The 23rd EAROPH World Congress Successfully Held in Daegu

The 23rd EAROPH World Congress was held under the theme of “Green City for Human Betterment” jointly by KRIHS and Daegu City from October 17 to 19, 2012. The Eastern Regional Organization for Planning and Human Settlements (EAROPH) is a non-governmental, multi-sectoral organization encompassing the private, public, and academic sectors. It was established in 1956 in India, officially inaugurated in 1960, and gained its NGO status from the UN through its parent organization, the International Federation for Housing and Planning (IFHP).

During the 23rd EAROPH World Congress keynote addresses on the green city development were delivered by leading international experts. Furthermore, key lessons and more than 80 presentations regarding urban planning, transportation, housing, industry and economy, governance, and so on were given. At the Mayors’ reception, eight mayors from the participating countries shared ideas and information on urban development. Youth Leaders’ Forum was held for the first time to foster a broad understanding of human lives as well as social, cultural, and environmental issues.

It is noted that KRIHS President Park Yang-ho was elected to be the next EAROPH President leading the organization for the next two years. The 45th EAROPH Regional Congress will be held in Malaysia next year.
Keynote Address

Korea’s Green Growth Initiatives and Green Cities

Dr. Yang Soo-gil, Chairman of Korea’s Presidential Committee on Green Growth, started his keynote address by defining the term, ‘Green Growth,’ citing South Korean President Lee Myung-bak. Since Green Growth Development initiatives in Korea began in 2008, green industries have emerged as a new growth engine, strengthening the nation’s capacity to adopt to climate change. He introduced Korea’s National Climate Change Adaptation Plans and International Green Growth Initiatives with latest outcomes such as the establishment of GGGI (Global Green Growth Institute).

Rethinking Cities - Enabling Green Growth for All

Ms. Abha Joshi-Ghani, WBI Director at the World Bank, raised green city issues by emphasizing the preparation for the benefits of economic growth, minimizing congestion, crime, informality, and slums rather than just urbanization.

Getting urban design and planning right has never been more essential when one considers the threats of climate change and the need for livable, healthy cities. Urban areas are the fastest growing source of greenhouse gas (GHG) emissions. Thus, carbon finance becomes critical for cities to undertake specific GHG mitigation activities.

A Nation’s Many Approaches to Going Green and Measuring Its Performance: Malaysia’s Low Carbon Cities Framework

Ms. Khairiah Talha, EAROPH Honorary President, presented Malaysia’s position in global carbon emissions, commitment, and related policies. She placed emphasis on the Low Carbon Cities Framework and Assessment System (LCCFAS) with the objective of guiding government agencies, private developers for lower carbon emissions. The LCCFAS provides users with a tool to measure carbon emission resulting from urban activities. It brings for a balance in urban actions, optimizing land for development by protecting land for environmental purpose.

Oral Presentation

The presentations addressed the following seven sub-themes under the main theme of “Green City for Human Betterment”: Strategies for Carving Out Green City; Green Housing focusing on Public Convenience, Safety, and Stability; Green Transportation Considering Users and Urban Environment; Green Industry and Economy for Sustainable Growth; Regeneration Strategy for Central Areas of the Secondary Cities; Governance System Designed to Realize Happy Green Cities; Experience in Realizing Green City in the Asian-Pacific Rim.

Experts from different countries delivered 79 research results and shared their up-to-date knowledge, information, and international experiences with decision-makers, practitioners, and researchers.
Other Events

Youth Leaders’ Forum

Youth Leaders’ Forum was held for the first time during the period to foster a broad understanding of human lives and consider critical social, cultural, and environmental issues among youths. Three teams were awarded for the posters at the Congress. The posters regarding strategies for carving out green city, housing, transportation, industry and economy, regeneration, and governance were presented in advance.

Mayors’ Reception

The Mayors’ Reception, which was held on the first day of the congress, enabled mayors to share their ideas and experiences with other cities as well as discover best solutions for urban planning and environmental solutions for human betterment. The Mayors’ Reception consisted of short presentations and discussions on the experiences in conducting urban green growth policies and case studies of new development related to sustainable urban planning.

Technical Tour

Technical tour programs were provided for the participants, which gave them opportunities to experience the Korean traditional culture and carry out onsite visits regarding the green urban development in Korea. They toured the city of Daegu and the Hahoe Folk Village. The village is a traditional one from the Joseon Dynasty (1392-1910) and was designated as the UNESCO’s World Heritage site.

WB-KRIHS UKP South Asian Regional Workshop

The Urbanization Knowledge Platform (UKP) was established in March, 2011, by the World Bank (WB) to cope with the problems caused by rapid urbanization worldwide. The UKP has the purpose of providing proper direction on the urbanization of the cities in developing countries. It aims to share knowledge with urban planners, government officers, scholars, private companies, and so on.

The WB-KRIHS UKP South Asian Regional Workshop was held from October 16 to 18 to explore practical urban policy directions. On October 16, 2012, UKP South Asian Regional Workshop participants had a special discussion of “The South Asia Urbanization Flagship” at KRIHS in Anyang, which was moderated by Ming Zhang, SAR Sector Manager of WB. The next day, they joined the 23rd EAROPH World Congress and continued their discussions. WB Senior specialists, including Raghu Kesavan and Zahed Khan, professors, researchers, and experts actively participated in the discussions and shared their views on urbanization.

