.S. Energy Foundation by signing a framework agreement on the construction of a green building pilot city, and the exchange with Germany, France, U.K., U.S., Japan, Australia, Singapore. An in-depth academic exchange scheme with its Hong Kong counterpart has been established on a regular base.

For the coming five years, Shenzhen has set a clear target approaching a real green building city with 100% achievement rate for government-investing new buildings, 50% achievement rate for social public buildings and 60% of building wastes reutilization rate.

**Guangzhou**

In February 2011 the Municipal People’s Congress approved the Guangzhou 12th Five-year Plan, drawing a new layout of city development and construction. Rebuilding Guangzhou as a low-carbon city is part of core strategies of developing low-carbon economy. It is planned to build Pearl River new city, Baiyun New City, China-Singapore Knowledge City and Nansha as low-carbon demonstration areas. To specify in building sector, the municipal government will highly promote green building and the construction of green building complex in coming years. Guangzhou’s landmark building, the Pearl River Tower, also well-known as its nearly zero-energy architectural concept, has become a milestone of city’s green building development. Additionally, the government also encourages building energy conservation technologies to be widely applied, such as new types of environmentally-friendly wall-building materials, air-conditioning waste heat collectors, energy-saving lights, etc.

On April 12, 2011 the Consulate General paid a visit to the Construction Bureau of Guangzhou Municipality and learned the followings:

- Guangzhou has implemented energy-saving standards for new buildings. However, with rapid developments of low-carbon and recycling economy and fast-growing green building sector, current standards system is rather incomplete and to be improved;

- During the 12th five-year period, it is required that construction projects invested by government and state-owned companies should approach green building standards, which leaves enough spaces for cooperation;
- About governmental supportive policies and the formulation of local green building evaluation standards, Guangzhou government would like to learn from the Dutch government and branch organizations in this field;

- Guangzhou will launch “three old” reconstruction projects including old buildings, old plants and old town. Old-city renewal projects may leave more room for cooperation in view of more design and urban planning factors to be considered;

- Indeed the plan for establishing several low-carbon demonstration areas provides great opportunities. Although the China –Singapore Knowledge city in Luogang has realized the cooperation with Singapore government and private sector, it also opens the door for advanced technologies and products from other countries. Moreover, Nansha and Baiyun New City which require overall planning of whole area could be interesting as well. The municipal urban planning bureau works together with Nansha and Baiyun district government on those projects;

Considering Nansha’s geographical location in the centre of the A-shape Greater Pearl River Delta, the central government decided to further explore Guangdong-Hong Kong-Macau cooperation potential within the zone with the intention of expanding Guangzhou city in Southern direction the coming five years. Nansha is to transform from a heavy-industrial base to a seaside ecological and business downtown area with an R&D centre, education and training facilities and other high-end service sectors connecting the mainland area to the HK and Macau SAR’s. On 20 August 2011, the Chinese Academy of Social Sciences and the Guangzhou Municipal Government jointly organized a seminar to release the research findings on the Guangzhou Nansha New Zone orientation and development strategies. It is planned to build Nansha into an international intelligent coastal city, a national-level new zone connecting the HK and Macau SAR’s and an international hub in coming years. Compared with the other two state-level cross-border development zones –Qianhai in Shenzhen and Hengqin in Zhuhai-, the Nansha new zone focuses more on CBD construction, industrial transformation & adjustment and green development.

- Another potential area for coordination is low-income housing. Guangzhou will invest 9 billion RMB to construct low-income housing projects, for example, the Long Gui Town Low-income Housing project will involve sustainable development concepts;

- Landscape lighting used to be very energy-consuming. As a result, more and more energy efficient lightings should be used in landscapes both for impression and for sustainable development. As a result, market demand for LED lighting becomes increasingly high;

- The Construction Bureau is willing to assist in the organization of seminar or other types of promotional events, but suggests making it more professional in order to provide efficient two-way communications. A small-sized and themed seminar with specific topics could be very pragmatic and effective;

- How to convince government, project owners and real estate developers to realize the
cooperation with the Dutch industry is the next thing to follow it up. Economic costs still remain one of major concerns.

Fujian
In 2009, Fujian Province published its own green building standards and several building energy conservation criteria, and the Xiamen Green Building Association was founded in the same year. The main reason for Fujian government to put great efforts in this industry is that the total energy consumption from the rapidly-developed construction industry during entire building lifecycle accounted for 45% of the Province’s total energy consumption during the 11th Five-year period. The energy consumption of air-conditioning and lightings accounted for 27.5% of the total energy consumption of Fujian Province, which was already mentioned in the Building Energy Conservation 12th Five-year Plan of Fujian Province released by the Fujian Housing and Urban-rural Construction Department on 21 December 2010.

