
**„The role of cities and municipalities on
the road to net zero“**

**12th German-Japanese
Environment and Energy Dialogue Forum**

**September 6-7, 2022
Berlin/online**

CONFERENCE REPORT

September 2022

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1. Summary

Germany and Japan have committed to achieving greenhouse gas neutrality by 2045 and 2050, respectively. This requires both political strategies and innovative technologies. As technology and innovation leaders, Germany and Japan are at the forefront of the global "race to zero".

Since its founding in 2007, the German-Japanese Environment and Energy Dialogue Forum (EEDF) has served as a forum for German and Japanese experts from industry, research and politics to exchange information on current political strategies, technological developments and experiences from demonstration projects in the fields of energy, climate and environmental protection. Since past forums had been dedicated to the question of decarbonization of energy supply, mobility or industry, the focus of the 12th German-Japanese Environment and Energy Dialogue Forum, which took place on September 06 and 07, 2022 in Berlin and online, was the role of cities and municipalities on the way to "net zero".

More than 90% of the population in Japan and 75% of the German population live in cities. Urban infrastructures are significantly affected by climate change. Cities - both metropolitan areas and municipalities - can provide a response to the impacts of climate change and make a significant contribution to reducing greenhouse gas emissions. Many cities in Japan and Germany have already set ambitious goals for climate neutrality and activities to transition to climate-friendly, resilient, and livable cities.

On September 6 and 7, representatives from business, politics and science met at the Japanese-German Center Berlin (JDZB) to discuss the role of cities and municipalities on the path to "Net Zero" as part of the 12th German-Japanese Environment and Energy Dialogue Forum (EEDF). The forum was held for the first time in a hybrid format at the Japanese-German Center in Berlin and online via Zoom. A total of 175 participants attended the two days of the conference with 29 speakers, 40 participants on-site and 140 online.

The two-day program, which was conducted in a hybrid format, was filled with keynote speeches, panel and discussion sessions, and plentiful space for exchange among the various stakeholders.

On Day 1, ministry representatives from both countries reported on current decarbonization strategies and policies to support cities on their path to carbon neutrality. This was followed by an exciting panel discussion with representatives of the partner cities of Berlin and Tokyo on the specific challenges of climate protection. In the afternoon, participants had the opportunity to exchange ideas and make new contacts in a moderated networking session on generation and utilization concepts for renewable energies in rural regions and on waste heat utilization in cities.

The second day of the EEDF was divided into two parallel sessions dealing with promising technologies and concepts for climate neutral cities. The main topics in the different sessions were municipal energy management, sustainable urban mobility, the implementation of hydrogen projects, the use of heat pumps, and strategies for decarbonization in cities and living spaces with different circumstances and challenges (big cities, metropolitan regions, port cities, rural communities).

The individual sessions were filled with forward-looking ideas for addressing the urgent challenges facing cities worldwide: Mobility solutions to realize the vision of a more sustainable society, digital data platforms to manage and control inner-city logistics, hydrogen production plants integrated into residential areas, waste heat from data centers, and many other innovative technologies and projects. The insightful contributions of experts and the active involvement of participants on site and on the screens made the event a success full of insights, discussions and encounters.

The 12th EEDF was organized by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), the Federal Ministry for Economic Affairs and Climate Action (BMWK) and the Japanese NEDO (New Energy and Industrial Technology Development Organization) in cooperation with the Japanese Ministry of Environment (MoEJ) and the Japanese Ministry of Economy, Trade and Industry (METI). The forum was realized by adelphi and ECOS.

2. Contents of the Sessions in Detail

2.1. Day 1: Energy and Climate Protection Strategies in Japan and Germany and the Role of Municipalities

The detailed presentations on the lectures can be viewed on the EEDF homepage.

https://gj-eedf.org/ja/agenda_ja

Welcoming Words from the Organizers and Supporters



Hiroaki Ishizuka, Chairman of the New Energy and Industrial Technology Development Organization (NEDO), opened the event with a short welcome address to the participants of the 12th German-Japanese Environment and Energy Dialogue Forum 2022 and emphasized the need for technological innovation to achieve "net zero". **Dr. Julia Münch Secretary General of the Japanese-German Center Berlin (JDZB)**, welcomed the auditorium as host.