As part of active collaboration, KRIHS and the WB are making continuous efforts on sharing knowledge of urbanization through UKP. The WB-KRIHS UKP South Asian Regional Workshop, which is the first international workshop held through the “UKP Academy,” is designed to present and discuss practical options to foster green urban development.

The presentation materials as well as photos taken during the 23rd EAROPH World Congress are available at www.earoph2012.or.kr.

From Left to Right: Huh Jae-yeong, Former Minister of Construction; Park Yang-ho, KRIHS President; Abha Joshi-Ghani, WBI Director, WB; Kim Bum-il, Mayor of Daegu Metropolitan City; You Byeong-kwon, Deputy Minister of the MLTM

UKP South Asian Regional Workshop participants
National territorial foresight enables us to describe foresight targets in each region; foresee trends in dwellings, transportation, land use, and spatial structures; suggest ideas for the future in each of these areas; and describe the policy challenges after compiling data from each region.

The ultimate aim of this effort is to create a desirable future for each region. Through the regional foresight, it is possible to overcome the limitations of regional development, which have focused on quantitative growth and hardware. Such efforts have been pursued in existing regional plans and policies, and are intended to present future images that center on people and living conditions. Such measures will change according to globalization, climate change, stable growth, diversification, scientific and technical developments, and so on. Accordingly, the future images of each region as suggested are expected to be used in conjunction with the issues, challenges, and future images when establishing regional policies and plans.

Framework for Regional Foresight

The target of foreseeing futures of various regions was selected by considering the influence of megatrends and economic integration on the Korean Peninsula, the results from foreseeing the national territory in each field of interest, and national territory policies. Regional foresight includes highlighting differences between regions to create images that share important information about distribution and behavior (patterns) in each region and to provide an image related to change expected to occur in a specific region. The national territorial foresight research was carried out regarding the seven regions in Korea, which are the capital, Chungcheong, Honam, Daegyeong, Dongnam, Gangwon and Jeju regions. This article covers the capital regions. The latter six regions will be discussed in the next issue.

Futures of the Capital Region

Upgrading the existing housing specifications and supplying small-scale housing in suburbs

The capital area will be responsible for approximately 55% of the total national population by 2030. It is expected, therefore, that the demand for housing in this region will remain at its present level or increase. This is the case despite the real estate recession and a reduction in the population’s predominant age groups (35~54 years old) which purchases houses. In particular, a sudden increase in the number of one-person households is expected; thus, the number of small-sized houses will increase significantly around nodal regions of public transportation.

Upgrading housing specifications by regenerating existing houses (i.e. remodeling and repairing) will help the dwelling maintain their functions, and the price of housing. Furthermore, new houses will be developed in various forms such as small-scale houses, detached houses, and town-houses in the
suburbs. This model features an excellent natural environment and better access to the second outer ring road IC, metropolitan subway, the Great Train Express (GTX) station, and so on.

Diversifying Housing Types According to Income and Nationality

The housing types in the capital region will diversify further as people pursue happiness, a high-quality life, and diversified values. The number of country houses and vacation houses will increase and multi-region residences will be generalized along waterfronts, the mountain area, and existing rural villages. Gated communities favored by the high-income bracket will also increase, and the middle- and low-income classes will likely select the nodal regions surrounding transportation. Such areas are located outside of the city with relatively less expensive housing prices but long commuting hours.

Based on the number of foreigners who stay in the capital region due to a great number of jobs, more special residential areas will be developed depending on foreigners’ occupational category and nationality.

Consolidating International Business and Financial Functions

Additional locations for multi-national companies and international financial companies will be available in the capital region. This will be driven by expanding FTA and reinforcing economic block in Northeast Asia, including China. Thus, the capital region will emerge as an international test market for new products and cultural consumption. Accordingly, some places that are focused on international finance and service such as Yongsan, Yeouido, Sangam, Magok, and Songdo are expected to be increasingly active. This will reinforce the capital area’s position as a global metropolitan area.

Integrating Knowledge-based Industries and Increasing Cutting-edge, Compounded-type Industrial Space

It is expected that the area in which knowledge-based industries have accumulated will be multipolarized to Sungnam, Anyang, Suwon, Pajoo, Goyang, and so on. This trend will be driven by the phenomenon that knowledge-based manufacturing R&D and knowledge-based service industries are increasingly concentrated in the capital region Guro-Gu, Geumcheon-Gu, and Gangseo-Gu in Seoul, and the semi-industrial district and industrial complex near Seoul will evolve into high-tech industrial space in which work, industry, and residential spaces are mixed. The existing site used for public agencies, which moved to Sejong City and innovation city, are used as the central location for knowledge-based industries and services, the global competitiveness of such industries in the capital region will increase further.

Easing Traffic Jams during Commuting Hours, and Changing the Peak Time Zone

The whole region of the capital region has been urbanized and direct connections between hub cities have been emphasized. It is expected, therefore, that circular grid-type arterial traffic networks, including main roads and railroads, will be constructed in the capital region. With this infrastructure, it is expected that traffic jams in the capital region will be alleviated with the expansion of high-tech public transportation; an increase in work-from-home jobs; and the transfer of public agencies to the provinces. With increased social participation by women and flexible working hours, the peak traffic time zone in the capital region is expected to change to AM 10:00 and PM 4:00 when children are taken and come home from school.

