

GOVERNANCE AND POLICY

Governance and Policy, covers the innovations using frameworks, regulations, directives and subsidies as examples to achieve innovations in city-led emissions management and climate adaptation. Strategic goals are achieved through careful planning and often require coordination between agencies, as well as private entities and civil society.

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| Title: | Constructing Cold Chain Facilities Close to the Farm Gate: Pilot on County-wide Promotion in Cixi City, Zhejiang Province, China |
| Summary of Case: | <p>The county of Cixi in Zhejiang Province produces 1.2 million tons of perishable items every year, mainly fruit and vegetables. The local need for cold storage capacity in Cixi county is 1.5 million cubic meters. However, with no more than a quarter of this demand being satisfied, there is an urgent need for both building new cold chain facilities and mobilising existing cold storage resources.</p> <p>By the end of 2023, Zhejiang Province will construct agricultural cold storage and preservation facilities throughout eight pilot areas, including Anji County, Pinghu City and 8 other counties (cities, districts). The 150 newly built cold storage and preservation facilities, and the new cold storage inventory of 250,000 cubic meters, will be used to preserve agricultural products to address “the first kilometre” problem.</p> <p>Smart apps for shared cold storage services to identify capacity availability have improved the utilisation of existing resources by at least 15%, reducing unused or partially utilised cold storage. This effectively reduces carbon emissions through lost food harvests and reduced the number of cold storage facilities required. In addition, smart sensors allow for the detection of issues for technical assistance and reduce the likelihood of food waste through mechanical failure.</p> |
| Key Stakeholders: | <ul style="list-style-type: none"> • The People’s Government of Cixi County • Local Farmers • Cold Storage Facility Owners • Cold Storage Maintenance Service Providers |
| Key Finance method: | <ul style="list-style-type: none"> • Public Financing |
| Key Messages and Lessons Learnt: | <ul style="list-style-type: none"> • The mapping exercise of existing distributed private facilities improved the utilisation rates of existing cold room capacities by 15%. • The project has improved earnings for farmers through reduced loss of harvest and spoilage. • Public policy and efforts can be used to minimise waste contributing to carbon emissions. • Stakeholder mapping is important to identify any existing underutilised capacities. • Transparency of shared information and trust between stakeholders is required for the utilisation of shared systems. |



| Title: | Reducing Emissions of New Buildings Using Certification Standards in Areas with Heavy Snowfalls in Sapporo, Japan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Summary of Case: | <p>In order to reduce energy consumption required for heating due to its cold climate, in 2012, Sapporo established the 'Next Generation Housing', a housing performance standard unique to Sapporo that was designed to exceed national standards. The minimum level as shown in the table for the standards set in Sapporo corresponds to the baseline standard set for national energy efficiency targets. The standards were formulated based on the recommendations of the technical study committee. The Sapporo standard together with financial incentives is a measure that encourages improved insulated housing and thus reductions in carbon emissions through reduced energy requirements for heating and ventilation in cold climates.</p> <table border="1" data-bbox="422 598 1412 898"> <thead> <tr> <th rowspan="2">Rank of newly built housing</th> <th rowspan="2">Subsidy amount</th> <th rowspan="2">UA value* W/m² K</th> <th colspan="2">Primary energy consumption</th> <th rowspan="2">Corresponding area of gaps (C value) [cm²/m²]</th> </tr> <tr> <th>Overall</th> <th>Heating and ventilation</th> </tr> </thead> <tbody> <tr> <td>Top- runner</td> <td>2,000,000 yen/case</td> <td>Under 0.18</td> <td rowspan="4">Grade 5</td> <td>Under 35%</td> <td rowspan="2">Under 0.5</td> </tr> <tr> <td>High-level</td> <td>1,500,000 yen/case</td> <td>Under 0.22</td> <td>Under 45%</td> </tr> <tr> <td>Standard-level</td> <td>800,000 yen/case</td> <td>Under 0.28</td> <td>Under 60%</td> <td rowspan="2">Under 1.0</td> </tr> <tr> <td>Basic-level</td> <td>300,000 yen/case</td> <td>Under 0.36</td> <td>Under 75%</td> </tr> <tr> <td>Minimum-level</td> <td>none</td> <td>Under 0.46</td> <td>Grade 4</td> <td>Under 90%</td> <td>Under 1.0</td> </tr> </tbody> </table> <p><small>*UA value: exterior average thermal transmittance rate</small></p> <p>At the beginning of the certification and subsidy system, in addition to publicising the system on the city's website and in PR magazines, briefing sessions were held for construction companies, house builders, sash and insulation material manufacturers. As small builders may be unfamiliar with calculating the heat loss coefficient of a house, technical manuals, and dedicated calculation sheets have been prepared to reduce the labour required by the builder to calculate the heat loss coefficient.</p> <p>Additionally, a housing interest rate reduction can be applied in conjunction with a 'fixed-rate mortgage for the full term', is provided by more than 300 financial institutions nationwide in partnership with the Japan Housing Finance Agency (JHF). Other sustainability factors such as energy generation, vehicle type and energy storage are also considered in reduction rate calculation. With the program, it has led to an increase in new homes being built conforming to standards rising from 19% when first implemented in 2012 to 73% in 2020. Another programme for renovation of houses also provides subsidies for renovation according to the new Sapporo standard, as well as for energy efficiency and barrier-free access.</p> | Rank of newly built housing | Subsidy amount | UA value* W/m ² K | Primary energy consumption | | Corresponding area of gaps (C value) [cm ² /m ²] | Overall | Heating and ventilation | Top- runner | 2,000,000 yen/case | Under 0.18 | Grade 5 | Under 35% | Under 0.5 | High-level | 1,500,000 yen/case | Under 0.22 | Under 45% | Standard-level | 800,000 yen/case | Under 0.28 | Under 60% | Under 1.0 | Basic-level | 300,000 yen/case | Under 0.36 | Under 75% | Minimum-level | none | Under 0.46 | Grade 4 | Under 90% | Under 1.0 |
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| Key Stakeholders: | <ul style="list-style-type: none"> • Sapporo City Government • Financial Institutions • Construction Industry | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Key Finance method: | <ul style="list-style-type: none"> • Public Financing • Public Private Partnership | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Key Messages and Lessons Learnt: | <ul style="list-style-type: none"> • Through labelling and subsidy schemes, energy efficiency in detached houses increased from 19% when this standard was established (in 2012) to 73% in 2020. • Rental housing is guided by commercial values of how to build and rent at minimum cost and efforts are underway to encourage building to standard, despite increased capital costs. • Increased technical support is needed for small and medium-sized enterprises (SMEs) that are not large housebuilders to achieve requirements of high airtightness and high thermal insulation. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |




