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CIVIC PARTY

An Action Agenda for Hong Kong's Green New Deal

March 2009

Civic Party's
Action Agenda
For A Green New Deal

Content

1. Our Vision

1.1 What is a Green New Deal?

The end of 2008 left the global community reeling from multiple crises after the banking crisis helped push the world's economies into recession and further increased food and fuel prices. In response, the UN Environment Programme launched a report calling for a Global Green New Deal[i], an initiative aimed at reviving the economy by creating employment opportunities that will simultaneously tackle our dependency on carbon and minimise the depletion and degradation of our ecosystems and natural resources.

Green New Deal is a phrase that echoes Roosevelt's New Deal of the 1930s. A stimulus package aimed at boosting the US economy during the great depression. The Green New Deal aims to do the same, but in addition to create a sustainable, low carbon, circular economy. According to the World Watch Institute, by creating "green" jobs we will harness the biggest potential for averting climate change, protecting the environment and ensuring individuals decent work and a fair deal for all.[ii]

UNEP STANCE

The UN Environment Programme (UNEP) believes a third of the almost US$2.5 trillion being funnelled into stimulus packages across the world should be invested in "greening" the global economy. UNEP is calling for all high-income OECD countries to devote 1 % of GDP over the next two years to move towards a path of low carbon "green" growth. They are urging all governments to include green economy initiatives that focus on elements of renewable energy, energy efficiency, new smart electricity grids, mass transport and reforestation. They want governments to introduce a mix of strategies (economic policies, investments and incentives) that will immediately stimulate economic growth as well as creating jobs and hopefully lead to a sustainable recovery.

A Green New Deal should address the immediate threats posed by a changing climate, energy insecurity, a global scarcity of freshwater, deteriorating ecosystems and worsening poverty. By reducing carbon dependency and protecting valuable natural capital we will be able to revitalise the economy so that is operates in a sustainable manner.

Governments need to use a mix of investments, incentives and economic policies to meet the challenges that face us. The sustainability of our recovery will depend on the way in which the world's governments allocate the funds of economic stimulus packages. These packages, however, need to address more than just the immediate need to revive the economy. We need a new economic model that leaves the global community with a sustainable future in order to move out of the global recession and onto a path of green growth.

CHINA
China has created a fiscal stimulus package that amounts to 8% of GDP. Just under 2% is dedicated to green investments for biological conservation and environmental protection. The package of US$585 billion dedicates 12% to direct energy efficiency and environmental improvements, and around 22% going into rail transport investment.

A breakdown of the package includes (in US dollars): $30 billion into a smart power grid and energy efficiency; $20 billion for renewable energy and energy efficiency tax incentives over ten years; $18 billion for clean water, flood control and restoration of the environment; $8.4 billion for transport and $8 billion for a high-speed rail; $6.3 for energy efficiency measures for low-income families; $5 billion for retrofit over 1 million homes of modest-income families; and $4.5 billion for increasing the energy efficiency of federal office buildings.

If we continue with business-as-usual it is estimated that by 2030 both our global demand for energy and greenhouse gas emissions will rise by 45% placing pressure on energy supplies and leading to an average global temperature rise of up to 6ºC.[iii] The cost to the world economy of this type of climate change will equal 5 to 10% of global GDP. Degradation of our natural resources, and the goods and services they provide, coupled with increased water scarcity will result in significant damage to the world's trillions of dollars worth of natural assets.[iv]

SOUTH KOREA
South Korea has launched a green new deal amounting to 3% of GDP with 1.2% of that specifically for energy conservation measures and green building investment that is expected to create over half a million jobs. The low-carbon projects include developing railroads and mass transit, fuel-efficient vehicles and clean fuels, energy conservation and environmentally friendly buildings. The government will be investing US$7 billion in mass transit and railways creating 138,000 jobs; US$5.8 billion to increase energy conservation in villages and schools for 170,000 jobs and over $10 billion into river restoration that should create over 16,000 jobs.

There are many facets to a Green New Deal: to tackle pollution, reduce waste, better plan the city, upgrade building stocks, build sustainable infrastructure, shift to green transport, revolutionise energy policy and decarbonise the economy. Each of them will benefit from public investments and innovative policies, and create green jobs and business opportunities.

UNITED STATES
In the United States elements of a "green economic recovery" programme have been incorporated into a US$827 billion stimulus plan. The programme will devote what amounts to just over 0.7% of GDP over the next two year, towards greening the economy, the programme plans to create 2 millions jobs by investing in energy efficiency and renewable energy strategies. It is estimated that for every US$1 billion that is spent in green investments will create approximately 30,000 jobs.

To achieve a Green New Deal we need economic resilience, better environmental quality and a fair deal for all. Governments need multi-pronged approaches that focus on clean energy, green building, resource productivity, sustainable transport, circular economy, green finance and low-carbon living. Essentially we need a green engine for growth.

