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FRANKFURT AND YOKOHAMA SHARE KNOWLEDGE ON ENERGY MANAGEMENT, SMART CITIES, EDUCATION AND MORE

Frankfurt and Yokohama are focusing on a range of topics as part of their collaboration, each item broadly fitting under the umbrella of “smart cities”. Issues being addressed include energy management, low-carbon transportation, environmental education campaigns and urban-regional cooperation.



EXECUTIVE SUMMARY

For almost a decade, the Japanese city of Yokohama has been collaborating with Frankfurt. In 1997, a representative office for Europe was established in the German metropolis, with a partnership agreement signed between the cities in 2011.

Frankfurt and Yokohama saw the IUC programme as a chance to deepen their collaboration and focus on issues related to sustainability. The partnership is aided by the fact that the cities share similarities, but each has made advancements in specific fields - this allows the administrations to learn from one another's expertise.

Through their IUC cooperation, Frankfurt has taken note of Yokohama's integrated energy management system, as well as the city's

collaboration with the private sector. Yokohama has benefited from Frankfurt's work on establishing links between the city and the wider region, and the city's environmental education efforts.

Given the relatively short time-frame for cooperation under the IUC, the pairing is focusing on the sharing of processes rather than implementing physical infrastructure, believing that it is possible to push-forward sustainability through sharing new ways of doing things.

Frankfurt and Yokohama have yet to finalise their local action plan, which, as of time of writing, remains a work in progress. The cities wish to deepen their understanding of their partner's legal and political circumstances before defining the plan.



CHALLENGES AND SOLUTIONS

Communication between the pairing takes place through email exchange and frequent telephone conferences. These phone calls are held at least once a month, even occurring on a weekly basis during certain periods.

The two cities exchanged concept papers on their work in the fields of energy management, low-carbon mobility and environmental education, but were hindered by the language barrier. In both cities, only a select few concept papers are translated into English from the original Japanese or German.

To ensure the knowledge could be shared, the cities decided to translate the concept papers into both languages. Despite being quite time consuming, the translation proved to be a good investment, with the cities benefitting from this exchange of written resources.

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The pairing has also made significant efforts to better understand the administrative, legal and political structure in each city. Having this base-line knowledge allowed the partnership to progress more quickly.

Before discussing specific solutions, it is necessary to fully appreciate the context in which the partner city is operating. In Yokohama, in contrast to Frankfurt, civil servants change departments every three to four years, often moving to a completely different field (for example, from the city's environmental department to the city planning office). In Frankfurt this is not the case, with civil servants often remaining in the same department throughout their career. Knowing this allows the city to plan their partnership in the long-term more effectively.

While the pairing found a great deal of similarities, there were also areas in which the cities' priorities diverged. In Japan, a country beset by earthquakes, tsunamis and other naturally occurring threats, preparedness for natural disasters is a major political priority. This is acutely felt in the energy sector, particularly following the 2011 Fukushima Daiichi nuclear disaster, in which a tsunami



resulted in a nuclear meltdown, hydrogen-air explosions and the release of radioactive material. In Frankfurt, natural catastrophes are less frequent, and so do not warrant the same level of attention politically.

Yokohama, for example, started the Virtual Power Plant Construction Project, which sees the city install storage batteries in public buildings which can be used as demand response power sources. In this project, Yokohama ensures that batteries can supply around a third of the usual energy requirement, guaranteeing sufficient energy in the case that an earthquake or other natural disaster disables the electricity grid. This solution, although innovative, was not seen as applicable to Frankfurt.

Building social relationships is also very important. Investing in getting to know others on a personal level helps to build trust - a particularly important step in Japanese culture. Taking the time to learn how private and business relationship works in a different cultural context helps the cooperation to run more smoothly.



RESULTS AND IMPACT

Both cities have successfully involved a wide-range of municipal departments and companies. In addition to Frankfurt's municipal energy agency, the city's economic development agency (Wirtschaftsförderung Frankfurt GmbH) is involved in the partnership as well as the local energy provider (Mainova AG). *Umweltlernen e. V.*, the environmental education association, and a representative of a regional hydrogen network (H2BZ-Hessen) gave presentations on their work during a study visit by representatives from Yokohama to the German city.