Activating Urban Agriculture, Tourism, and Waterfront Space

As the importance of environmentally friendly living and safe food has increased significantly, it is expected that various types of urban agriculture such as vertical farming, agricultural parks, and weekend farms will be vitalized, and the number of urban farmers will increase. Furthermore, urban tourism will be vitalized in the capital region, including Seoul. This trend will be driven by the Korean Wave, including K-POP; historical and cultural resources; and high-rise complex buildings, among other factors. Additionally, the number of people who use waterfront space around the South and North Han River for activities will increase significantly. The five islands on the West Coast and Gyeonggi Bay will be used actively as space for marine leisure and sports such as yachting.
Vitalizing Boundary Areas and Connecting the Axis of South and North Korea

As the exchange of people and material resources and economic cooperation becomes more active between South and North Korea, the region north from the capital region will be vitalized. In particular, the gate area, which includes Pajoo and Kanghwa and is passed by the transportation network connecting the South and North, will be a center for exchange and cooperation between the two Koreas. As the number of North Koreans who live in the capital region increases, industrial space, residential areas, and small-scale plants will expand in the region north from the capital region. The axes connecting South and North Korea, including Seoul-Pajoo-Gaesung axis which is focused on industry and tourism, and the Incheon-Kanghwa-Gaesung axis which is focused on distribution and tourism, will be created.

Hyper-connecting Metropolitan Areas

The capital region will be developed as a supra-region including the West Gangwon and Chuncheong areas. Furthermore, a wide-area subway will be constructed, the Korea Train Express.
Express (KTX) will operate, and functional connections between regions will be reinforced, among other initiatives. As the boundary area is vitalized, and the new axis connecting South and North Korea is created, the capital area will expand northward to Gaesung and Haejoo. With the Internet, smartphones, and high-speed transportation, the capital area is hyper-connected with each region across the entire country, both functionally and for information sharing. As such, the boundaries between the capital and non-capital regions will continue to be blurred in daily life.

**Future Images of the National Territory**

The future images of the national territory suggested here are the result of combining information regarding futures of the national territory.

The future images of the national territory can be summarized as diversification of residential types, advanced industries, advanced modes of transportation, and improved accessibility. It also features, enhanced use of the region’s mountains and sea; selective vitalization of rural and urban areas; creation of a new urban area and national territory axis; and reinforcement of economic blocks in the Korean Peninsula and Northeast Asia.

The key value of these future images of the national territory can be described as balance, competitiveness, green growth, and integration. The factor that has a negative influence on creating a balanced national territory- the most important future image- is the gap between regions. Indeed, the gap between regions is a factor that makes futures of the national territory dark. In addition, other factors make it difficult to envision future images of the national territory. These factors include various policies and a focus on quantitative growth, climate change, insufficient resources, and so on.

**Policy Issues**

*Policy challenge and Focus*

Policy issues aim to create future images of the national territory. The obstacles and policy foci that must be surmounted and resolved to create the future images of the national territory are described below.

First, each region must cope with changes in conditions actively, because the demand for using the national territory has both decreased and become more diverse at the same time. Second, it is important to maintain a balance in using the national territory. This is because the reduced demand to use the national territory, which shows difference between regions, might deepen the imbalance in using the territory. Third, it is imperative to prepare for the increased risk of natural disasters and an increase in energy and food prices driven by climate change. Finally, it is imperative to prepare for economic integration on the Korean Peninsula. Such negative factors and policy foci can be overcome and materialized by promoting the policy for futures of the national territory.

**Policy Agenda**

The future policy agenda that should be promoted to create the future images of the national territory is as follows:

First, the policy for the national territory centered on soft power should be promoted. Such an approach should create multifaceted and stable growth for the national territory; enhance the control of using the national territory through regeneration rather than new development; form additional spaces for all generations and cultures; secure high-quality foreign workers; lead Koreans living overseas to turn to Korea; and reinforce development that is well-suited for each region. Second, balanced development should be interpreted with flexibility and in various ways for multi-level and balanced development. We should reinforce the national territory policy centered on space; supply minimum services; ease the gap in using the national territory between regions, classes, and generations; and transfer the authority of promoting regional policies and development projects to the provinces. Third, to create a strong region that can withstand natural disaster and cope with climate change, spatial structure should be reorganized to save energy, secure minimum land for food security, and develop a high-tech green system related to the use of the national territory. Fourth, to facilitate a socially and spatially symbiotic relationship between South Koreans and North Koreans who stay in South Korea, we must prepare for economic integration on the Korean Peninsula, and vitalize the boundary and coastal areas.

*Lee Yong-woo (ywlee@krihs.re.kr)*
Over the last 50 years, industrial complexes have been playing important roles in remarkable economic growth in Korea. Starting with the development of the Ulsan Industrial Complex in 1962 and the Korea Export Industry Complex in Guro-dong, Seoul in 1964, Korea has been promoting a wide range of industrial complex development policies according to various economic growth and industrial advancement phases.

In the 1960s and the 1970s, industrial complexes for promoting export and large-scale coastal industrial complexes were developed to foster the heavy chemicals industry. In the 1980s, regional industrial complexes and agricultural industrial complexes were developed to promote balanced national development through advancing local industries. In the 1990s, developing diverse industrial complexes, including one devoted to high-tech industries, was promoted in line with Korea’s new industrial policies. In the 2000s, industrial complex development to foster specific industries, such as the cultural and IT industries, and development of an urban high-tech industrial complex to supply small-scale industrial complexes to urban centers was promoted.