1.2 Why Hong Kong needs a Green New Deal

Hong Kong is currently faced with three major challenges: a global economic crisis characterised as the worst since the Great Depression of the 1930s; climate change that poses serious risks to the well-being of humankind; and local environmental degradation that

threatens to dissipate the community's effort in pursuit for a better quality of life. We cannot afford to deal with them one by one. We need a smart solution to deal with them, all at once – a Green New Deal.

The Financial Challenge

In Hong Kong exports were down 21.8% compared to a year earlier, domestic exports were down 38.4% over the same period, while imports were down 17%.[v] In the last quarter of 2008 GDP was down 2.5% from 2007. Government forecasts are predicting the economy will shrink by as much as 3% this year.[vi] Further a field in the Pearl River Delta a manufacturing decline has equated to a 17.5% drop in exports in January, while imports into the region have fallen over 43%.[vii] A structural change in our economy is long overdue. The current financial crisis necessitates that Hong Kong look for new engines for growth. The four pillars of our economy of tourism, financial services, trading and logistics, professional and other producer services can no longer be relied upon for sustainable economic growth.

Climate Change

From 1998 to 2007 we experienced the warmest decade on record,[viii] while 2008 was the eighth warmest year on record.[ix] In Hong Kong the average annual temperature rise is 1.2ºC almost double the global figure while we experience an above average annual sea level rise of 2.4mm.[x]

The UN Climate Change Convention to be held in Copenhagen in December 2009 is aimed at establishing a binding and ambitious climate change agreement that goes beyond Kyoto's first compliance period ending in 2012. Hong Kong is likely to come under increasing pressure to reduce carbon emissions in line with industrialised countries, including the UK and USA, which have put on the negotiation table commitments to reduce their carbon emissions by 50% to 80% of 1990 levels by 2050.[xi]

Local Environmental Degradation

Hong Kong's average annual level of fine particulate levels is over four times higher than the World Health Organisation's (WHO) annual guideline. The numbers of hazy days in 1994 were 13, by 2004 this had risen to 53. Among the bad pollution days, 53% of them are dominated by local pollution sources. If we came in line with WHO standards we could avoid 6.8 million doctors visits, 64,000 hospital bed-days, 1,600 premature deaths and $1.3 to 2 billion in direct health costs and lost productivity.[xii]

Roughly 70% of Hong Kong's potable water supply comes from the Dongjiang River which,

despite regular improvement works, is heavily polluted due to local industrial and urban development. Seven beaches in the Tsuen Wan area have been closed for numerous years due to “poor” water quality, largely due to the sub-standard sewage discharge from Stonecutters Island Sewage Treatment Plant and the pollution that flows from unsewered properties along Castle Peak Road. These beaches are unable to meet our own water quality objectives and three of them have been closed to the public since the mid 1990s.[xiii]

The threat from regional pollution sources across the border has been on the increase. For instance, this year a poorly maintained landfill collapsed releasing a toxic sludge upstream of the Shenzhen River which flows directly into Deep Bay.[xiv] This could threaten the long-term survival of the Mai Po wetland reserve as the leaked contaminants could aggravate the pollution in Deep Bay. The occurrence of red tides to many of our beaches from time to time also indicates a more widespread threat to the quality of our waters in the entire territory.

In 2006 there was a 46% jump in illegal dumping by construction companies. Between 2005 and 2007 public complaints of fly tipping jumped from 118 to 160, a third of these were found to be illegal. We produced 59,000 tonnes of electronic waste in 2007, and illegally imported over 10,000 tonnes between 2004 and 2007, much of it ending up in illegal dumps or recycling sites in the New Territories.[xv]

In order to create new jobs and to support faltering businesses, there is a community consensus to increase public expenditure. This presents an unprecedented opportunity to not only boost the economy, but to mitigate the adverse effects of climate change and to reverse the trend of environmental degradation. This is what we need most: a Green New Deal for Hong Kong. We have the resources, the expertise and the community mandate to do it right. The time to act is now.

2. Energy for Health

2.1 An Overview

The Hong Kong Government has set a renewable energy target of 1 to 2% of our total electricity supply by 2012.[xvi] In contrast Japan has a projected renewable energy generation of 10.75% and the EU a 22.3% target both by 2010.[xvii] Currently our electricity energy mix is 63% coal, 20% gas, 16.5% nuclear and less than 1% oil.[xviii]

As Hong Kong's power plants emit over 60% of our CO_2 emissions we need to change the way that we produce and consume energy.[xix] One of the most effective ways to decrease our energy consumption is through energy efficiency measures. Around 70% of the energy that is used in our homes is used by our air conditioners, refrigerators and lighting.[xx] If every household changed just one incandescent light bulb to an energy efficient one it would save the equivalent of $190 million in electricity fees and reduce CO_2 emissions by 147,000 tonnes.[xxi] Hong Kong's per capita level of CO_2 emissions has been steadily rising for the past ten years. In 1990 greenhouse gas emissions totalled 39.2 million tonnes CO_2-equivalent (CO2-e). By 2005 this had grown to 44.8 million tonnes CO_2-e.[xxii,xxiii]