This industrial 12th five-year plan addresses major problems existing in daily practice. First of all, in-charge governmental departments at municipal and county level do not function well. Engineering companies do not properly implement building energy conservation standards. The energy-saving materials industry is undeveloped in Fujian. Secondly, all parties including residents, real estate developers and energy management contract (EMC) companies do not have motivations to carry out building energy-saving reconstruction projects due to complicated reconstruction techniques, additional capital investment and long-term construction period. Thirdly, the energy-consumption monitoring system of governmental office buildings and large-sized public buildings is far from complete and effective. Last but not least, government supervision doesn’t support market operation and management. Compulsory regulations should be executed in building lifecycle from its design to dismantlement.

As a result, the provincial government has made the detailed sector plan for the coming five years. According to this plan, Fujian government will largely promote renewable energy and green lightings applied in building energy-saving reconstruction projects. It is planned to construct 20 green buildings, 2 demonstration cities and 5 demonstration counties during the 12th five-year period. The government will strongly support the production of new energy-saving wall materials and the research of other types of energy-saving materials. Currently, under the supervision of the Xiamen Housing and Urban-rural Construction Bureau, the Xiamen green building association can authorize GBL to first and second-star green buildings, which definitely motivates the Province to pick up the pace of developing green buildings.

Apart from self-development, Fujian has also established links with international organizations, such as the U.S. Energy Foundation, which has jointly worked with local governments on Fuzhou and Xiamen demonstration city projects. In addition, supported by the Ministry of Housing and Urban-rural Development, Fujian has annually hosted the Cross-Straits Green Building Energy-saving Exposition for five times. The 5th session was just held from June 18 to 20. This

6 The website of The Department of Housing and Urban-rural Construction of Fujian Province
www.fjjs.gov.cn
7 www.fjjs.gov.cn/zhuanti/inblh/index.asp
expo provides a floor for cross-strait cooperation in green building field.

Xiamen has been appointed by the central government as one of low-carbon pilot cities. Both the construction of a low-carbon pilot city and the initiation of a carbon trading pilot project in Xiamen have been clearly mentioned in the provincial 12th five-year plan. The first three-star green building complex is planned for Tong'an of Xiamen city. Furthermore, the Xiangshan International Yacht Club phase I project is also one of national demonstration projects of renewable energy applied in buildings.

**Guangxi**
The energy production of Guangxi Zhuang Autonomous Region is far from self-sufficient, and its major part relies on energy supply from other regions. However, the energy consumption in buildings is pretty much high, up to 21% of Guangxi’s total energy consumption. Therefore, Guangxi Government has attached great importance to energy efficiency in buildings in order to catch up with high targets set for emission controls. Based on the national *Evaluation Standards for Green Building (GB/T 50378-2006)*, Guangxi government worked out its adaption to real situation in Guangxi, and made *Guangxi Green Building Appraisal (DB45/T 567-2009)* valid from 23 February 2009, which was followed by the release and implementation of *the Guangxi Green Building Design Specifications* and *the Guangxi Green Engineering Directive Rules*. The government also has the plan to complete a regulation system of green buildings in two years, including green building operation management specifications, green building and building energy-saving projects inspection and acceptance specifications. The Guangxi Institute of Building Research & Design – Green Building Branch, the Guangxi Energy Conservation Centre, the Guangxi Green Building Energy Saving Center Co., Ltd and the Guangxi Building Energy-saving Key Laboratory are important parties active in the local industry and contribute to green building standards formulation and execution.

According to the Autonomous Region’s Housing and Urban-rural Construction Department, Guangxi intends to construct about 50 green building demonstration projects occupying a total land area of 1 million sq². Guangxi government has taken a series of effective measures to promote energy conservation in buildings since 2010, and launched several projects such as Nanning Yufeng Green Building Residential Compound, Pingxiang Logistics Park, Nanning Museum of Science and Technology and Mayor Building. Reinforcement of international exchange and cooperation in the field of green building is one of those measures.