Keynote: “Current Status of National Decarbonization Trajectories in Japan and Germany”



Ryo Minami, Director-General for Policy Planning and Coordination from the Ministry of Economy, Trade and Industry (METI), presented the current status of decarbonization pathways in Japan. He specifically addressed Japan's efforts for energy security and implementation of the energy transition. By 2030, Japan's GHG emissions are expected to decrease by 46% compared to 2013, and by 2050, Japan aims to achieve GHG neutrality. For the 2030 targets, policy measures are to be implemented mainly in the areas of renewable energy, energy efficiency as well as nuclear energy. In addition, Mr. Minami discussed the possibilities of decentralized energy supply and the importance of energy efficiency measures for buildings in an urban context. Finally, he emphasized the importance of international cooperation to support the way to global greenhouse gas neutrality.



Ursula Borak, Deputy Director General for Bilateral Cooperation on Climate Action and the Energy Transition, International Energy Agency at the Federal Ministry for Economic Affairs and Climate Action (BMWK), then presented current developments of decarbonization pathways in Germany. She emphasized that despite the crisis in the wake of the Russian war of aggression, the climate crisis and climate protection remain of central importance and the energy transition must be further accelerated nationally and internationally. Germany accordingly adheres to the goal of greenhouse gas neutrality by 2045. Ms. Borak additionally addressed the importance of the energy transition and green transformation of the economy as a basis for future competitiveness and highlighted the central role of international

cooperation to meet the 1.5-degree target. Finally, she emphasized the potential of Germany and Japan to jointly become pioneers and role models of the global energy transition through their technological innovation potential.

Keynote: “Policies to Support Cities on the Path to 'Net Zero'”



Keiko Segawa, Deputy Director-General for Global Affairs from the Ministry of Environment, Japan (MoEJ), emphasized the many political similarities between Germany and Japan, also in terms of climate protection. One of them, he said, is that local authorities play an important role in policy implementation. As a policy measure to support cities on the way to "net zero," she presented the "Regional Decarbonization Roadmap," whose goal is to realize 100 "decarbonization leading areas" in Japan by 2030. The key message of the keynote was that decarbonization is a regional growth strategy and decarbonization projects can

solve problems in the region by maximizing the use of regional resources such as renewable energy.

Keynote: “Cities as Key Actors in the Climate Crisis”



Dr. Eva Kracht, Director-General for International and European Policy for the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), concluded by discussing the role of cities as drivers of climate change and resource consumption, which at the same time makes them key actors in the fight against climate change. The climate crisis demands from cities and municipalities not only comprehensive transformations in the energy sector, transport and heat supply, but also new approaches in land use, the development towards a circular economy and nature-based solutions such as green space management or biodiversity in cities.

Impulse: “Vision Emission-free City: Rethinking Mobility”



In his talk on the vision of a zero-emission city, **Prof. Felix Creutzig, Group Leader at the Mercator Research Institute on Global Commons and Climate Change (MCC)**, outlined how urban mobility should be rethought. Using Berlin as an example, he demonstrated that we still have a long way to go to achieve this vision. At the moment, emissions caused by the various forms of transportation are not decreasing. Efficiency gains in drive technologies are swallowed up by the use of larger, more energy-consuming cars. At the same time, the transition towards e-mobility has begun. In order to achieve the necessary transformation

towards emission-free mobility, Prof. Creutzig sketched three essential strategies, that will help to lead the way to a more sustainable future of mobility.

First, **economic efficiency** needs to be a guideline for urban mobility. Individual, private transport is inefficient, the costs of traffic jams, noise and air pollution are high, especially in cities. Therefore, externalities in the transportation sector must be marginally priced at a higher rate. At the same time, the expansion and improvement of viable alternatives, such as public transport, shared mobility and new mobility-as-a-service solutions will make the pricing more effective.

Second, **agile urban planning** can play an important role in making cities more climate-friendly by shortening and reducing transportation routes. In this endeavor, artificial intelligence can support the design and accelerate the process of environmentally-friendly city planning. Various approaches, such as densification and consolidation are conceivable options, in this context.