As an APEC member, the Government has committed to reducing energy intensity by 25% by 2030, but many feel this falls behind the absolute reduction of worldwide trends in developing countries.[xxiv] The Government is currently in the process of introducing mandatory energy efficiency labels, but these labels only cover air conditioners, refrigerators and light bulbs and fail to take into account environmental efficiency. The benefits of increasing energy efficiency can be almost immediate. We need to increase our efficiency standards to ensure the largest gains in the shortest amount of time. Electricity use per capita in Hong Kong has been on the increase. In 1996 per capita electricity use was 17.70 GJ, while in 2001 this had increased to 19.98GJ and rose to 21.18GJ in 2006. Energy end use per capita over the same time period also rose from 39.77GJ in 1996 to 41.75 in 2001 and 42.02 in 2006.[xxv]

2.2 Policy Targets

- To increase the contribution of renewable energy to electricity supply to 2% by 2012 and 5% by 2020.[1]

[1] In line with recommendations of an "ambitious model" of renewable energy inclusion in Hong Kong's energy mix. Source: Council for Sustainable Development. Sustainable Development, Making Choices for our Future. An Invitation and Response Document. Hong Kong. July 2004. pp32

- To commit to reduce greenhouse gas emissions by 6% by 2012, 20% by 2020 and 50% by 2050 from 1990 levels.[2]
- To commit to meet the WHO IT-2 targets in 2012, IT-3 targets in 2017, and to meet the WHO air quality guidelines in full no later than 2022.[3]

2.3 Policy Action

2.3.1 Decentralised Power for the People

Implement a $4.4 billion incentive scheme for every household to be provided with a $2,000 "Green Economy Voucher" to assist with the installation of renewable energy systems such as solar water heaters, building integrated photovoltaics and micro wind turbines to generate renewable energy. Modify building regulations for ease of application for the installation of these types of micro-generators. For households that are not fit for installing renewable energy systems in the short term, such subsidy may be used for installing energy-saving devices. As a complementary measure, remove barriers for access to the power grid by providing attractive feed-in tariff and cost-free connection to the power grid, and installing free smart meters in all households with renewable micro-generators. This would provide standardised and hassle-free access to the grid for all micro-generators. Smart meters are able to record both how much electricity is produced by the renewable generator and how much electricity is used on the premises as well as electronically transmitting that information to the chosen electricity supplier.[xxvi]

2.3.2 Energy Efficiency on our Streets

Invest $70 million in a "Green Street Lighting Programme" to upgrade to LED lights in all 1700 signalised traffic junctions and 131,000 street lights by 2010,[4] and to

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[2] Toronto, Canada has set carbon emission reduction targets of 6% by 2012, 30% by 2020 and 80% by 2050. Vancouver, Canada has set a target of 6% reduction by 2012. Los Angeles, US has set a 30% reduction target by 2030. Seattle, US has set a reduction target of 7% by 2012. All based on 1990 emissions levels. Source: Global Carbon Project. Urban and Regional Carbon Management. http://www.gcp-urcm.org/Resources/CityActionPlans. The UK has just increased their commitment to reduce carbon emissions by 2050 from 60% to 80% in line with new scientific evidence that considers what is necessary in terms of reduction of carbon emissions to avoid catastrophic climate change. Source: Summers D, Carrington D. Government pledges to cut carbon emissions by 80% by 2050. Guardian.co.uk, 16 October 2008.
http://www.guardian.co.uk/politics/2008/oct/16/greenpolitics-edmiliband

[3] Please see appendix 1 for figures.

[4] Approximately $550 per traffic light based on US costs. Denver replaced 20,500 at the cost of US$11.5 million, payback period in energy savings is less than four years (US$430,000 annual savings). Source: Environmental Protection Agency. Energy Efficiency Sector: LED Traffic Signals and Colorado.

install street lights with self-powering solar panel devices where feasible. The electricity savings for traffic lights alone will amount to $1 million per month. The total savings in street lights will amount to $105 million.

2.3.3 Create Markets through Government Action

Upgrade government purchase policy to enlarge the market for energy-efficient products, e.g. by allowing only products that are at the upper half of energy efficiency spectrum to bid for government supplies. To complement this new purchasing policy an expert panel should be set up to evaluate and recommend products with reference to the EU Eco-label. A mandatory eco-labelling scheme should also be established by 2012.[xxvii] Labels must apply to all domestic appliances and office equipment and include lifecycle and sustainability considerations.

2.3.4 Landfill Gas Utilisation

Maximise the potential of landfill gas for power generation. Current data indicates that a large amount of landfill gas is unutilised. Of landfill gas available for power generation and town gas production only 40% is used, leaving 60% available but not working to produce energy. The total potential for energy production from the landfills would equate to meeting 1.11% of Hong Kong's 2006 energy demand.[xxviii] This unutilised gas should be fully harnessed for power generation by 2012.