Current Status of Industrial Complexes in Korea

A total of 949 industrial complexes have been supplied over the last 50 years. Furthermore, as of the end of December 2011, the total area designated for industrial complex reached 1,343,221km²; the number of companies located in industrial complexes amounted to 70,848; the number of employees working in industrial complexes was 1,687,486; the amount of production was KRW 721,861.8 billion, and the amount of export was USD 299,581 million. Of the nationwide industrial complexes, the decrepit ones aged 20 years or more account for 31% and 60.5% in terms of the count and the designated area respectively.

Decrepit industrial complexes have inferior production environment due to an absolute shortage of infrastructures, such as roads, parking lots and green parks. In addition, the width of entrances to these industrial complexes is narrow and therefore the roads become very congested during commuting hours when traffic volume is very high. This situation also lowers the competitiveness of the industrial complexes. Moreover, an increasing demand has surfaced recently for environmental improvement to create jobs for the younger generation by improving environmental facilities in plants and building eco-industrial parks in industrial complexes. At the same time, due to an increased rate of women participating in economic activities and an emphasis being placed on the convenience of living, the demand for cultural and welfare facilities within industrial complexes has been rising. With the advent of an era of low economic growth and advancement of industrial structures, establishing new industrial complexes will decrease and the demand for improved production and living environments in the existing industrial complexes will increase. This will result in the greater need to regenerate decrepit industrial complexes.

Need to Regenerate Industrial Complexes

Regenerating existing industrial complexes is necessary because industrial complexes serve important roles in the national and regional economy. To continuously maintain the roles of industrial complexes, regeneration projects must be promoted. In addition, regeneration is necessary to respond to changes in the industrial environments caused by technological innovation and reorganized industrial production system. Moreover, regenerating industrial complexes is necessary in order to increase competitiveness by improving the production and site environments and to promote efficient land use befitting the expensive land. Indeed, the price of industrial complex sites has been increasing. In particular, physical and human networks are already established in decrepit industrial complexes. Therefore, projects to
Regenerate industrial complexes are also necessary in order to continuously maintain and strengthen the networks.

**Regeneration through Industrial Complex Diagnosis**

To increase the competitiveness of decrepit industrial complexes, regeneration must be promoted as a customized project by diagnosing each industrial complex. Industrial complex diagnosis is undertaken to investigate and assess the current situations and states of industrial complexes by examining, analyzing, inspecting and comparing the current status or characteristics of each industrial complex. Promoting a customized project by identifying the extent to which the complex has aged and related issues through industrial complex diagnosis and deriving politic tasks from the results can lead to budget-savings and enhanced satisfaction with the regeneration.

The most important criteria for promoting an industrial complex regeneration are land price and business feasibility. Based on its business feasibility, a regeneration project can be promoted as a public-driven project, a private-driven project or a public-private partnership. A project that is feasible or implemented based on a company’s desires, such as improving production facilities, is promoted as a private-driven project. A project that has both development potential and risks is promoted as a public-private partnership with participation by the private sector based on public support. A public-driven project is one with two characteristics. First, it is not under development pressure from the industrial complex in an area subject to strict regulations. Second, it is not in an area in which there are limitations for implementing a regeneration project without public intervention due to high density, low land price and high preparation cost.

**Industrial Complex Regeneration Methods**

Industrial complex regeneration projects are promoted in the methods of a full-on development, a block-unit development, or a specific facility construction. Full-on development is a method to implement a project targeting the entire industrial complex, whereas block-unit development is designed to divide an industrial complex into several blocks and promote each project separately. This latter method is considered circulatory development by stages. The specific facility construction occurs when a public or a private

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**Table 1: Objectives and Key Tasks by Diagnosis Index**

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<thead>
<tr>
<th>Index</th>
<th>Objective</th>
<th>Key Task</th>
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<tbody>
<tr>
<td>Physical Index</td>
<td>Improve infrastructure and working conditions</td>
<td>Promote improvement of old buildings and infrastructures</td>
</tr>
<tr>
<td>Productive Index</td>
<td>Improve production activities</td>
<td>Promote continuous increase of productivity by activating production</td>
</tr>
<tr>
<td>Environmental Index</td>
<td>Improve sustainability and the quality of the environment</td>
<td>Promote projects to solve environmental issues and establish sustainable industrial complexes</td>
</tr>
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sector individually builds the specific facilities needed to increase the competitiveness of an industrial complex.

**Future Directions**

Regarding expected benefits, an industrial complex regeneration will have positive effects on activating the local economy and improving national competitiveness. It does so by increasing employment and the wage levels of manufacturing businesses, increasing the purchase of raw and supplementary materials through increasing the number of businesses starting up and, as a result, increasing tax revenues.

The following elements must be considered to promote an industrial complex regeneration project efficiently. First, an industrial complex must be regenerated as a space for restructuring high value-added industries such as knowledge industry. Through this process, traditional low value-added manufacturing areas must be developed into new high value-added industry clusters. Second, an industrial complex regeneration must be promoted in line with the leading strategic industry development plans of the corresponding area and the long-term development direction of the city. Third, the central and local governments’ active support and willingness to implement the project are essential in order to provide incentives such as adjusting the building-to-land ratio.
money for a public-private joint fund; and supporting improved infrastructure within the complex. At the same time, to increase the rate at which companies reestablish after an industrial complex regeneration project is complete, publicly led rental apartment type factory construction must be carried out in advance. In this way, the space can be used as temporary worksites. In addition, various supporting policies for relocation costs and rentals must be established.

