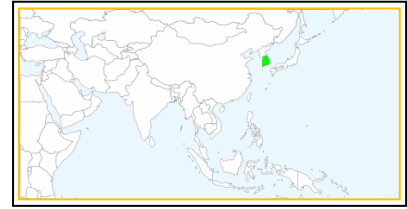


International Green Roof City Network

Case Study Seoul, Republic of Korea



1) City Data

Location

Seoul is located in the central part of Korean peninsular. Seoul city was the newly planned capital city of *Josun* Dynasty (1392-1910) and it is a 600 years old historic city. It was situated according to *Fengsui* theory at the southern slope of major mountain ridge, surrounded by minor eastern and western ridges, and protective mountains and river in the south.

Area

- 605.41 km² overall area
- Numerous smaller suburban cities and towns are located within the greater Seoul Metro area

Population

Seoul's population is 10,528,774. (as of the end of 2011)

Other Information

The climate is characterized by dry cold winter and hot humid summer with concentrated heavy rain during June and July.

2) Description of the local Green Roof Policy Initiative

2.1 Start

Green roof initiatives were taken by some professionals with visions in the field of landscape architecture in 1998. Prof. Byoung-E Yang of Graduate School of Environmental Studies, Seoul National University organized a series of study seminars on green roofs and later he became the founding President of the Korea Green Roof & Infrastructure Association (KoGRIA) in 2003. Cooperating with and encouraged by the seers, Seoul city began green roof program in 2002, which subsidizes half the costs of green roof.

2.2 Expected environmental benefits

- Stormwater management
- Biodiversity
- Urban Heat Island Effect
- Air Quality
- Climate Change
- Energy Savings
- Beautification of the City

Other benefits:

- Added open space, and rest areas

Environmental benefit that is the carrier of the green roof initiative

Primarily supply of more green open spaces and rest areas in a metropolis which lacks open space on the ground.

2.4 Support instruments that are used by the municipality to promote green roofs

- Building, landscape, energy, or other code or policy (e.g. land-use plan, green roof bylaw, zoning code, green factor, design regulations, etc.)
- Reduced storm water fee
- Financial Incentives
- Tax Credits
- Favourable Credit Terms
- Density Bonus
- Demonstration Projects
- Ecological Labels
- Press, Internet
- Education and Information (e.g. seminars, conferences, green roof tours, etc.)
- Research
- Local Green Roof Guidelines
- Consultancy offer for constructors, investors, building owner
- Other instruments

Description of support instruments

Building, landscape, energy, or other code or policy:

Building code requires certain percentage of site (different for different size of sites) for a new building should be landscaped. Part of the landscaped area requirement is allowed to be provided on the green roofs. Because land price is so high in Seoul, this is an economic incentive.

Green Building Policy: Korea Green Building Certification System has been administered jointly by Ministry of Environment and Ministry of Land, Transport and Marine Affairs for over ten years. Certified buildings get tax deduction. Buildings with green roof get additional points for green building certification.

Financial Incentive: Up to 50 % (or up to 70 % for those buildings visible in foreground from the Mt. Nam-San sitting in the center of the city) of costs including structural safety check, design, and construction are supported by the city for private buildings. In 2011, the city supported up to 90,000 Korean Won (approx. US\$ 78) / m² for extensive type green roof, and up to 108,000 Korean Won (approx. US\$ 94) / m² for semi/intensive type green roof.

Press, Internet: The City has web site on green roof program

Education and Information: Consists of free seminars, manuals, reports

- Project tours, targeted presentations and technical seminars
- Green roof website
- Project case studies

Research and Monitoring: Seoul city government and others are conducting research on several topics related to green roofs. (Some reports, written in Korean, are available)

- Habitat and biological communities
- Stormwater quantity and water quality
- Public visits and their activities, and satisfaction

Other Instruments: KoGRIA started nationwide green roof award program in 2010 and more of the Seoul city projects were given awards than any other local government.

3) Number and area of green roofs

Green roof subsidy program of Seoul (2002 – 2010):

	total	2002	2003	2004	2005	2006	2007	2008	2009	2010
Projects (public/ private)	446 (130/208)	11 (0/11)	10 (0/10)	9 (0/9)	6 (0/6)	14 (4/10)	62 (37/25)	106 (42/64)	120 (47/73)	108 (49/59)
Area (m ²)	202,448	5,455	3,322	2,670	3,970	5,611	24,154	59,221	46,971	51,074
subsidies US\$ 1,000	36,173	556	556	278	374	698	4,855	10,706	8,394	9,756

Source: Choi 2011; Seoul city (<http://greencity.seoul.go.kr>) Note: Shown are the projects of Seoul city subsidy program only. There are many more green roofs made without city subsidy, before or during the period.

4) Challenges and future prospects

The economic recession has slowed construction and implementation of green roofs. Some other local governments in Korea follow Seoul city to adopt their own green roof programs. As always, local governments suffer from budget deficits and they may not afford continued subsidy. We need technical improvements till green roof become an obvious save in energy bills.

5) Contact persons

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6) Internet resources

<http://english.seoul.go.kr/policy-information/environment-energy/>

<http://ecoearth.or.kr>

(Korean language)