2.3.5 Clean Energy Supply

Increase the use of natural gas as a proportion of our power generation as the natural gas supply from Guangdong becomes more stable. Strengthen local connection to China's South-West Grid so as to encourage more power supply of renewables. At present around 70% of electricity supply from China's South-West Grid comes from hydropower and hence an increased supply from that grid will increase the proportion of renewable energy in Hong Kong's electricity supply.[5] [xxix]

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http://yosemite.epa.gov/OAR/globalwarming.nsf/UniqueKeyLookup/RAMR5CYR8A/$File/CO_LED.pdf . There are over 1,700 signalised junctions in Hong Kong, and most of them have two or more sets of traffic lights. (Source: http://www.thb.gov.hk/eng/policy/transport/issues/scrlj/note%20on%20red%20light%20jumping%2030%20May%2005.pdf) . We estimated that there are 5,000 sets of traffic lights. http://www.thb.gov.hk/eng/psp/pressreleases/transport/land/2007/200704184.htm The total number of street lights in Hong Kong stood at 131,248 as at end of March 2007. http://www.thb.gov.hk/eng/psp/pressreleases/transport/land/2007/200704184.htm

[5] In China between 1999 and 2004 the growth rate of natural gas as an energy supply was 11.9% while over the same period the growth rate of hydropower was 11.7%. Source: Ni CC. China's Natural Gas Industry and Gas to Power Generation. The Institute of Energy Economics, Japan, July 2007. http://eneken.ieej.or.jp/en/data/pdf/397.pdf

3. Green Buildings

3.1 An Overview

Buildings in Hong Kong are responsible for 89% of electricity consumption making them a key focus area for sustainable development.[xxx] Globally, buildings also use 32% of the world's resources in construction; contribute 40% of CO_2 emissions; consume 12% of water; and constitute 40% of waste to landfill.[xxxi] Besides energy use, other areas of concern for sustainable buildings are the generation of waste, use of construction materials and how they are recycled, water use and discharge and how buildings are integrated with other infrastructure and social systems. Most of a building's energy consumption comes from its operational practices such as cooling, heating, and lighting.

Estimates by the University of Hong Kong put employment levels in the building and construction sector at 7.4% of the total labour force while generating $93 billion equivalent to 5.7% of Hong Kong's total GDP.[xxxii] Greening our buildings equals our biggest potential for increasing energy efficiency and reducing carbon emissions. It will also go a long way to reaching any future emissions targets that we are required to meet.

The Intergovernmental Panel on Climate Change estimates that by 2030 roughly 30% of carbon emissions from buildings could be avoided – with net economic benefit.[xxxiii] Building improvements have an immediate effect on reducing energy consumption. Renovating & retrofitting old buildings has the potential to cut energy use by up to 80%.[xxxiv]

3.2 Policy Targets

- To enable all Hong Kong buildings to comply with or exceed the prevailing Building Energy Code by 2020.
- To reduce the energy consumption of buildings by 20% by 2020 based on a 2005 level.[6]

3.3 Policy Action

3.3.1 Greener Buildings for All

Set up a $1 billion "Low-carbon Building Fund" to assist property owners and managers to conduct carbon and energy audits and install energy efficiency systems

[6] The UK is mandating that all residential buildings must consume 20% less energy than buildings in 2000. Source: DEFRA, Climate Change and Energy – Action in the UK. http://www.defra.gov.uk/environment/climatechange/uk/household/index.htm

for all communal areas of residential, commercial and industrial buildings. This scheme would be aimed at refurbishing and retrofitting existing building stock with energy saving features such as heat pumps, water-cooled air-conditioners, movement sensors or better insulation systems.

3.3.2 Sustainable Lighting

Invest $1.12 billion for sustainable lighting by providing every adult with a $200 "Green Light Coupon" to purchase energy-saving light bulbs such as compact fluorescent lamps or LEDs, and to ban the sale of incandescent light bulbs by 2010.[xxxv] Also improve the recycling practices of light bulbs by implementing a product responsibility scheme as part of the Producer Eco-responsibility Ordinance and to upgrade recycling and treatment facilities as necessary.[xxxvi]

3.3.3 Urban Greening

Invest $500 million in a "3-D Green City Fund" to provide incentives for urban greening including green roofing, sky gardens, podium areas and vertical greening. Require new buildings with a total footprint of more than 1000m^2 to provide at least 20% of rooftop as greenery.[7] A study in Canada has found that increasing greenery by 6% can reduce the temperature in urban areas by up to 1ºC. Green roofs have also been found to decrease the temperature of the top floor of buildings by 4 to 5ºC.[xxxvii]

3.3.4 Low-Carbon Zones

Develop both Kai Tak and West Kowloon Cultural District as low-carbon zones through the use of renewable energy, district cooling and micro-co-generation systems capable of meeting the needs of all facilities in the development areas. These systems are not only economically beneficial for high density building clusters, but can also stimulate local research and technological development.[xxxviii]

3.3.5 Government Leadership through Standard-setting

Enact a mandatory Building Energy Code by the end 2009[xxxix] and require all tenders for public and publicly funded projects to comply with the Building Energy Code with immediate effect, while all public buildings be retrofitted to comply with the Building Energy Code by 2012. Implement mandatory carbon and energy audits