Chang Cheol-soon (csjang@krihs.re.kr)

Building a Disaster Resilient City Responding to Climate Change

Sim Ou-bae, Research Fellow

Climate change is progressing worldwide, and disasters are becoming larger and gradually more diversified due to extreme meteorological changes. In urban areas, more damages are caused as a result of climate change, including increases in the impermeable areas and the use of underground spaces stemming from urbanization. In Seoul, Korea, on September 21, 2010, many houses were flooded because of localized torrential downpours exceeding the designed capacity of urban drainage facilities centered on the Seoul Metropolitan Area, which includes Seoul. The primary cause of the flood damage was the localized torrential downpours exceeding the sewage duct design capacity. However, another main cause was the insufficient permeating and retaining system for rain water, caused by most surface-paved impermeable areas.

Advanced foreign countries have recognized early the importance of climate change responses from the city perspectives; thus, they respond through integrated spatial plans (i.e., urban planning). Urban planning encompasses various sectors’ plans, including spatial structure, land use, infrastructure, and parks and green zones, making an integrated response possible. For a city to respond to various disasters resulting from climate change (e.g., flood, drought, heat wave, heavy snow, strong winds, and rising sea level) in an integrated manner, it is important to develop effective urban planning approaches. Therefore, the deduction of planning factors and the devising of application means are necessary.

Urban Planning Factors of Integrated Response to Disasters

In terms of the urban planning factors of integrated response to disasters arising from climate change, we reviewed and deducted the factors helpful to adapting to and easing the effects of global climate change.
change (i.e., environmental factors, including green zones), together with disaster-prevention factors (i.e., climate change application aspects) by examining current urban planning-relevant guidelines, foreign cases, and relevant plans and systems. The planning factors were deducted by using planning domains, such as spatial structures, land uses, infrastructures, complex shaping, and building. Excessively conceptual factors and non-physical factors were excluded by collecting experts’ opinions. We also searched for and presented non-structural planning factors, such as a city’s spatial structure and land use, in conjunction with traditional disaster-prevention measures (i.e., structural measures), focusing on more actively responding to disasters caused by climate change.

The planning factors for the disaster prevention of existing urban planning are flood damage-centered, which are insufficient in differentiating between upper and lower level plans. However, this study has examined planning factors for various disaster types related to climate change (flood, drought, heat wave, heavy snow, strong winds, rising sea level) and presents the application means of the planning factors through differentiation by considering the spatial scope of upper and lower level plans.

**Prevention Measures against Floods**

To respond to torrential downpours, which have recently developed into large-scale disasters due to climate change, there is a need to devise multiple-tiered flood defense systems by simultaneously implementing flood prevention measures via land use and building dimensions as well as structural disaster prevention facilities such as embankments, sewers, and pumping plants.

From a land use aspect, regularly flooded and expected flooded areas—not urbanization promotion areas—should be controlled in terms of development, if possible, and be designated as a preservation system zoning area. These areas also need to be used for rain water retention functions in the case of floods as well as for leisure space in everyday use by building a buffer zone with a certain section around river. By actively linking disaster-prone areas like regularly flooded areas with urbanization promotion areas (urban reorganization, redevelopment, reconstruction), the areas can be used to resolve disaster risks. For example, for banks around low-lying land area surrounding rivers, the height of the ground can be raised using the mounding method.

From an infrastructure perspective, methods to upgrade the design capacity of rivers, sewers, drainage facilities, and erosion control facilities in line with long-term climate change conditions should be preferentially considered. Simultaneously developing dispersed rain water outflow control systems, Such as LID⁵ and SUDS⁶, can help disperse risks by reducing excessive dependence on traditional water disaster-prevention facilities. In particular, the retention and permeability functions of parks, green zones, public open spaces, and transportation facilities need to be carried out simultaneously with their original functions, making those functions part of the dispersed flood defense systems in order to serve a fundamental function in terms of disaster prevention.

From a building perspective, the piloti construction, centered on flood-risk areas, should be actively adopted, and measures to control the use of living areas under the flood level need to be devised. In addition, water-resistant measures need to be
consolidated, including the use of safe materials against floods.

**Prevention Measures against Drought**

Meanwhile, to respond to drought caused by climate change, various measures ranging from demand control (e.g., efficiency enhancement of existing waterworks and saving water) to active measures (e.g., securing new water resources through the desalination of seawater) are required. From an urban planning perspective, the consolidation of water protection and rain water pumping plant functions, centered on rain water retention and permeation facilities, and the recycling of rain water and wastewater are important. From a land use perspective, it is important to play a water protection role by designating catchment areas upstream and large-scale green zones as preservation system zoning areas.

From an infrastructure perspective, the expansion of mid- and large-sized dams and rain water pumping plants area should be considered; it is important to build a dispersed rain water control system through the installation of retention and permeation facilities. Regarding parks, green zones, and open public spaces that play an important role in rain water control, the increased use of water-saving trees, which remain strong during droughts, and special pavement on road surfaces should be used.

From the building perspective, wastewater reclamation and reuse systems should recycle wastewater and rain water from individual households by collecting and purifying the wastewater and rain water for used as landscaping water should be activated.

**Prevention Measures against Heat Waves**

Urban planning responses to cope with heat waves include the establishment of natural climate circulation systems through proper land use, considering natural locations and topographic conditions, building placement, and the minimization of pavement surface by expanding green zones. In addition, the establishment of a stable power supply system for use during emergencies and a protection system for elderly people are needed.

From a land use perspective, the management of zoning deployment and density in the consideration of wind ways as well as the preservation of green zones and rivers important to natural climate circulation systems can be used as strategic bases for urban climate management. For heat island areas in a city, a comprehensive land use management measure needs to be applied, such as the securing of green zones, land cover control including pavement surface, the resolving of stagnant wind sections, and building management including high rise buildings.

