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# South Korea lights the way on carbon emissions with its £23bn green deal

Seoul's huge financial stimulus package pledges 81% for a swath of environmental projects. But activists fear a wave of construction may increase the country's carbon footprint

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**Jonathan Watts** in Seoul  
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Seoul's vision for a greener future includes changing a million lightbulbs Photograph: Chung Sung-Jun/Getty Images

The secretary for future vision is considering how many South Koreans it takes to change a million lightbulbs. No joke.

Kim Sang-hyo, the president's extravagantly titled right-hand man, is trying to create more than 940,000 green jobs and improve his country's energy efficiency at the same time. Switching every bulb in every public building in South Korea to light-emitting diodes by the end of this year is one, very small, element in the master plan of what has been described as the greenest new deal on the planet.

Since the start of the financial crisis last year, governments across the globe have been talking up the environmental content of their fiscal stimulus programmes and being judged by their efforts to save the planet. US president Barack Obama and the Chinese government have been praised for their ambitious plans to invest in renewable power, clean transport and energy-efficient buildings. Britain, by contrast, has been castigated for the relatively miserly sums it has so far committed to green projects. Alistair Darling's budget tomorrow will be closely scrutinised from the same perspective.

But no matter what the UK promises, it will pale in comparison with the green boasts of South Korea's 50tn won (£23bn) plan. According to an international ranking by the bank HSBC, 81% of the money is earmarked for green projects, easily the highest proportion in the world and vastly more than the 7% share in the UK.

So how will South Korea spend all that money? The first challenge for Kim is co-ordinating how this huge sum - equivalent to 2.6% of GDP - should be doled out. He must face both drooling construction industry conglomerates and suspicious environmental groups while creating jobs and lifting a nosediving economy. Many

Koreans believe the apparently green spending will turn out to be heavily grey.

At his office in the presidential Blue House, Kim says he is tasked with a fundamental restructuring of the South Korean economy and energy structure, which is 97% dependent on expensive imported fuel. "The president realises that now is the time for change," he says.

Over the next four years, the government promises to build a million green homes, improve the energy efficiency of a million more, invest £1.2bn on research into low-carbon technologies and spend £4.8bn on high-speed railways and other forms of "clean" transport.

More than 2,500 miles of bicycle expressways will be built, including a 175-mile stretch alongside the demilitarised zone boundary with North Korea. By 2020, expanded subway, railway and electric car ownership is expected to reduce greenhouse gases from transport by 20%. The forestry sector will employ an extra 50,000 people to increase carbon sink capacity and build the country's first wood pellet fuel mill.

The UN secretary general, Ban Ki-moon, has praised the example set by his homeland. But environmental groups warn the plan is not nearly as green as it seems.

The biggest and most controversial item of expenditure is the "renewal" of four rivers, ostensibly to reduce the risk of drought. The project is likely to mean more dams and concrete embankments. Critics suspect it will be used as a cover to push through the president's widely opposed goal of building a canal through the centre of the country. There are fears too that developers will use the excuse of "ecohome" building to tear up strips of green belt outside Seoul.

Many also question the wisdom of building long-distance cycle paths they think will benefit the cement industry more than the environment.

"This is just old-style fiscal spending with a new label. At the end of this 'green new deal', Korea will definitely be a greyer country," said Oh Sung-kyu, general secretary of the Citizen's Movement for Environmental Justice. "The problem is that in Korea, jobs equals concrete."

With few specific details about how the money will be spent and no estimate of the impact on carbon emissions, environmental auditing of the plan is difficult. Diplomats and local journalists said the true amount of green spending was likely to be far below 81%. In the short term, some suggest, South Korea's carbon footprint could even go up as a result of the burst of construction. But Kim denies these accusations. "Our projects are all related to lowering emissions. They will definitely reduce our carbon emissions."