[7] In Tokyo the "Green Rooftops Initiative" was launched in 2001 and requires buildings with a total footprint of more than 1,000m^2 to provide at least 20% of the rooftop as greenery. This strategy in Japan is helping to reduce the heat island effect as well as enhancing quality of life for local residents by greening their living environment.

every 5 years for all buildings; encourage all existing buildings, as a minimum measure, to retrofit and comply with the Building Energy Code by 2020; review the Building Energy Code to include broader sustainability considerations and upgrade standards in line with international trends every 5 years, with reference to the European Commission's European Energy Performance of Buildings Directive.[xl]

4. Sustainable Transport

4.1 Overview

Despite the promotion of railways as Hong Kong's key transport infrastructure, the length of public roads has continued to increase. The length of our roads increased from 1,924 to 2,040km between 2002 and 2008, while the number of private cars increased from 341,000 in 2002 to 383,000 in 2008.[xli]

In April 2008, more than 10% of the franchised buses (609) and 23% (1,351) currently running in Hong Kong roads out of a total of 5,889 are still using Pre-Euro and Euro I standards respectively. There are now 3,916 franchised buses that are Euro II and Euro III standard.[xlii] Most of the franchised buses of Euro II and Euro III standards are not installed with Continuously Regenerating Trap (CRT) particulate traps, which can reduce particulate emissions by up to 90%. In addition, there are 7,200 non-franchised buses as well as some 490 private buses.

There are about 72,500 light goods vehicles in Hong Kong. Roughly one-third of these are pre-Euro vehicles and most have been retrofitted with particulate traps or catalytic converters, which can cut particulates emission by about 30%.[xliii] Approximately 2,400 mini buses have switched to LPG while around 2,000 still run on diesel.

There are 3,500 heavy goods vehicles and 42,850 medium goods vehicles registered in Hong Kong. Yet only 28,000 heavy and medium goods diesel vehicles are fitted with catalytic converters which are far less effective than CRT particulate traps.

In 2006, only 11% of the working population and 33.8% of the students travelled to work and school on non-motorised transport.[xliv] All motorised transport, be it buses, trains or ferries, emit greenhouse gas.

4.2 Policy Targets

- To have no pre-Euro or Euro I standard vehicles on the road by 2012.
- To reduce total road-side emissions to 50% of 2005 levels by 2012.
- To increase the proportion of non-motorised work trips to 20% by 2012.

4.3 Policy Action

4.3.1 Public Bikes for All

Invest $1.5 billion in setting up a “Public Bikes for All” scheme in Hong Kong similar to the “Velib” scheme in Paris. This fund can be used to provide Hong Kong with 100,000 intelligent public bikes, set up 1,500 public bike stations, and link up new towns and harbour front areas with dedicated bicycle tracks. In addition to introducing a new form of zero-emission public transport, there will be significant gains in public health and in alleviating the burden of high transport costs in particular for remote communities. As a reference, the successful “Velib” scheme in Paris now employs 20,600 intelli-bikes and 1,451 public bike stations. As a complementary measure, e-bikes equipped with small electric motors should be allowed on dedicated bicycle tracks and in selected communities such as Discovery Bay.

4.3.2 Green Pedestrian Corridors

Promote Hong Kong as a walkable city by investing $2 billion to expand pedestrian zones and link up cross-district pedestrian zones into continuous “Green Pedestrian Corridors”; conduct extensive greening in pedestrian zones; and expedite the construction of continuous harbour-front promenades. Provide an extensive and safe pedestrianised network in new development areas, such as Kai Tak and the West Kowloon Cultural District.

4.3.3 Electronic Road-Pricing

Expedite the Electronic Road Pricing System (ERP) for traffic entering the urban core areas, and invest an initial sum of $2 billion to install ERP in metro areas to curb traffic congestion and roadside pollution. Road charges should be linked to vehicle emission levels to provide incentives for change, and the charges may also vary according to the expected pollution level of the day.

4.3.4 Clean Buses

Invest $6 billion in a “Roadside Clean Air Fund” to assist bus companies to replace all buses of pre-Euro and Euro I standards with Euro V standard buses, which may include electric and natural gas powered buses, and install CRT particulate traps for all buses of Euro II and Euro III standards by 2010. The investment ensures that the public will not be burdened with any bus fare increases and is hence a public health subsidy for the benefit of the general public.

4.3.5 Continuous Compliance

To conduct mandatory annual checks on all in-use vehicles to ensure compliance with emission standards, equivalent to that of the California Air Resource Board standards. As a complementary measure, to provide, out of the “Roadside Clean Air Fund,” financial assistance to licensed testing centres to upgrade vehicle testing equipment, and to provide free training and certification schemes for technicians.

5. Circular Economy

5.1 Overview

Hong Kong, like many developed places, has seen its waste load increase as the economy has grown. Municipal waste loads have, in general, been increasing since 1986 (when the EPD was formed) mirroring Hong Kong's rapid economic expansion over the same period. At the same time, the population has grown by more than one million people and each person is throwing away more waste.