Smart energy management is a major focus for both cities. Yokohama takes a comprehensive approach to energy, connecting batteries, hydrogen power and renewables to the grid. Frankfurt is keenly studying their approach.

Yokohama has also established working relationships with large companies, such as Toshiba. In Germany, it has proven more difficult to engage in large-scale public-private partnerships. Learning about how Yokohama works with businesses has been of great interest to Frankfurt.

Both cities face the challenge that they lack the capacity to produce the required levels of renewable energy by themselves, so are reliant on the surrounding region. The topic of cooperation between the region and the city is one in which Frankfurt has a great deal of experience.

In addition to discussion on low-carbon transportation, communication campaigns have also formed part of the cooperation. Frankfurt has carried out campaigns to communicate the importance of sustainability to citizens (particularly in schools), but also to businesses and other stakeholders. Yokohama was particularly interested in Frankfurt's exhibition on climate protection and nutrition, which explored the link between different diets and CO₂ production. Given Japan's deep cultural connection with food and nutrition, Yokohama expressed a desire to replicate this environmental education campaign.

To get a better sense of the solutions implemented in both cities, mutual study tours were organised. In April, a delegation from Frankfurt travelled to Yokohama to discuss energy management and other sustainability issues. The delegation visited a District Heating and Cooling plant to learn more

about Yokohama's energy measures. They also had time for some cultural activities, stopping in the famous Sankeien Japanese garden.

A delegation from Yokohama travelled to Frankfurt in August. The German colleagues aimed to hold site visits as opposed to giving powerpoint presentations, believing that having a practical experience - one in which it's possible to see and touch the solution under discussion - is much preferable to viewing it on a screen. Getting to speak to the responsible employees on the ground is also beneficial, as they can provide a great deal of insight that would not be available otherwise.

The site visits included a trip to Frankfurt airport (one of the busiest airports in Europe) to learn more about the airport's approach to energy management, such as how they integrate mobility with smart grids. The delegation also paid a visit to Frankfurt zoo, which carried out an initiative relating to environmental education for school children. Following the site visits, half a day was reserved for discussing the local action plan, defining milestones and the timeline going forward.



Through their partnership, the pairing is contributing to Sustainable Development Goals 11 (Sustainable Cities and Communities) and 13 (Climate Action). Although contributing to the SDGs is not at the forefront of the partnership, both cities are aware of this international framework and have discussed how their local actions help to meet international targets.



LESSONS LEARNED



Communication is king. For a partnership to be successful, each city needs to be in touch on a frequent basis. Language barrier issues must be addressed early and thoroughly. Investing time into maintaining communication is crucial.



Before starting to devise solutions, take the time to understand the context in which your partner city is operating - this includes legal, political and cultural issues. Seeing things from your partner city's perspective can help you to identify synergies and recognise areas of divergence.



In the end, cooperation is about building social relationships. Investing in getting to know your counterpart will help to build trust and will improve your working relationship. Having a one to one connection can spur the partnership to success.



Understanding the cultural element of working together - how private and business relationships are conducted in your partner country - can make collaboration smoother. Be open to new ways of interacting.

THE IUC PROGRAMME

The International Urban Cooperation (IUC) programme enables cities in different global regions to link up and share solutions to common problems. It is part of a long-term strategy by the European Union to foster sustainable urban development in cooperation with the public and private sectors, as well as representatives of research and innovation, community groups and citizens. Through engaging in the IUC, cities will have the chance to share and exchange knowledge with their international

counterparts, building a greener, more prosperous future. The IUC programme is an opportunity for local governments to learn from each other, set ambitious targets, forge lasting partnerships, test new solutions, and boost their city's international profile. Its activities will support the achievement of policy objectives as well as major international agreements on urban development and climate change, such as the EU Urban Agenda, the UN Sustainable Development Goals, and the Paris Agreement.



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