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| Title: | Deployment of 100% Renewable Energy and Certification Systems in Kitakyushu, Japan |
| Summary of Case: | <p>To expedite the adoption of renewable energy and stimulate innovation in related technologies, Kitakyushu introduced the Kitakyushu Model for 100% Renewable Energy in February 2021 and 100% Renewable Energy Certification System in December 2021.</p> <p>The local government has a three-phase approach for government-run facilities under the Kitakyushu model.</p> <ul style="list-style-type: none"> • Step 1: Integration with existing renewable power sources. Public facilities are connected to readily available renewable energy sources, including wind farms and biomass energy. • Step 2: Implementation of solar panels and battery systems at public facilities. Third-party entities are entrusted with the installation of solar panels and battery systems at public facilities. The electricity generated from solar panels is managed by Kitakyushu Power Company. • Step 3: Installation of energy-efficient equipment. In scenarios involving construction or facility renovation, energy-efficient equipment is installed. <p>Through the program, 260 public facilities have converted to 100% renewable energy by the end of 2021. The program is implemented through a usage model in which fees are paid for renewable energy installation and upkeep to a service provider.</p> <p>100% Renewable Energy Certification System encourages private enterprises to take part in converting systems towards renewable energy with the following benefits.</p> <ul style="list-style-type: none"> • Authorisation to utilise the certification sticker and logo on promotional materials and business cards. • Consideration of additional evaluation points during government subsidy assessments. • Eligibility for low-interest loans while participating in municipal projects. • Publicity on the city's website and social media platforms. <p>Nine power retailers have endorsed the 100% renewable energy certification system by February 2023, and 36 companies have joined the certification system by June 2023, commercialisation being key towards the project.</p> |
| Key Stakeholders: | <ul style="list-style-type: none"> • Kitakyushu City Government • Local and Regional Power Companies • Affiliated Businesses |
| Key Finance method: | <ul style="list-style-type: none"> • Public Financing • Public Private Partnership |
| Key Messages and Lessons Learnt: | <ul style="list-style-type: none"> • Usage Rather Than Ownership model whereby third-party operators charge fixed fees, helps to spread public expenditures out over time and guarantees income models for private businesses that manage power as a service. • Proliferation of renewable energy necessitates substantial upgrades to transmission grids. • Hydrogen holds pivotal status as a renewable energy source in Kitakyushu; however, current cost factors continue to impede its wider-scale integration. |