**Hainan**
Hainan Province has incorporated the work of promoting green buildings and energy conservation in buildings into the overall work plan of the Hainan international tourism island construction project. Last November, the Energy Foundation and the Department of Housing and Urban-rural Construction of Hainan Province jointly signed a MoU to build Hainan a green building demonstration province. The main contents of bilateral cooperation include that the Energy Foundation brings Hainan Province into its China Sustainable Energy Programme and introduces foreign expertise and practical experiences in green building sector to Hainan. Both parties will
jointly draft the general development guideline of the green building demonstration province. The Department of Housing and Urban-rural Construction will strongly promote green building appraisal standards to be implemented in new buildings and current building energy-saving reconstruction projects. Additionally, the Energy Foundation will facilitate Hainan to take part in international academic exchange and meetings in the field of sustainable building.

On 4 November 2010, Hainan hosted the 1st Green Building and Building Energy Conservation New Technologies and New Products Expo in Haikou, capital city of the Province. The Expo covered intelligence building, green lighting, green engineering, renewable energy application in buildings, large-scaled public building energy-saving operation management, new green construction materials and so forth. According to the provincial statistics, the energy consumption of the construction industry accounted for 15.6% of the total energy consumption of the Province. The construction industry has been regarded as one of important industries in Hainan, as a result, the high attention has also been paid to the sector’s energy efficiency works. Hainan will strive for the completion of 50 green construction projects from 2011 to 2015. The target set for new buildings is about 10% to meet green building standards in 2015. It is planned to fully implement green building standards in new buildings in 2017 and a complete low-carbon featured green building system will be established in 2020.

In 2010, the 1st (2010) China International Ecological Habitat Forum was held in Ding’an of Hainan. An industrial park integrating solar energy, PV photovoltaic and new building materials production is planned to establish there as well. Solar energy widely applied for buildings will be highly required and largely promoted by the provincial government for coming years.

Although the green building concept has been largely promoted in China for years in order to improve public awareness, there are still misunderstandings to be clarified. First of all, green building could be also low-cost, which is different from advertisements made by some domestic real estate developers that green projects are high-end and expensive. A very good example is the Jianke Building, office building of the Shenzhen Institute of Building Research (IBR) with its own design and an average cost of RMB 4,300/m², much lower than average costs of commercial buildings in Shenzhen. Secondly, not only modern and high techniques link to green. Last but not least, unclear green building identification can easily lead to misuse, which requires a mature and complete GBL evaluation and authorization system.

**Important potential counterpart**

**China Merchant Group**

As one of three core businesses of China Merchant Group, the China Merchant Property Development co., Ltd (CMPD) was established in 1984 and has become a comprehensive real estate developer with a total asset of RMB 59.8 billion by the end of 2010. CMPD has developed 44 large-scaled real estate projects in 14 first and second-tier cities. CMPD has firstly promoted green real estate in China and led “community comprehensive development model” and “green real

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8 [www.szibr.com](http://www.szibr.com)

9 [www.cmpd.cn](http://www.cmpd.cn)
estate development concept” in its daily practice of past more than twenty years. CMPD has been regarded as the most successful model of sustainable development in China’s real estate industry due to its great attention and planning on green products, green buildings and green community with enough social concerns.

The Consulate General in Guangzhou has established close contacts with CMPD Shenzhen-based headquarters specially its Guangzhou Administrative Headquarters. According to previous discussion, it is learned that CMPD is very open-minded towards Dutch expertise in sustainable building sector. They have been in contact with a number of Dutch companies on a project basis, and are willing to cooperate with Dutch architects, engineering and consulting firms and good suppliers at all around. Mr. Marty Feng, Director of Sustainability & Senior Engineering MEM has showed great interests in coordination with the Consulate General and promised to give full support to CG-organized events. Well-known for its strong capacity and state-owned company background with its long history and high credit, Marty introduced CMPD could be a very reliable partner for Dutch companies. Apart from a series of concrete projects in the PRD, such as Shekou Undersea World, Zhongshan urban planning, Guangzhou Jinshan Valley and Foshan projects, Marty also indicated the following fields for the Consulate to recommend good companies to CMPD. With CG’s recommendations, CMPD will seriously consider possible cooperation on a project base or seeking for long-term strategic cooperation with some companies in particular green materials suppliers.

1. engineering consultancy;
2. water engineering and management;
3. noise control;
4. energy comprehensive design and management within community;
5. decoration materials and productions;
6. community waste treatment;
7. other good suppliers of green building materials.