Third, (partially) **car-free cities** should be established as a positive narrative, a desirable vision to aim for. Transforming parking spaces into open spaces for safer mobility and higher life quality is just one illustrative example to gain support and approval among citizens. An important focus should be on making climate-neutral mobility accessible to everyone.

Panel Discussion: “Cities as Pioneers on the Way to ‘Net Zero’”



**Follow-up questions and answers by the audience were integrated into the text.*

In the following panel discussion, which was hosted by **Johanna Schilling, Managing Director of ECOS**, the participants discussed vividly how cities can become pioneers on the path to “Net Zero”. **Prof. Yoshiki Yamagata from the Graduate School of System Design and Management, Keio University**, emphasized the importance of analyzing cities from a systems perspective. To achieve carbon-neutrality, mobility must be fundamentally changed. This is not only a technological challenge that requires more power from renewable energy and battery electric vehicles, but has to start with a new mindset and behavioral changes among the cities’ inhabitants. Prof. Creutzig considered infrastructural adaptations necessary to encourage the desired behavioral changes. Redesigning the public space and providing adequate education to specialists to build and assemble climate-friendly technology are just two examples.



Katharina Goergens, Deputy Team Leader Energy Politics at the Berlin Senate Department for Economics, Energy and Public Enterprises, highlighted solar energy as one of the essential pillars for a climate-neutral city of Berlin. A quarter of Berlin's energy needs are to be met by solar energy. The shortage of skilled workers is one of the central challenges, which is to be countered by setting up a so-called “Klimawerkstatt” (Climate Workshop) and by increasing the number of apprentices. As a further important challenge in urban planning, Goergens named data availability, data quality and data security.

For the megacity of Tokyo, **Toshiko Chiba, Climate Change Specialist and Director of the Climate Change Division in the Bureau of Environment of the Tokyo Metropolitan Government**, sketched the ambitious goal of the city government to reduce GHG emissions by 50% until 2030 and to become emission-free by 2050. In order to achieve this objective, the energy consumption must be reduced drastically, especially in the building sector, which is responsible for approximately 70% of the energy demand. Tokyo has introduced the world's first urban cap-and-trade system for commercial businesses. Further, legislation with regard to buildings will be changed to require photovoltaics for some buildings and to promote the energy-efficient renovation of outdated buildings.



Next, **Masanori Kobayashi, Director General of the Smart Community and Energy System Department of the New Energy and Industrial Technology Development Organization (NEDO)**, added that digitization will certainly play an important role for cities but will not be sufficient to achieve their climate goals. The basis must be a change in lifestyle by the whole of society. Simultaneously, artificial intelligence, big data, internet of things applications and smart grids are innovative technologies which should be promoted and further developed to make a new energy system possible. Smart mobility and smart community solutions offer additional potential. However, Prof. Creutzig noted, that smart solutions must not necessarily be sustainable. Special attention should therefore be paid to the actual climate and environmental impacts of new technologies.

Katharina Goergens suggested a mix of measures that are necessary to motivate people to act more climate-friendly: first, **regulatory frameworks**, such as an obligation for solar panels on new buildings, second, **informative campaigns** to clarify the advantages and encourage environmentally-friendly behavior, and third, **funding programs** that enable various projects such as roof greening. Even without a roof, urban residents can get involved in the energy transition with creative solutions such as photovoltaics on the balcony. This does not only contribute directly to the electricity supply, but also increases the visibility and acceptability of renewable power plants of any size and design.

Prof. Creutzig believes that not only consumers but also employers have a substantial duty to contribute to the sustainable transformation. The state's company car privilege on the part of employers, for example, is a **misleading incentive**. Instead, employers should provide sufficient bicycle parking spaces and promote forms of mobility that differ from private car transport.

According to Prof. Yamagata and Prof. Creutzig, there are several differences and similarities between Japan and Germany with regard to the circumstances for and approaches toward the challenge of carbon neutrality. Both countries rely highly on technologies, have an important automotive sector. Germany approaches problems in a very rational, top-down manner, while Japan is more concerned with atmospheric aspects of change, i.e. moving with the flow. **Both**

countries can learn from each other in a fundamental but also in a very practical way. For instance, in Tokyo, car owners must provide proof to own a parking space and the interaction of real estate with mobility is more integrated. The valuation of property is closely linked with the connection to mobility solutions, public transport included.