The per capita level of municipal solid waste disposal has risen from 1.28 kilograms per person per day in 1991, to 1.36 kilograms in 2007.[xlv] That is enough waste to fill more than three Olympic-sized swimming pools every day, evidence that we need a more sustainable, long-term strategy for waste avoidance. If we continue on with business-as-usual, our existing landfills will be full within the next 6 to 10 years. We need to set up and tighten recycling measures and standards for Hong Kong because our waste uses the equivalent area of a new town every 6 to 7 years. Hong Kong consumers are among the world's highest users of non-recyclable plastic bags, using 6.7 billion plastic bags a year – that's 1,294 for every person.

In 2004, Hong Kong produced over 20 million of tonnes of construction and demolition waste, and 18 million tonnes was inert and recyclable and dumped at public filling facilities for re-use. In 2007, 45% of municipal solid waste was recovered for recycling of which just 1% was locally recycled.

With all these pressures, there is an urgent need to develop an innovative and practical waste management system that would reduce the effect on both our health and our environment. At present we are far behind schedule on Hong Kong's waste reduction plan and the solid waste management strategy recommended by the Council of Sustainable Development in 2005. Reduce, reuse together with recycle (3Rs) are the ultimate motto to sustainable waste management anywhere. Not only can the "3Rs" solve our waste problem intelligently but also they can create green jobs and help turn waste into profit.

5.2 Policy Targets

- To reduce total municipal solid waste by 10% by 2012 based on 2003 level.[xlvi]
- To ban disposal of untreated or un-recycled waste in landfills by 2020.

5.3 Policy Action

5.3.1 Producer Responsibility Scheme

Introduce a producer responsibility scheme (PRS) for all plastic bags, bottles and batteries in 2009, applicable to all electrical appliances, light bulbs and tyres by 2010, and thereafter expand the scheme to a wider range of products. The revenue from PRS schemes should be used to provide incentives for further waste reduction and recycling practices, and for the support of locally recycled products.

5.3.2 Household Waste Reduction

Use the proceeds of approximately $200 million per year from plastic bag charges to set up a "Household Waste Reduction Programme", which would include the introduction of "pay per bag" legislation by 2010, and financial assistance to buildings for facilities modification, and direct subsidies to disadvantaged groups to protect their living standards.[8]

5.3.3 Community Empowerment in Waste Reduction

Empower the community by investing a $540 million start-up fund in a "District Waste Reduction Ambassador Scheme" to set up waste reduction facilitation teams in 18 districts, which will be responsible for conducting district-based waste audits, identifying improvement potentials, setting reduction targets, and formulating improvement plans for reduction and recycling infrastructure in every district. An example of this is the upgrade of school facilities to allow for lunches to be supplied in washable containers and provide washable utensils instead of disposable lunch boxes. In the medium term this scheme will be self-funded through the savings in waste collection and disposal.

5.3.4 Market Support for Locally Recycled Products

Upgrade the Government's green purchasing policy to provide preferential and long-term support with a "recycled products only" policy for available items by the end of 2009, and to ensure 100% of public procurement to include sustainable procurement criteria by 2010.[xlvii] From the proceeds of PRS schemes, set aside a subsidy fund for schools and public bodies to cover the price differential for locally recycled products and conventional products so as to encourage these bodies to implement preferential purchasing policy in favour of locally recycled products. Revamp Eco-park leasing

[8] Taipei also attained 45% as recycling rate for MSW in 2006. However, it has achieved, with heavily involved government-run recycling schemes, variable rate waste charging and various PRS systems. After 10 years of implementation of the variable rate charging scheme, it was reported that the national recycling rate in S. Korea has jumped from 15.4% in 1994 to 64.3% in 2006.

policy to give stronger support to the local recycling industry.

5.3.5 Integrated Waste Treatment Plant

Invest $4 billion to expedite the construction of an Integrated Waste Treatment Plant (IWTP) by 2012, and put in place a district compensation scheme to address the fairness issue arising out of the imbalance between local loss for the community where the IWTP is sited, and territory-wide gains for society as a whole. The development of an IWTP that adopts advanced incineration as its core technology would reduce bulk waste volume, recover energy and save precious landfill space. Also speed up the development of Organic Waste Treatment Facilities to convert food waste into useful compost and renewable energy by 2012.

6. Resource Productivity

6.1 Overview

Hong Kong has a land resource of just over 1000 square km. Whilst around 46% of land is designated as country parks, only 24% is built-up area, while all residents live on just 6.7% of the total land mass[xlviii]

About half of the 7 million population live on Hong Kong Island and Kowloon, and the rest in the New Territories. There is a big mismatch between place of work and place of residence. Most of the jobs are located around the harbour and hence over 60% of the residents in the northern New Territories have to travel cross-district for work, of which about half have to commute to Kowloon or the island for work everyday. The travel trips thus generated add to the energy load of the city.