From an infrastructure perspective, it is important to expand green spaces including parks/green zones, public open spaces, rivers, and lakes. In particular, rivers need to avoid being covered, and existing covered rivers should be restored to contribute to urban ecology restorations and city temperature decline. For road networks, the wind way should be able to be secured through increased street-level trees and the density control of surrounding buildings. In addition, the solar heat absorption ratio needs to be reduced by expanding permeability and insulation pavement. To cope with emergencies during peak times for power demands in summer, a backup power supply system should be built. Shelters equipped with a cooling center function, centered on the areas

![Figure 2: Example of Applying Planning Factors to Reduce Drought Damage](image)

1) Low Impact Development
2) Sustainable Urban Drainage System
where many elderly people and weak people live, should also be designated and acquired.

From a building perspective, technology development for energy and temperature control is the most active field. The wind ways should be considered in terms of building placement and density, and a cooling system using roof and wall afforestation, buildings’ insulation improvement, passive ventilation systems, and rain water and building energy management systems using cutting-edge technology should be actively adopted.

**Prevention Measures against Heavy Snows**

Although a cold wave and heavy snows in the winter can cause significant damage, including traffic congestion and the collapse of facilities such as green houses, not many measures are available for coping with them from a urban planning aspect, except for an emergency response system including snow removal equipment. Therefore, some factors applicable to transportation facilities, residential complexes, and buildings can be eliminated.

The most directly affected infrastructure domain during heavy snow is traffic congestion. The measures to expand snow removal equipment, centered on hilly roads that are particularly susceptible to heavy snow, and install ice-formation prevention systems using river water, underground water, and waste heat on the road surface should be reviewed. The development of steep slope areas should be controlled, and stability should be secured through transportation routes by adjusting and separating buildings in risky areas at the lower end. For already developed areas, snow fences or multipurpose interruption green zones should be installed to cope with landslides including avalanches.

From a building perspective, the factors of building placement and roof slope are important; thus, the structure and slope of the roof needs to be designed to withstand snow loads. The placement of green houses and a temporary building should use a separated single building or green house rather than a connected one so as to reduce the risk of collapse from snow load.

**Prevention Measures against Winds**

Concerning gale-force winds, individual wind-resistant design standards including windbreak shaping, transportation facilities, and buildings should be in operation. From an urban planning perspective, various planning factors and application techniques need to be developed. Regarding the shaping of important wind ways and measures against strong winds in relation to climate change, they mutually conflict; thus, priority by regional type should be established or a solution presented in...
From a land use perspective, development in large-scale open areas susceptible to damages by gale-force winds due to topographic conditions should be minimized.

From an infrastructure perspective, windbreaks should be formed in the areas where risk is high, including coastal areas, in order to contribute to natural air circulation and temperature control in cities in addition to creating countermeasures to gale-force winds. By forming breakwind and mounding in parks, green zones, and public open areas, wind ways can be secured as buffer zones against gale-force winds. In shaping windbreaks, street-level trees, and complexes, deep-rooted trees need to be planted to withstand the winds and minimize secondary damage from fallen trees. From a building perspective, structures need to be built that can withstand such winds, and wind ways and risk solutions should be considered in terms of building placement and height plan, including high-rise buildings. Preventing signboards and auxiliary facilities from being detached from buildings by wind also needs to be considered.

Prevention Measures against Rising Sea Levels

Finally, rising sea levels due to climate change will increase the risk for abnormal sea level rises and tsunamis; thus, attention needs to be focused on disaster prevention in coastal areas in a similar way as flood-risk areas in inland areas. This requires not only upgrading the design size of tide-prevention facilities, but also implementing measures related to land use and building dimension. In this way, multiple-tiered measures of seawater flood defense systems should be conducted, according to the rise in sea level.

From a land use perspective, the development of a lowland area with flood risk, not an urbanization promotion area, and flood-prediction areas should be controlled. In addition, the zoning area of a preservation system should be designated; it is important to use a certain section for a buffer zone in coastal areas for a retention function and leisure space during non-emergency times by setting up a buffer zone. Actively linking tsunami risk to the reorganization of urbanization promotion areas (urban reorganization, redevelopment, reconstruction) can help minimize disaster risk. There is a means to elevate ground height by shaping super embankments in relation with the urbanization area in low-lying areas. Meanwhile, permanent and fundamental damage prevention should be carried out by implementing land purchases and migration measures with regard to areas where repeated flood damages occur.

From an infrastructure perspective, measures to upgrade the design capacity of tide prevention facilities in line with long-term climate change and rises in sea level are preferred. However, there are some limitations in coping with abnormal sea level rises and large-scale tsunamis through just design capacity upgrades of tide prevention facilities. Therefore, it is necessary to build a secondary defense line in urbanization areas. Actually, parks, green zones, public open spaces, and traffic facilities should function as disaster-prevention facilities to cope with seawater floods in addition to their own functions. From a building perspective, piloti building needs to be actively introduced, centered on seawater inundation risk areas, and a measure to control the use of living areas under the inundation level should be devised. For the building structural issues, materials that can withstand waves and salt need to be used.