In the aftermath of Fukushima, **energy-efficient and -saving behavior** became a necessity. Toshiko Chiba recounted how Tokyo reacted to the power shortage. Lighting and advertisements were reduced or switched off. State governments ran campaigns on how to save energy, companies in the energy sector gave advice and visited consumers, and private households tried to reduce their energy demand as much as possible. Germany can learn from these efforts in the current situation but also in the future. We are already observing similar developments, the Federal Ministry for Economic Affairs and Climate Action has started a campaign to **promote energy-saving**, guidelines for reducing the room temperature in public buildings and facilities have been adopted and all citizens as well as companies are encouraged to contribute to this joint effort. However, in the current public debate the discussion is rather focused on how to relieve businesses and households with regard to increasing energy prices and cost of living in general and less on how each individual can contribute.

The Japanese people appear to be more willing or capable of renunciation. However, the objective should not be to sacrifice comfort but save energy nonetheless. **Digitization** can be an important lever in this context. At the end of the panel discussion, Prof. Creutzig underlined that fundamentally, happiness and mobility are closely related. Being caught in a traffic jams makes people unhappy. On the contrary, people feel happier when they are moving, taking a walk or using their bike. And there are other important components of well-being such as accessibility to education, health-care and clean air which are at least indirectly related to mobility.

2.2. Day 1: Networking Session

Participants:

Mr. Sakuradani, NEDO

Mr. Nakazato, Marubeni

Mr. Nanjo, NEDO (vormals TEPCO)

Mr. Odate, Nasushiobara City

Mr. Sagara, Nasushiobara City

Mr. Ishii, NARO National Agriculture and Food Research Organisation

Dr. Patzschke, EnBW AG

Dr. Namba, TU Berlin

Dr. Rigault, Siemens

Mr. Ott, FH Stuttgart

Mr. Eyssen, Eyssen Consult

Ms. Schilling, ECOS

Moderation: Peter Beck, ECOS; Co-Moderation: Jana Narita, adelphi.

In the run-up to the forum, the people participating on-site could indicate during registration which of four main topics for the in-depth networking session on the afternoon of the first day of the conference they were interested in. "Power Generation" and "Energy Efficiency" were the most frequently mentioned here. The moderated networking session therefore addressed these two topics in an open round of talks supported by a German-Japanese consecutive translation.

The central question of the first round on the topic of "**Energy Generation**" was: "How can the energy appetite of cities be satisfied in a climate-neutral way in the future?" It became clear from the contributions of the German and Japanese participants: In both countries, the same challenges exist for a carbon-neutral energy supply in cities.

In the case of renewable energies, the prerequisites and energy balance sheets for their use in urban and rural regions are very different. While cities are still more on the consumer side and use a large part of the renewable energies from the surrounding area, a growing number of rural regions, e.g. "energy villages", already produce electricity from renewable sources that exceeds their own energy demand. With smart solutions for energy storage or power generation from biomass, some of them even have a positive balance sheet of renewable energy throughout the year, even in times when power generation from sun and wind is very low.

For smaller cities, renewable energies can be an opportunity, as investors are increasingly interested in "green" energy for their production. However, the potentials for the production of "green" energy must first be recorded or evaluated. It is also important to involve the citizens. In Japan, after the introduction of the feed-in tariff for solar power, many large PV plants were built in rural areas. In many places, forests were cleared for this purpose, and the electricity generated was fed into the grid in its entirety. This created a rather negative image among citizens. Citizen energy projects can make a decisive contribution to increasing acceptance in society and to keeping value creation in the region. There are some positive examples of this in Germany, for example community wind farms. In the case of coastal cities, floating wind turbines in Japan can help provide "green" electricity even for major cities like Tokyo. In conclusion, citizen participation in both generation and marketing of regionally generated "green" energy is important, then it also has an economic effect locally and creates jobs.

Finally, the discussion turned to the comparison of the promotion of renewable energy in both countries. Here, Germany is considered a pioneer in Japan in terms of feed-in tariffs. Japan has followed suit, and the feed-in tariff for biomass is even up to 50% higher than in Germany. However, some fuel (wood and pellets) is imported, which is neither sustainable nor economical.