Land management in the New Territories is problematic. A foreign visitor could be forgiven for mistaking Hong Kong as a third-world city if the only place visited locally were the brown sites in the New Territories. In addition to the scattered, and often uncoordinated three-storey buildings created under the “small house policy”, much of the land in the New Territories is occupied for storage of containers or run-down garages, often illegally or under temporary leases. Between 2003 and 2007, there were 474 cases of illegal cases of open-air storages around Yuen Long and Tin Shui Wai, involving a total area of 145 hectares.[xlix]

In water supply, Hong Kong relies heavily on Guangdong. About 70% of potable water comes from Dongjiang River which is under constant threat of pollution despite almost constant upgrades of the supply infrastructure. There is not yet a total water resource management plan adopted by authorities in both Hong Kong and Guangdong. Water scarcity in the region is already a common occurrence although Hong Kong is for now being protected by a guaranteed water supply agreement with Guangdong. The increased likelihood of extreme weather events due to climate change shall mean that fresh water supply will more often be unable to meet demands in the region in future, thus hindering economic growth and posing public health threats.

The standards in potable water quality and sewage discharge quality are still below advanced country standards. The process of chorine disinfection, now abandoned in many advanced countries due to the potentially carcinogenic by-products (trihalomethanes) and its inability to tackle cryptosporidium (a microscopic pathogen), are still being employed in all but one

major water treatment works in Hong Kong. The lack of full biological treatment in the Stonecutters Island sewage treatment plant has also led to substandard water quality around the harbour and along the Tsuen Wan coastline, leading to permanent closures of seven beaches.

6.2 Policy Targets

- To develop and establish a secondary city centre in the New Territories by 2020.
- To have all potable water supply comply with improved standards comparable to prevailing EU directives by 2020.
- To have Victoria Harbour and all beaches suitable for swimming by 2020.

6.3 Policy Action

6.3.1 Create a Balanced City

To relieve development pressure in the metro core, create employment, minimize the mismatch between places of residence and work, and improve environmental quality for all, a secondary city centre should be developed in the northern New Territories using developed areas and brown sites and avoiding sensitive conservation areas. To complement this development, an additional station of the Guangzhou-Shenzhen-Hong Kong Express Rail Link can be sited near the existing Kam Sheung Road station of the West Rail, so that the estimated 3.6 million people living in the New Territories would not be required to travel south to West Kowloon to conduct north-bound cross-boundary travel through the hi-speed train.

6.3.2 Land-Use Rationalisation

Invest $200 million to facilitate the construction of a centralised container storage and truck maintenance facility in the New Territories, a “Modern Container Park” similar to those found in other port cities such as Rotterdam. As a complementary measure, clean up illegal dumping grounds, illegal open storage sites and stop the practice of extending short-term leases for temporary open storages in the New Territories by 2012.

6.3.3 Water for World-class City

Upgrade potable water quality standards in line with best practice for advanced countries and subsequently review water quality standards every 5 years to maximise public health benefits. Ozone treatment has already been adopted in Ng Tam Mei Treatment Plant. Current government plans are already in place to adopt ozone

treatment in the upgrade of the Taipo and Shatin water treatment works. As a priority to protect public health, the government should invest $1.5 billion to implement ozone, membrane, or ultra-violet treatment by 2017 for all water treatment works that still employ chlorine disinfection.

6.3.4 Swimmable Harbour and Beaches

Invest $10.8 billion to implement Harbour Area Treatment Scheme (HATS) 2B, i.e. upgrade Stonecutters Sewage Treatment Plant with biological treatment processes in parallel with the construction of HATS 2A. This would bring Hong Kong in line with world best practice and significantly improve the water quality in Victoria harbour and along the coast of the Tsuen Wan beaches. As a supplementary measure, upgrade sewerage systems and reinforcement procedures to avoid illegal connections and discharges of wastewater in rural areas.

6.3.5 Green Fairs

Provide land resources and assist District Councils to set up green fairs in all 18 districts. A green fair is a flea market-style fair that focuses on green products and services, which could inspire enthusiasm, awareness and demand for green products, services and technologies. Successful overseas examples include the Charleston Green Fair in the US[l] and the Urban Green Fair in London, UK.[li]

7. Overall Benefits

7.1 Job Creation

In addition to significant gains in environmental quality and public health, the policy actions proposed for the Green New Deal will create new green jobs and numerous business opportunities for manufacturers, suppliers, traders, retailers, research institutes, professional firms and contractors in a wide array of sectors. An estimate for green new jobs for those Policy Actions with specific investment figures is listed below:

Green Initiatives:	**New Green Jobs***
Energy for Health	
Offer "Green Economy Voucher" of $2,000 to all households who install renewable energy systems and/or energy efficiency devices $2,000 x 2.2 million households = $4.4 billion	15,000
Invest $70 million in a "Green Street lighting Programme" to upgrade all traffic lights and street lights to LED by 2010 and to install street lights with self-powering solar panel devices where feasible	200
Green Buildings	
Set up a $1 billion "Low-Carbon Building Fund" to provide funding for private building owners for carbon and energy audits and energy efficiency measures	3,300
Provide a $200 "Green Light voucher" for every adult (a total subsidy of $1.12 billion) to purchase energy efficient compact fluorescent lamps or LEDs	3,300
$500 million for a "3-D Green City Fund" to provide incentives for greening the urban area including green roofing, sky gardens, podium areas and vertical greening	1,700
Sustainable Transport	
$1.5 billion investment in "Public Bikes for All" Scheme	5,000
Initial investment of $2 billion to set up a pioneering Electronic Road Pricing scheme	6,700
$2 billion investment in the expansion of "Green Pedestrian Corridors"	6,700