Sim Ou-bae (obsim@krihs.re.kr)
The Korea Research Institute for Human Settlements (KRIHS) visited the World Bank (WB) headquarters as part of the WB-KRIHS joint annual workshop. On September 12, 2012, under the theme of “Peer-to-Peer Knowledge Sharing in Urban Development,” the workshop featured three sessions exploring sustainable urban development, land and housing, and cutting edge developments. Each session explored practical urban policy options to foster smart, inclusive, and sustainable cities, focusing on specific Korean case studies and best practices.

Furthermore, KRIHS President Park Yang-ho and World Bank Institute (WBI) Vice President Sanjay Pradhan met to build medium- and long-term partnerships in the field of education on September 13, 2012. The education issues discussed include joint workshops, training programs as well as staff and information exchanges, especially e-learning projects.

**KRIHS and the IDB Sign MOU to Enhance Collaboration**

On September 13, 2012, a ceremony for signing an MOU between KRIHS and the Inter-American Development Bank (IDB) was held in the IDB Building. The MOU signed by KRIHS president and IDB Manager Ana Maria Rodriguez Ortiz will allow both sides to undertake joint research and technical assistance programs as well as enhance the relationship.

Following the ceremony, KRIHS and IDB officials met to discuss how to implement the action plans, especially on educational training and technical assistance. Going forward, the IDB and KRIHS will strengthen the collaboration especially in the area of information and communication technology and its applications for urban development activities.

**2012 KSP-IDB Joint Activities for Sustainable Emerging Cities Initiatives**

The IDB, KRIHS, and Knowledge Sharing Program (KSP) consultancy team conducted on-site meetings in Goiania, Brazil, and Montevideo, Uruguay, from August 3 to 20, 2012 to identify the municipalities’ priorities and functional requirements by discussing ideas with municipal government officials related to Integrated Operation Control Center (IOCC). The IOCC in Goiania will focus on transit and criminal and disaster prevention while the IOCC in Montevideo will focus on transit and public transportation.

The meetings aimed to present IOCC’s purpose, system functions and Korea’s best practices, understand cities’ current status and related issues of each sub-system, and define the priorities and IOCC functional requirements of each system. The meetings provided good opportunities to share information on the IOCC. Participants also went on site visits in Goiania and Montevideo.
KRIHS and the GWU Strengthen Ties

On September 13, 2012, the George Washington University (GWU) Provost Steven Lerman and KRIHS President Park Yang-ho signed an MOU to collaborate on mutually beneficial research and teaching activities focusing on sustainable urban development. Their ties were recently strengthened through the formation of a partnership with GWU’s College of Professional Studies Sustainable Urban Planning Program. More than 100 people from GWU and KRIHS celebrated the ceremony for the strong partnership between the two organizations.

GDPC Provides Consulting on the Andhra Pradesh Municipal Development Project

On August 1, 2012, the Global Development Partnership Center (GDPC) held a business meeting with Dr. Bhaskar Katamneni, Program Director of the Andhra Pradesh Municipal Development Project (APMDP), to discuss concrete measures and necessary steps for the project as well as check on current progress of the project. The project seeks to establish the National Institute of Urban Management (NIUM) in Hyderabad in Andhra Pradesh, India. KRIHS was requested to provide consulting services for the project. In the meeting, key topics for the plans for the NIUM consultation process were selected and dates for dispatching KRIHS experts to the project site Hyderabad and inviting relevant officials from the Andhra Pradesh government were set up. Participants also discussed the possibility of tapping additional projects, such as establishing a master plan for the Andhra Pradesh state with the concept of a smart city. Both parties agreed to work on personnel exchanges within this year.

GDPC Hosts a Training Program on AMC-KRIHS Real Estate

The GDPC hosted the Real Estate and Housing Policy Training Program for 22 Vietnamese government officials from the Academy of Managers for Construction and Cities (AMC), from August 20 to August 31, 2012. The program aimed to promote a better understanding of the characteristics of housing and real estate development policies of Korea and strengthen the network between Korea and Vietnam.

UAE Visits to Learn Korea’s Achievements on Territorial Development and Smart Government

KRIHS and the Korea Development Institute (KDI) hosted a joint seminar of UAE’s Knowledge Tour: Korea’s Achievements on Territorial Development and Smart Government on September 10, 2012. Moderated by Dr. Jo Chun-man, the seminar dealt with mutual cooperation on national territory, consisting of four presentations in each session: Application Systems of Korea’s NGIS presented by Mr. Lee Dong-jae, Samsung SDS; Introduction of MLTM Smart City Projects delivered by Dr. Jo Chun-man, KRIHS; National and town planning...
by Dr. Kim Sung-su, KRIHS; and PJT Evaluation and Management by Professor Jo Woo-seok, Inha University.

In attendance were the UAW government delegation led by Mr. Abdul Hassan, Executive Director of the Municipal Affairs Support of Abu Dhabi, Korea’s relevant government officials including Mr. Song Seok-jun, director of the Ministry of Land, Transportation and Maritime Affairs, Mr. Lee Tae-hee, KDI, and Mr. Han Hun, President of the SPACEN.

The UAE delegation took a special interest in Korea’s spatial information application policies and systems to support the idea of sharing Korea-UAE spatial information, partnerships between the government and private sectors, and the management system of the Sejong City Project. Delegates expressed their gratitude for sharing Korea’s experience in spatial information management and hoped for close cooperation between the two countries in developing the national territory and spatial information sectors.