At the same time, CMG also welcome the visit of Dutch companies and delegations, preferably with the first introduction by the Consulate General. Mr. Feng Bi wei, Assistant to General Manager, has shared with CG about CMG’s ambitious plan to deeply internationalize Shekou area of Shenzhen city. CMG plans to organize a promotional event on this project and would like to share project information with the Consulate General and companies. Mr. Feng also suggests Dutch companies to build up good relations with Shenzhen government in which CG could play an important role as well, since CMG is only part of the city’s construction and development. If Dutch companies can be incorporated into Shenzhen’s construction and future planning, it will definitely facilitate and deepen cooperation.

Furthermore, CMPD annually organizes the International Green Habitat Forum which proves to be one of the most influential and high-end forums in the industry. Last year, the Forum’s 7th session was held in Chengdu on November 3, which was jointly organized by the Ministry of Housing and Urban-rural Construction, the National Development and Reform Commission, the United Nations Environmental Programme – Sustainable Building and Climate Initiative (UNEP-SBCI), the Chengdu Municipal Government and CMG. About 500 participants from Chinese government,
academic institutes, universities, well-known real estate developers attended the Forum. A number of domestic and overseas experts in green building technologies and green economy were invited to deliver speeches for mutual exchange during the Forum. There is no doubt the Forum brings high attention and great opportunities for local real estate development. As a result, several municipal governments have intentions to co-organize the Forum this year, which has been roughly scheduled for the coming November 11. The Consulate General will coordinate with CMG in view of promoting Dutch expertise at the Forum, which could be a good platform for image-building.

**Guangdong Energy Conservation Association**

The Guangdong Energy Conservation Association\(^\text{10}\), founded on June 16\(^\text{th}\), 2009, is directly under the administration of the Economic & Information Commission of Guangdong Province (EICGP)\(^\text{11}\). The main business scopes of the Association cover the following:

- Focusing on the energy saving work of Guangdong Province, and providing scientific consulting ideas and referential suggestions for government, as well as undertaking the feasibility research and projects entrusted by the provincial government;
- Undertaking the guiding project of efficient lighting products assigned by EICGP;
- Undertaking annual governmental projects for the benefit of people assigned by EICGP and promoting energy saving knowledge to the public;
- Assisting enterprises in energy-saving and emission control, technology transformation into projects and fund application;
- Improving the standardization of energy efficiency;
- Evaluating and demonstrating energy conservation projects.

Supported by the provincial government, the Association organized the 1\(^\text{st}\) Guangdong International Energy Conservation Expo from June 9 to 11, 2011, which turned out to be a big success. Invited by the Association, the Consulate General in Guangzhou also participated in the Expo with a booth to promote Dutch expertise in energy conservation, in particular energy efficiency in buildings.

The Consulate General in Guangzhou has presented the Dutch Sustainable Building Platform booklet to the Association for their reference. After carefully studying the booklet, Mr. Yang Xiao Bin, Vice Director of Experts Committee of Guangdong Energy Conservation Association, has expressed the willingness to cooperate with the Platform. According to Mr. Yang Xiao Bin, the bilateral cooperation could be realized in several potential areas.

The Association’s upper-level authority, the China Energy Conservation Association\(^\text{12}\), has extended its business scopes to the general contractor of government-backed low-carbon community projects nationwide. The China Energy Conservation Association is responsible for making overall project plans integrating with most suitable suppliers. Learning from this operating mode, the Guangdong branch would like to copy it and play the leading role in similar low-carbon community projects together with local government and real estate developers.

\(^{10}\) [www.gdjn.org](http://www.gdjn.org)

\(^{11}\) [www.gdei.gov.cn](http://www.gdei.gov.cn)

\(^{12}\) [www.cecaweb.org.cn](http://www.cecaweb.org.cn)
At present, two project proposals are being discussed. The first project is the Mayland lake\textsuperscript{13} eco-city project, developed by the Mayland Group Co., Ltd\textsuperscript{14}, which organized the Mayland City China Eco-City Sustainable Development International Summit Forum on 16 July 2011, to introduce the project long-term development plan. The second project to be developed by the CITIC Real Estate Co., Ltd\textsuperscript{15}, is located in Nanhai District of Foshan City. The discussions on the possibilities to build low-carbon or even energy-sufficient communities at both places are still ongoing. If the two developers agree with this idea, the Association may seek for the assistance of the Platform companies, especially Dutch architects and urban planning experts.

Moreover, the construction of wetland parks in Guangzhou and joint development of new ecological building materials by using biomass materials can be other options for future coordination.