The guiding questions for the second topic, "**Energy Efficiency**", were: "What is the greatest potential for saving energy in cities? And how can smart technologies make cities more climate-friendly?" Again, one point noted was that waste heat sources and sinks in a given region

or city must first be identified and the physical and geographic conditions considered (temperature level, availability of heat sources, temperature level, distances of heat source and sink, feasibility/calculations of composite heat systems, etc.). Heat supply and heating or cooling demand can then be "matched" in specific areas, but also in larger buildings in cities.

As an interesting best-practice example, a project in Japan was mentioned in which the heat generated in greenhouses during the day is temporarily stored underground in order to use it to heat the greenhouses at night. EnBW's aquifer storage system was mentioned as an example in Germany.

The participants agreed that heat pumps, which can be used for different temperature ranges, are clearly a key technology for using waste heat for heating or cooling.

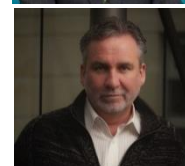
2.3. Day 2: Technologies and Concepts to Address the Biggest Challenges for Climate Neutral Cities

Session 1: "Technologies for Climate-Neutral Cities"



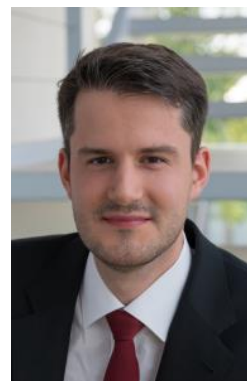
On the second day of the German-Japanese Environment and Energy Dialogue Forum, two sessions took place simultaneously: One session on technologies and another session on concepts for climate-neutral cities. **Kazuyuki Imazato, Director General of Representative Office in Europe, New Energy and Industrial Technology Development Organization (NEDO)**, led through the day as moderator and opened the technology session for climate neutral cities by emphasizing the importance of communal energy management.

Takeshi Arakawa (General Manager, Smart City Business Development Group, Business Solution Division, Panasonic Operational Excellence Co., Ltd. Representative Director of Fujisawa SST Council) and **Thomas Köhler (Head of the Environmental Office of the City of Hagen)** presented their innovative approaches for sustainable cities, with practical insights from the cities of Fujisawa and Hagen, respectively.



For the second topic of the day, i.e. mobility, **Shigetaka Murase, CEO of WILLER Inc.**, explained how the realization of a sustainable society is possible through the utilization of technologies in the mobility sector. This is a project challenging local governments, businesses and citizens equally, requiring innovation on the societal, entrepreneurial and infrastructural level. Practically, this means the realization of a transportation system that allows people to move freely without overdependence on private cars. In order to achieve this, the share of public transportation and electric vehicles must increase significantly.

Lars Mauch, Researcher of the Energy Innovation Team at Fraunhofer Institute for Industrial Engineering in Stuttgart, demonstrated in his talk how digital data platforms can be implemented to control and optimize inner city logistics. To address the challenges on the last mile such as air pollution, traffic obstacles and not fully utilized cargo volumes, cargo bikes and small battery electric vehicles are currently tested. To deal with increasingly complex logistics processes, particularly in urban centers, smart platforms can be used to analyze data, make predictions and optimize processes while considering all relevant players in the logistics process. In the elaboration and implementation of such platform it is important, that they are non-discriminatory, open to all involved players, not only those in logistics, but also to retailers. The legal situation is a further challenge: entrepreneurial solutions can be easily implemented but on public roads the applicable law must always be considered, which partly hampers the introduction of new concepts.



The third topic of the technology session was hydrogen, how to ramp up production and especially its adequate integration in urban and residential areas. **Kazushi Takahasi, Senior Policy Administrator of the Renewable Energy and the Business Promotion Sector at the Industry and Labour Department of Fukushima Prefectural Government,** elaborated on how the model region of Fukushima aims to build a regional hydrogen supply chain. A pure hydrogen fuel cell in a public park, a mobile and a stationary hydrogen station, the Fukushima Renewable Energy Institute, a Hydrogen Energy Research Field and the Green Energy Center among others are part of the ambitious plan. The research facilities already produce approximately 900 tons of green hydrogen per annum. Increasing efficiency, reducing production costs, solving technical challenges of transportation and educating skilled workers will be crucial for the successful development of the hydrogen sector.