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| Title: | Reducing Emissions through Renewable Energy and an Energy Management System on a Remote Island in Sado, Japan |
| Summary of Case: | <p>Sado is a remote island that operates an independent grid system separate from other grid connections in Japan and was selected by the Ministry of Environment as a leading decarbonisation area. Sado has established the Sado City Decarbonisation Promotion Council with demand facilities, renewable energy power generators, island-related organisations, advisors, and financial institutions convening with the aim of realising the Decarbonisation Leading Areas.</p> <p>In addition to the commercialisation of Decarbonisation Leading Areas, the project will also consider appropriate waste and sewage disposal and promotion of resource recycling such as plastics (*civilian sector CO2 measures, reduction of waste disposal costs, etc.) and agriculture, forestry, and fisheries sector measures (reduction of chemical fertilisers, appropriate residue disposal, and livestock management, etc.) in decarbonization efforts.</p> <p>As part of the energy creation project, 125 public and private facilities will be equipped with solar panels to generate renewable energy with an annual generation capacity of 8,195 MWh. In addition, biomass power generation will also generate 2,964 MWh of renewable electricity, bringing the total to 13,363 MWh of renewable energy in Decarbonisation Leading Areas.</p> <p>For the energy management system, large storage batteries are deployed mainly in public facilities that serve as major disaster-prevention centres, and each facility is networked to create an energy management system incorporating demand response, thereby securing independent and decentralised power sources and making the network visible for management.</p> <p>As a part of the energy efficiency project, initiatives to reduce electricity consumption through energy efficiency has been promoted in 22 public facilities such as primary and secondary schools, including the use of LEDs, and air-conditioning upgrades, resulting in an overall reduction of 1.47 MWh of electricity.</p> |
| Key Stakeholders: | <ul style="list-style-type: none"> • Sado City Municipal Government • Local Power Companies • Affiliated Businesses |
| Key Finance method: | <ul style="list-style-type: none"> • Public Financing |
| Key Messages and Lessons Learnt: | <ul style="list-style-type: none"> • Off-site renewable energy, such as solar and woody biomass, is generated and supplied to consumers in the leading area. Legally, electricity must be supplied via a retail electricity supplier that ensures a stable supply of renewable electricity. • Sado aims to realise the decarbonisation project early by maximising the implementation of renewable energy and large-scale storage batteries, mainly in public facilities, and by networking these facilities to achieve centralised energy management. |



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| Title: | Greenhouse Gas and Energy Target Management System for the Public Sector in Incheon, Republic of Korea |
| Summary of Case: | <p>The Greenhouse Gas Target Management System targets buildings and vehicles used in the public sector. The guidelines for the Greenhouse Gas target management system are prescribed by law, and the Ministry of Environment oversees the overall operation, checking and setting Greenhouse Gas reduction targets annually. Mayors and public organisation heads have a role in promoting Greenhouse Gas reduction activities to achieve reduction targets with disclosure of performance.</p> <p>Incheon Metropolitan City is implementing the system by improving facilities such as installing new and renewable power generation facilities in public buildings and replacing high-efficiency LED lighting devices and is carrying out behavioural improvement projects such as compliance with air conditioning and heating temperatures, prohibition of bringing disposable items into the building, and enforcement of the alternative-day-no-driving system.</p> <p>In addition, a carbon point system is being implemented for the purpose of inducing citizens to practise carbon neutrality by rewarding carbon points for reduction in the rate of use of various utilities. An annual incentive of \$300 based on a rate of reduction of at least 5% or more compared to the previous 1-2 years.</p> <p>Incheon Metropolitan City had the highest reduction rate of Greenhouse Gas emissions in the public sector, including public buildings and vehicles in 2022. Incheon City emitted 25,987 tons of CO₂ equivalent (tCO₂eq) in 2021, reducing 11,870 tCO₂eq from 37,857 tCO₂eq (average Greenhouse Gas emissions from 2007 to 2009).</p> <div data-bbox="440 1102 1398 1415">  </div> <p>Lights off at lunchtime and encouraging recycling and moving to reusable products</p> |
| Key Stakeholders: | <ul style="list-style-type: none"> • Ministry of Environment (Republic of Korea) • Incheon Metropolitan Government |
| Key Finance method: | <ul style="list-style-type: none"> • Public Financing |
| Key Messages and Lessons Learnt: | <ul style="list-style-type: none"> • Results and effects appear to be proportionate to invested budget. Stable budget input is essential for continuous project promotion and expansion. • Since it is difficult to establish a legally binding system for the private sector at the local government level, efforts are needed to expand public sector to the private sector through private cooperation network operations. • In addition to targeted projects, financial and non-financial incentives, such as publication of results achieved for marketing purposes through branding certifications can act as incentives for private sector uptake. |