Apart from above-mentioned companies and organizations, the Shenzhen-based Vanke Group, the Guangzhou Urban Investment Group, the Guangzhou City Construction Investment Development Co., Ltd, the Guangdong Building Energy Conservation Association, construction and urban planning related governmental department could be also interesting to Dutch companies.

**Potential areas for cooperation**

Sustainable building as an emerging industry in China has huge market potential for domestic and overseas companies. Its new development tendency and governmental supportive policies for coming years will further boost the sector and provide Dutch companies opportunities. The following potential areas could be paid more attention:

- indoor air exchange technologies;

  In China, most insulation and energy conservation technologies used in green buildings can only isolate outdoor heat or cold air flow in order to properly control indoor temperature. However, it may lead to a series of problems endangering people's health, such as indoor air poorly ventilated, foul air and air with low oxygen content. The U.S. green building assessment standards LEED\textsuperscript{16} rating system has been well-recognized by the market and introduced to China. About 50% contents of LEED are relevant to air quality, which shows the significance of energy efficient buildings to habitants’ health and living conditions. More and more real estate developers, for instance, the China Merchant Group, have also paid attention on indoor air quality while choosing interior decoration materials. In some western countries, a high-end technology called energy recycling and ventilation technology has been developed and used in buildings. According to Deputy Director Kai Yan of the China Real Estate Research Association – Council of Human Settlements, only 1% of green buildings in China has used indoor air exchange technology, which will be one of major solutions to indoor air quality problem and the future tendency.

\textsuperscript{13} [www.maylandlake.com](http://www.maylandlake.com)
\textsuperscript{14} [www.maylandgz.com](http://www.maylandgz.com)
\textsuperscript{15} [www.realestate.citic.com](http://www.realestate.citic.com)
\textsuperscript{16} LEED: Leadership in Energy & Environmental Design Building Rating System.
- building waste treatment;
  Building emission control not only reflects on its energy saving but also building waste
treatment, which is regarded as a key measurable standard. Building wastes generated from
new building construction, existing building extension and relocation become main part of
urban refuses. Simple landfill of building wastes can result in secondary pollution. Being the
worldwide largest construction market, building waste harmless treatment and recycle becomes
the bottleneck of city development in China, effective solutions and products are highly
required. Some big cities, like Shenzhen, have been fully aware of this issue and strived for
developing its related industry. This sub-sector contains great commercial opportunities for
foreign companies.

- green hospital;
  Within health sector the concepts and possibilities to build up green hospitals have been also
introduced to China several years ago. The American green hospital appraisal standards GGHC
especially for medical buildings have been recognized locally. The development of green
hospitals becomes a new trend. On June 12, 2010, the Seminar on Green Hospital Construction
Standards and the Hospital Directors Summit Forum were held in the Guangzhou Panyu
Central Hospital. This hospital itself is a national green building demonstration project, a
renewable energy application pilot project, and a Guangzhou building energy-saving
demonstration project. During this Seminar and Forum, the Chinese Hospital Association and
its Hospital Architectural System Research Institute, and the Green Hospital Leading Group
have jointly made a five-year plan for green hospital development in China. According to this
Plan, year 2010 was the feasibility stage, this year is the demonstration year for green hospital
construction, and year 2012 for green hospital exhibition, 2014 orientated as a promotional year
and 2015 for appraisal and evaluation.

In South China, Shenzhen city has already extended its green building construction to medical
sector. On April 16, 2011, the Seminar on Shenzhen Green Hospital Construction was held.
Main programme elements included green hospital construction, open discussion on the draft of
green hospital architectural appraisal standards and other practical issues. The Green Hospital
Building Appraisal Standards have been approved and on trial as of July 21\(^{17}\), 2011. However,
green hospital projects are comparatively smaller than large-scaled public buildings and urban
planning projects, the project design will be normally assigned to domestic design firms.
Finding a local partner could be a shortcut for foreign design firms to get projects in this field.
Foreign suppliers of green building materials may have chances to step in this market.

- local green building standards;
  The cooperation in this field could be realized at government-to-government level. Many cities
in China have worked on respective standards systems, for instance Guangzhou city. The Dutch
Sustainable Building Council (DGBC)\(^{18}\) could play a role in introducing its own standards -
BREEAM-NL for information and experiences sharing. Dutch supportive policies related to the


\(^{18}\) [www.dgbc.nl](http://www.dgbc.nl)
implementation of these standards are also very interesting to local government.