$6 billion “Roadside Clean Air Fund” to retire dirty old buses and install CRT particulate traps	20,000
Circular Economy	
$200 million to support a “Household Waste Reduction Programme”	700
Invest $540 million in a “District Waste Reduction Ambassador Scheme”	1,800
Sub-Total of Proposed Investment: $19.33 billion	**Sub-total: 64,400**
Sustainable Infrastructure	
$4 billion for Integrated Waste Treatment Plant (IWTP) and organic waste treatment facility	5,600
$200 million for Centralised Modern Container Park	300
$1.5 billion to implement ozone, membrane, or ultra-violet treatment for water treatment works	2,000
$10.8 billion to upgrade Stonecutters Sewage Treatment Plant (HATS 2B)	15,000
Sub-Total of Proposed Investment: $16.5 billion	**Sub-total: 22,900**
Total Proposed Investment: $35.83 billion	**Total Number of New Green Jobs: 87,300*** * Representing **2.36%** of the 3.687 million of labour force in Hong Kong in January 2009.

*The number of potential green jobs is estimated on the basis of green job creation rate extracted from the South Korean Government’s US$36 billion “Green New Deal” which will create 960,000 jobs in total. See UNEP report on “A Global Green New Deal”, February 2009.

The job creation rate for sustainable infrastructure is based on government estimates for general infrastructure projects. See Mingpao report on 16 Feb 2009.

7.2 Summary of Policy Targets and Actions

Energy for Health	**Policy Targets** ● To increase the contribution of renewable energy to electricity supply to 2% by 2012 and 5% by 2020. ● To commit to reduce greenhouse gas emissions by 6% by 2012, 20% by 2020 and 50% by 2050 from 1990 levels. ● To commit to meet the WHO IT-2 targets in 2012 and IT-3 targets in 2017, WHO air quality guidelines in full no later than 2022.	**Policy Action** 2.3.1 Decentralised Power for the People 2.3.2 Energy Efficiency on our Streets 2.3.3 Create Markets through Government Action 2.3.4 Landfill Gas Utilisation 2.3.5 Clean Energy Supply
Green Buildings	● To enable all Hong Kong buildings to comply with or exceed the prevailing Building Energy Code by 2020. ● To reduce the energy consumption of buildings by 20% by 2020 based on 2005 level	3.3.1 Greener Buildings for All 3.3.2 Sustainable Lighting 3.3.3 Urban greening 3.3.4 Low-Carbon Zones 3.3.5 Government Leadership through Standard-Setting
Sustainable Transport	● To have no pre-Euro or Euro I standard vehicles on the road by 2012. ● To reduce total road-side emissions to 50% of 2005 levels by 2012. ● To increase the proportion of non-motorised work trips to 20% by 2012.	4.3.1 Public Bikes for All 4.3.2 Green Pedestrian Corridors 4.3.3 Electronic Road Pricing 4.3.4 Clean Buses 4.3.5 Continuous Compliance
Circular Economy	● To reduce total municipal solid waste by 10% by 2012 based on 2003 level. ● To ban the disposal of untreated or un-recycled waste in landfills by 2020.	5.3.1 Producer Responsibility Scheme 5.3.2 Household Waste Reduction 5.3.3 Community Empowerment in Waste Reduction 5.3.4 Market Support for Locally Recycled Products 5.3.5 Integrated Waste Treatment Plant
Resource Productivity	● To develop and establish a secondary city centre in the New Territories by 2020. ● To have all potable water supply complying with improved standards comparable to prevailing EU directives by 2020. ● To have Victoria Harbour and all beaches suitable for swimming by 2020.	6.3.1 Create a Balanced City 6.3.2 Land-Use Rationalisation 6.3.3 Water for World-class City 6.3.4 Swimmable Harbour and Beaches 6.3.5 Green Fairs

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Appendix 1. WHO Air Quality Guidelines and Interim Targets (in μg/m^3)

		WHO AQGs			
		IT-1	**IT-2**	**IT-3**	**AQG**
PM_{10}	24-hour	150	100	75	50
	Annual	70	50	30	20
$PM_{2.5}$	24-hour	75	50	37.5	25
	Annual	35	25	15	10
SO_2	10-minute	–			500
	24-hour	125	50		20
NO_2	1-hour	–			200
	Annual	–			40
O_3	8-hour	160			100
CO	15-minute	–			100,000
	30-minute	–			60,000
	1-hour	–			30,000
	8-hour	–			10,000
Pb	Annual	–			0.5