Dr. Katja Walther, Head of the Sustainability and Climate Protection Department of the City of Esslingen, introduced the concept of a climate district to the audience. This approach is distinguished by its on-site hydrogen production integrated into the residential district. The installed electrolysis has been in regular operation since March. Current challenges are high electricity prices that make an economical production of hydrogen difficult, and the availability of green electricity from renewable energies which cannot be covered by local electricity alone but is dependent on further regional production capacities of wind parks.





The last topic of the day was circular energy systems with speakers from different backgrounds (public, research and business). First, **Masahisa Ishii, Deputy Leader of the Institute for Rural Engineering of the National Agricultural and Food Research Organization (NARO)**, shed light on regional energy cycles by talking about the current status and technological perspectives of the VEMS project (Village Energy Management System). Especially rural areas have diverse renewable energy potentials with several different power sources (solar, hydro, wind, wave, biomass, etc.). The project aims to measure and optimally manage the demand and supply of renewable energy in agricultural production and rural life. In the future, among other things, more heat pumps should be used for greenhouses instead of continuing to generate heat by burning oil.



Second, **Benjamin Ott, Research Associate at the Institute of Energy Economics and Rational Energy Use (IER) of the University of Stuttgart**, presented his research “Bytes2Heat” on how waste heat from data centers can drive the heat transition in Germany. Data centers in Germany consume annually approximately 16 billion kWh of electricity with growth potential of up to 60% by 2025. Most of the server locations are in metropolitan areas such as Frankfurt and therefore offer potential for feeding the waste heat into to the heating networks. Challenges for realizing this potential are currently outdated infrastructure and poor insulation of buildings that require greater heat as well as lack of communication and cooperation among relevant stakeholders.

Third, **Dror Peled, Deputy Division Manager and General Manager Marketing & Export Sales, Living Environment Systems for the German Branch of Mitsubishi Electric Europe B.V.**, discussed how different heat pump technologies might be able to accelerate the heat transition in urban spaces. Heat pump technologies vary from air-to-water, air-to-air, water-to-water or brine-to-water distribution, each with its specific advantages and challenges. Due to increasing demand and political developments that will require further installation capacities, especially air-to-air pumps as a proven technology and with lower investment costs can be scaled-up and implemented quickly to answer the current peak in demand. The German Government has an objective of 500,000 new heat pumps annually by 2024 (currently: 150,000 p.a.). Combining heat pumps with modern ventilations systems can additionally increase energy efficiency.



Session 2: “Concepts for Climate-Neutral Cities”



In the second session, which proceeded simultaneously to the technology session, **Ulrike Vorwerk** from the **German Institute of Urban Affairs** moderated through the day. The focus was on concepts for climate-neutral cities, ranging from concepts for major cities and metropolitan areas to harbor cities and rural municipalities.

The session started off with net-zero strategies for major cities and metropolitan regions with two insightful examples from Japan and Germany. First, **Aki Sonohara and Akira Yoshida**, both **Managers in the Climate Change Policy Headquarters of the City of Yokohama** presented their strategy “Zero Carbon Yokohama 2050”. The presentation included the reduction targets on the path to a zero-carbon city breaking down the objective into energy savings and expansion of renewable energy sources. The two experts outlined how inter-regional cooperation can support the sustainable transformation of the city, and how different institutions, several pilot projects and a certification system contribute to the whole process. In the Q&A-format that followed, Sonohara and Yoshida explained that renewable energy from other regions outside of Yokohama will be necessary to provide sufficient power to the city, especially energy from offshore wind can be an important key to the cities’ objectives. Further, they elaborated on the SDGs certification scheme for companies and the benefits that companies can get out of the scheme. Among other advantages, gaining extra points for public procurement of development projects provides an effective incentive for companies to participate in the cities’ certification scheme.