- Eco compound and eco city planning;
  Apart from green buildings, more and more local governments, for example Shenzhen and Zhongshan, have paid attention on eco-city planning and construction. Real estate developers also concentrate on eco-compound construction, which require strong capacities of comprehensive urban and community planning, in particular energy comprehensive management. Local design institutes are very weak in this area, where the strong Dutch expertise shows.

- Public building, low-income housing and green school;
  Since Chinese government is still in the leading position to guide and promote the development of green building sector, the compulsory green building standards can be expected to start with governmental projects. Shenzhen government, for example, has already required all public and governmental office buildings and low-income housing projects should approach green building standards. At the same time, Chinese government also strongly support green school construction, and many green campuses are being built.

- Green building materials;
  Generally speaking, brand-new and advanced green building materials could enjoy the huge market potential in China. As indicated in the previous chapter, Guangdong Provincial Government has assigned the Guangdong Building Energy Conservation Association to compile the Guangdong Energy-saving Technologies and Products Recommendation Catalogue. The products and technologies recommended in this Catalogue will enjoy a privilege to be used for new building and exiting building reconstruction projects in Guangdong. Introduced by Deputy Secretary General Liu Cheng jun, the Guangdong Building Energy Conservation Association could organize promotional seminars for suppliers recommended in the Catalogue and invite governmental officials, architects, end-users to participate in the events. Two seminars organized recently turned out to be very effective. Both the Catalogue and the coordination with the Association could be interesting to Dutch suppliers as well.

- green roof;
  In Hong Kong, the government has executed compulsory rules on new buildings with green roofs, which have been also regarded as a new tendency in Beijing as well. Beijing government plans to compile similar mandatory rules for green roofs. Therefore, we can expect similar regulations widely spreaded to other big cities, such as Shenzhen and Guangzhou; some hospitals have similar concerns in view of green hospital construction and patient recovery.

- Building design;
  China is the largest construction market worldwide, and new buildings increasingly emerge over all the country, which contain great business opportunity with economic benefits for building designers. Good image of Dutch architects and ample experiences in sustainable buildings make Dutch firms having an advantage over other competitors.
- Green technology in general
  The PricewaterhouseCoopers China published the *China Green-tech Report 2011* in April. The Report analyses recent developments in green-tech sector in China and examines existing and emerging opportunities in six key sectors: cleaner conventional energy, renewable energy, electric power infrastructure, green building, cleaner transportation and clean water. According to the assessment of this report, China has three development opportunities in green building sector:
  - To enlarge building energy-saving reconstruction market via energy conservation service companies;
  - To accelerate green building materials application via supply chain;
  - To extend sustainable indoor environment market.
  The Report also predicts the largest development opportunity of green-tech sector comes from green building industry.

Conclusion

In view of sustainable building prioritized as a strategic sector by local government in South China, and the strong Dutch expertise and wide market recognition in this field especially the substantive presence of the Shanghai-based Dutch Sustainable Building Platform, the market in the South could be very potential and interesting to Dutch companies though strong competitors as well. In addition to this report, the Consulate General will continuously investigate and identify potential opportunities, and actively support Dutch business in sustainable building field, in order to help Dutch enterprises gain superiority over other competitors. Local counterparts can be approached through the Consulate General.

Trade Fairs

China International SME Fair (CISMEF) including the 3rd International Environmental Protection and Energy-efficiency Technologies Expo 2011
September 22 – 25, 2011, China Import & Export Pazhou Complex
www.cismef.com.cn

Note: the Consulate General in Guangzhou will participate in this Fair with a CG booth aiming at promoting Dutch expertise in the field of energy conservation and environmental protection.

RTB Sunshade 2011
September 23 – 25, 2011, China Import & Export Pazhou Complex
www.rtbgz.com

Low-Carbon Fair 2011
November 3 – 5, 2011, Guangzhou Jinhan Exhibition Center
www.lowcarbonfair.com

Note: the Consulate General in Guangzhou will participate in this Fair with a CG booth. Detailed exhibition and forum information will be presented to Dutch companies separately with a recommendation.

China International Green Innovative Products & Technologies Show 2011 (CIGIPTS 2011)
November 9 – 11, 2011, China Import & Export Pazhou Complex
www.cigipts.cn

2011 Shenzhen & Hong Kong Bi-City Biennale of Urbanism / Architecture
8 December 2011 – 10 February 2012
www.szhkbiennale.org