President Lee Myung-bak may have a long way to go before he can persuade sceptics that he has turned over a green new leaf. Lee is a former head of Hyundai Construction, one of the world's biggest cement pourers. As mayor of Seoul, his best-known "green" project was the development of Cheongye stream, which was uncovered and now runs on a concrete bed, beside concrete walkways and neon-illuminated concrete walls.

Concern for the environment has traditionally been a low priority in South Korea's development, which has long centred on energy-intensive heavy industry. Green groups say the world's 13th biggest economy pours almost twice as much cement as Japan and is three times worse for energy inefficiency.

However, the business-oriented president says the country must turn green to improve its corporate competitiveness. To sell his green growth plans to the nation's conglomerates - known as chaebol - he has stressed that moving early on low-carbon technology will give South Korea a head start over rivals around the world.

Hi-tech companies, such as Samsung, Hyundai and SK, have already begun investing in energy-saving technologies that use their expertise in semi-conductors and information technology.

The government hopes to accelerate the move to green-tech powerhouses by offering incentives and support for research and development. Hyundai and Kia will get financial support to develop electric and hybrid vehicles. South Korea also aims to be the first country in the world to have a "smart national grid" that uses information technology to maximise the efficiency of electricity transmission.

Given the huge sums spent in other areas, the renewable energy spending share of South Korea's green new deal is a disappointingly low £80m, mostly on solar-powered homes, photovoltaic heating and geothermal power sources for apartment blocks. Part of the reason is that the government had previously announced plans to invest 37tn won from 2009 to 2022 on new power plants, including 12 nuclear plants, to improve fuel efficiency and lower emissions.

Government advisers say South Korea's relatively small and crowded land area limits the potential for large-scale wind and solar projects and the rivers have far less hydro-power potential than those in China and the US. But even before the green new deal, engineers had begun work on the world's biggest tidal power plant. When it is finished later this year, the 254MW capacity plant at Siwha will supply the energy equivalent of 862,000 barrels of oil a year. A three times bigger tidal power plant is planned at Ganghwa.

Over the next 20 years, the government says it will invest 110tn won in renewables so that by 2030, they make up 11% of the overall energy mix. While this is far less ambitious than China, Europe or the US, it is a big improvement on the 2.4% share in 2007. Chung Rae-kwon, South Korea's climate change ambassador, said that by June, the government will announce its first target for reducing greenhouse gases: "The green new deal is just the start."

John Ashton, special representative for climate change for the UK Foreign Office, said South Korea was moving fast. "There seems to be growing consensus in Korea that being an early mover in the low carbon transition is good for the Korean economy, and good for Korean manufacturers."

At the Blue House, Kim says South Korea is on the point of embracing green technology with the same fervour that it adopted broadband in the late 1990s.

"By 2020, we'd like to be at least in the top five nations for green technology," says the presidential secretary for future vision. "As a nation, we want to be charming, to get respect from global society, to be seen as more than an economic animal."

"It has been only seven months since the president made the speech calling for low-carbon, green growth, but so much is changing. Everyone is now talking about green things. It may be a strength or a weakness of Korean people, but once we reach a consensus we move very quickly," he said.

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## Key projects:

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### Housing

\$6bn for the construction of 1m green homes, energy efficiency upgrades for a million more, energy conservation improvements in villages and schools, and the installation of LED lighting in public facilities.

### Cars

\$1.8bn to support the development of fuel-efficient vehicles, such as electric and hybrid cars, by automakers

Hyundai and Kia.

### **Trains and bikes**

\$7bn to upgrade the transport infrastructure through the expansion of electrified tracks, new high-speed rail links and the construction of more than 2,500 miles of bicycle paths.

### **Water**

\$11.1bn on river "restoration" and water resource management that will controversially include building dams

and concreting some embankments.

### **Forestry**

\$1.7bn on forestry management,

including tree planting to improve

carbon sink capacity, and new facilities to use wood as biomass energy.

### **Recycling**

\$670m on resource recycling, including rubbish incineration plants that burn methane emissions to generate electricity.

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