Second, **Kai Lipsius, Climate Commissioner of the City of Essen and Head of the Essen Green Capital Agency**, spoke on the strategy for climate neutrality of the city of Essen, the green capital of Europe in 2017. In his talk he presented key figures and objectives for Essen and the Ruhr metropolitan area. Essential projects for a greener city are the Krupp-Park, establishing Connected Mobility as a service, and the RS1 Cycle-Highway for commuting and leisure activities that stretches more than 100 km through the metropolitan region. Further, Lipsius broke down how the reduction goals of the city can be reached by implementing different measures in the relevant sectors and how international networking contributes to learning from each other and building synergies among different organizations. In the following Q&A, it was elaborated that Essen is at the core of the strategy but that cooperation between the surrounding cities of the Ruhr region is vital and that certain aspects cannot be considered in isolation, such as public transportation.

Next on the agenda were net-zero strategies of harbor cities. **Kazuya Mori, Manager in the Energy Policy Division of Kobe City**, sketched the city government’s plan for a carbon-neutral future with a focus on the “Hydrogen Smart City Kobe Initiative” and the objective of a carbon-neutral port (CNP). The initiative involves the development of a hydrogen utilization system and the establishment of a hydrogen supply chain. Hydrogen fuel



cells are intended to power cranes that are used for cargo-handling in the port and harbor logistics. In the following Q&A session, Mori talked about the potential of CO₂ sinks in certain green areas and parks in and around the city and about the implementation of fuel cell buses in public transportation.



Then, **Kerry Zander, Coordinator Climate Protection Control Center, Office for Environmental and Climate Protection of the Hanseatic University**, introduced the Solar Campaign for the city of Rostock that aims to substantially promote the installation of photovoltaic systems. The campaign aims to establish the city itself as a role model in the expansion of photovoltaics and to provide citizens with information on best practice examples, online resources such as a newly created geodata portal, legal requirements, technologies, funding possibilities and many more aspects that are essential for successfully installing photovoltaic systems.



The last topic of the day were net-zero strategies of rural municipalities. **Ingo Böhm, Mayor of Bosbuell**, showed how eFarms in North Friesland implement the production and use of hydrogen. Energy from wind parks and photovoltaics are used for Power-to-Gas (hydrogen) and heat pumps that are the foundation for sustainable heating and mobility in the municipalities, simultaneously strengthening the regional economy and value creation. In the Q&A that followed, Ingo Böhm explained how citizens were involved in the project from the very beginning to raise awareness and acceptance of the project. Further, the project inspired nearby municipalities to imitate the project and helped to create jobs and make the region more attractive to young people.

At last, **Takashi Sagara, Director of the Climate Change Division in the Climate Change Bureau of Nasushiobara City**, described the city's efforts towards carbon neutrality. The rural city near Tokyo is characterized by thriving agriculture, dairy farming and the tourism industry. Sagara presented the current GHG emissions by sectors, the reduction targets and the renewable energy potential ranging from solar and hydro power, to biomass, geothermal energy and onshore wind. Important initiatives are the Nasunogahara Green Project, the construction of a Zero Carbon District and the establishment of new regional electric power companies. In the Q&A session, Sagara pointed out that animal manure from dairy production will be reused as a source for biogas power generation but also as a fertilizer for fields. Future challenges for rural municipalities will be the expansion of renewable energy in harmony with the local communities, the utilization of heat from renewable energies and of unused resources, and the decarbonization of the transportation sector.



3. Impressions



Hybrid panel discussion on Day 1 on "Cities as Pioneers on the Way to "Net Zero""



Networking Session on Day 1 on the topics of "Energy Generation" and "Energy Efficiency"

12. German-Japanese Environment and Energy Dialogue Forum – Conference Report



Session A discussion panel on "Technologies for Climate Neutral Cities"



Session A discussion panel on "Concepts for Climate Neutral Cities"

4. Evaluation

4.1. Attendance

Number of Participants

Date	Participated	Registered
06.09.2022	40 PAX (on-site), 120 PAX (online)	328 PAX
07.09.2022	35 PAX (on-site), 140 PAX (online)	328 PAX
Total Number (per day)	175 PAX	328 PAX

No-Show Rate

Registered	328
Participated	175
No-Show Rate	47%

4.2. Evaluation of Online Survey

Number of participants in the survey

	GER	JAP	ALL
Number of participants	11	18	29

In which field are you active?

	GER	JAP	ALL	PCT
Politics	1	0	1	3%
Public administration	0	4	4	14%
Industry	3	5	8	28%
Science	5	5	10	34%
Other:	2	4	6	21%
Consulting	1			
Business development	1			
Electricity supplier		1		
Regulatory authority		1		
Journalism		1		
n/a		1		

Please tell us the main purpose and reason for your participation in the forum?