Advisory Meeting on Development of China’s Central Regions

KRIHS held an advisory seminar titled “Development Outlook for China’s Three Urban Regions in its Central Area” on September 11, 2012. The seminar was attended by experts on China, including Professor Park In-sung, Zhejiang University (ZJU), Dr. Chu Jang-min, the Korea Environment Institute (KEI), and Dr. Seo Jong-won, the Korea Transport Institute (KPTI). Dr. Kim Chun-kyu, KRIHS, delivered a presentation on the rise of China’s central region and urban development plans. The experts who attended the seminar gave their views on the characteristics and future outlooks of the plan and focused on providing further information on urban and industrial development, transportation logistics, and overseas cooperation in the region. Based on this seminar, it is expected that development trends in the three urban regions will be explored from the perspective of the Korean government and its domestic companies.

GISTDA Delegation Visits KRIHS to Enhance Collaboration

The delegation of Thailand Geo-Informatics and Space Technology Development Agency (GISTDA) visited KRIHS on August 28, 2012, for the spatial information technology training course. The GISTDA, the national space agency of Thailand under the Ministry of Science and Technology, is responsible for the country’s geographic information and space-related activities. The delegates were 46 experts including S. Ratanasermpong, vice president of the GISTDA. During the seminar held for the delegation, Dr. Kim Kirl made a presentation on Korea’s National Spatial Data Infrastructure (NSDI) and its application and distribution system. Both institutions agreed to increase exchange programs and strengthen cooperation systems in the field of national territory information.
Global Development Strategies of the KOICA and KRIHS Are Discussed

On August 8, 2012, 26 executives from the public and private sectors were invited to the GDPC’s 11th Forum. Dr. Sakong Ho-sang, GDPC Director, opened the ceremony with his presentation on the “Plan for the Establishment of the Global Development Partnership Academy and Online Support Center.” He introduced the current condition of GDPC’s educational training programs and online services for multilateral development bank (MDB) procurement projects of interest for Korean organizations. Dr. Sakong highlighted the necessity for the GDPC and KRIHS to support Korean private enterprises in the fields of construction and infrastructure to collaborate with overseas countries. In conclusion, he proposed the provision of educational programs that are practical and field-based as well as up-to-date online services in a long-term perspective in developing and emerging countries.

Ms. Lee Youn-soo, Director of the Policy Planning and Coordination Team in the Korea International Cooperation Agency (KOICA), delivered her address entitled “KOICA’s ODA Grant Aid Project and Entry Strategy of Korean Private Enterprises.” Ms. Lee introduced KOICA’s main policy such as budget, Country Partnership Strategy (CPS), and strategy by region, field, cross-cutting issue, and so on. She also explained several cooperative business types, business implementation procedures, PPP, and other opportunities for private enterprises to participate in overseas development projects with the KOICA.

Vietnamese Ambassador Delivered a Speech on Present Conditions and Opportunities in Vietnam

Vietnamese Ambassador to Korea Tran Trong Toan was invited as a special guest speaker and gave a speech on “Present Conditions and Opportunities in Vietnam” at the Ritz-Carlton Hotel on September 5, 2012. Manager of the Network Team at the GDPC, Mr. Park Soon-up, delivered a presentation titled “Introduction to the GDPC’s Overseas Human Network.” Mr. Park introduced the diversity and the number of human networks in which KRIHS and the GDPC involve. The network included overseas officials who participated in either KRIHS’s or GDPC’s training programs and other experts who took part in the institute’s or center’s seminars, consulting and policy advisory programs, and so on. He also introduced 20 institutes with which KRIHS has partnerships through MOU.

After the presentation, the Ambassador discussed “Vietnam’s Present Economic Conditions and Investment Opportunities for Korean Companies.” His speech focused on the following four parts: Vietnam’s economic potential, present state, and future development direction until 2020; Vietnam’s market for construction and government policies; Why do business in Vietnam?; Favorable conditions and opportunities for Korean investors in Vietnam.

During the discussion session, the Ambassador and forum members actively exchanged their ideas on Vietnam’s PPP, current trade status between the two countries as well as major areas for Korean companies to invest in Vietnam.
The 21st Korea-Japan Construction Economy Workshop

From September 25 to 27, 2012, KRIHS, the Construction Economy Research Institute of Korea (CERIK), and Research Institute of Construction and Economy (RICE) of Japan held a joint workshop in Jeonju.

During the workshop, five presentations were given by Yoon Ha-jung, KRIHS on “Prospects for the Korean Economy and Construction Industry”, Korea Bae Yu-jin, KRIHS on “Strengthening the Fairness of Subcontracting Industry”, Sunami Kunitaka, RICE on “The Macroeconomic Outlook and the Construction Industry” and “Japan’s Multilayered Subcontracting Structure in Construction Industry.”

This annual workshop is held every year to share information, and issues on the construction economy through research network and strengthen ties between the organizations. The next workshop will be held in Japan in 2013.

The Second 2012 AURI Architecture and Urban Forum

The Architecture & Urban Research Institute (AURI) held the 2012 Architecture and Urban Forum, entitled “Urban Planning, Shifted from Space toward Human,” in Seoul, on September 12, 2012. It was the second event in a series of three forums taking place from June to November 2012 under the main title of “Urban Paradigm Shift.” Dr. Cho Sang-kyu, AURI made a presentation on the limitation of public intervention and countermeasures in residential reservation projects; Dr. Park So-young, Korea Urban Renaissance Center (KURC), presented on the role of regional society; and Mr. Kim Byung-soo, CEO of E-eum discussed best practices of community activities and policy support.

In the subsequent discussion session which was moderated by Professor Kim Ki-ho, University of Seoul, experts and policy executors discussed the public role of regeneration projects moving in the right direction.