	GER	JAP	ALL	PCT
Information on the current status and prospects of energy and climate policy in Germany and Japan	4	11	15	52%
Information about "Cities as pioneers on the way to "Net Zero""	0	5	5	17%

Information on "Technologies for climate-neutral cities"	3	1	4	14%
Information about "Concepts for climate-neutral cities"	3	0	3	10%
Search for partnerships with Japanese or German companies	0	1	1	3%
Other	1	0	1	3%

Did you participate in the forum online or physically?

	GER	JAP	ALL	PCT
Online	6	17	23	82%
Physically	4	1	5	18%
Both (different on 1 st and 2 nd day)	0	0	0	0%

How would you rate the forum on a scale of 1-10?

	Ø GER	Ø JAP	Ø ALL	σ ALL
1st day	7,22	7,28	7,26	2,05
2nd day	7,00	7,12	7,07	1,94

What did you particularly like about the Forum?

	GER	JAP	ALL	PCT
New insights (content, culture, etc.)	3	4	7	23%
High quality of the contributions	2	1	3	10%
Exchange with participants and speakers	1	1	2	7%
Openness and transparency	1	1	2	7%
Specific practical examples and measures	2	6	8	27%
Organization and time management	1	1	2	7%
Positive progress of (polit.) efforts	0	5	5	17%
Balanced participation GER-JAP	0	1	1	3%

What do you think could be improved about the Forum?

	GER	JAP	ALL	PCT
More exchange	3	2	5	20%
More presentations on-site	1	0	1	4%
More participants on-site	0	1	1	4%
Technology (display, sound, quality of connection)	3	4	7	28%
Coordination of the presentations	1	0	1	4%

Preparation of the speakers for each country	1	0	1	4%
More diversity (politicians, citizens, etc.)	1	0	1	4%
Comparison of cities/municipalities	1	0	1	4%
Events not parallel	1	0	1	4%
Certain actors not represented	0	1	1	4%
Certain topics/measures not addressed	0	2	2	8%
Insufficient political efforts	0	1	1	4%
Inappropriate date	0	1	1	4%
Access to presentations/images/videos	0	1	1	4%

Have you made new interesting contacts or met potential partners for the future?

	GER	JAP	ALL	PCT
Yes, several	3	1	4	14%
Yes, few	4	6	10	36%
Not at all	4	10	14	50%

Please elaborate the reason for your answer in the comment field. (see previous question)

	GER	JAP	ALL	PCT
Too little opportunity for dialogue/exchange	2	1	3	30%
Language barriers	1	0	1	10%
Focus on contents	1	2	3	30%
Technical problems	1	1	2	20%
No contacts wanted	0	1	1	10%

What do you think are the most important sectors to address for the decarbonization of cities and municipalities?

	GER	JAP	ALL	PCT
Mobility	3	2	5	17%
Buildings	1	3	4	14%
Behavioral changes of citizens	4	3	7	24%
Energy supply	3	9	12	41%
Other:	0	1	1	3%
Research on energy conversion		1		

Through which organization did you learn about the forum?

	GER	JAP	ALL	PCT
adelphi	1	1	2	7%
ECOS	5	4	9	32%
Ministries in Germany/Japan	0	4	4	14%
German-Japanese Energy Partnership	3	2	5	18%

NEDO	0	3	3	11%
German Chamber of Industry and Commerce Japan	0	1	1	4%
OAV	0	0	0	0%
DJW	0	1	1	4%
German Embassy Tokyo	0	0	0	0%
Other:	1	2	3	11%
n/a	1			
Requested as speaker		1		
Company newsletter		1		

Through which channel did you learn about the forum?

	GER	JAP	ALL	PCT
Social Media	1	0	1	3%
Newsletter	1	4	5	16%
Invitation mailing	8	7	15	48%
Homepage	0	6	6	19%
Tagesspiegel Background Energy and Climate	0	0	0	0%
Other:	2	2	4	13%
Requested as speaker	1			
Wuppertal Institute, GJETC, BMUV, BMWK	1			
Company newsletter		1		
Contact with ministries		1		