

ICP-AGIR Cooperation Action Plan for INCHEON (Republic of Korea) – ALMERIA (Spain)

Cooperation Data		
	INCHEON	ALMERIA
Departments / Institutions involved	International Cooperation Division	Almeria ICP-AGIR Programme Team
ICP AGIR City Coordinator	Eunjung Jo Manager	Diego Gil Coordinator
ICP AGIR Pairing Manager	Regional Coordinator: Megan Chow (megan.chow@icp-agir.eu) Pairing Manager: Yookyung Oh (yookyung.oh@icp-agir.eu) and Raul Daussa (rd@ramboll.com)	
Description of the partnership	<p>This partnership was confirmed on March 22, after Jeju province declined the participation in the programme and a replacement city in Asia was sought. Incheon expressed interest in cooperating with Almeria and prepared a document outlining the potential areas of cooperation in energy transition.</p> <p>The first online meeting will take place on April 27, and the first study visit should take place in Almeria in June. In this cooperation, Energy Policy Division from Incheon and EU Sustainable Urban Development Cooperation Programmes from Almeria will be involved.</p> <p style="text-align: center;">Figure 1. A snapshot of the media press released by Incheon</p> <div style="border: 1px solid #ccc; padding: 5px;">  <p style="text-align: right;">(1st Article: https://www.incheontoday.com/news/articleView.html?idxno=216939 2nd Article: https://www.asiatoday.co.kr/view.php?key=20220406010003019)</p> </div> <p>The first bilateral meeting between Incheon and Almeria was conducted on April 27, 2022. Almeria proposed the main cooperation topics are Strategic Plan Almeria 2030, Local ecosystem for Smart Agri-food, Local ecosystem for Renewable energies, and Long term cooperation. Almeria also suggested to involve following stakeholders</p>	

to future meetings: University of Almeria (UAL), El Cable (business incubator), Scientific and Technological Park of Almeria (PITA). Followed by Almeria’s presentation, Incheon shared city greening plan by using hydrogen energy. And Incheon proposed private sector partnership between solar energy companies in Spain and hydrogen energy companies in Korea since Spain is very well known for solar power industry and Incheon is well known for hydrogen power industry. Furthermore, Incheon also wished to learn successful tourism cases in Almeria since Incheon is also focusing on vitalizing city economy by improving tourism industry.

Both cities agreed that they pursue long term partnership, therefore they would like to sign sister city partnership MOU during the study visit. Since both cities aim to expand the partnership to private and educational institutions, Almeria and Incheon will actively involve private stakeholders in NRE (New and Renewable Energy) fields and smart technology institutions.

Figure 2. A snapshot of the first bilateral meeting of Incheon and Almeria



The second bilateral meeting between Incheon and Almeria was conducted on June 2, 2022. The meeting mainly focused on Hydrogen Energy which is a main interest of Incheon Metropolitan City. From Almeria side, 5 persons from Almeria City Council, 6 persons from University of Almeria and 1 person from Ingenia Solar Energy joined the meeting and presented about “Sustainable and efficient production system valorizing waste agriculture biomass” and “Green hydrogen project”. From Incheon side, 3 persons from International Cooperation Division and 2 persons from Energy Policy Division participated and presented about Incheon’s vision for turning the city into hydrogen energy-based city and the current fuel cell power generation system for producing hydrogen energy.

Especially Incheon city is aiming to make a transition from fuel cell power generation to green hydrogen, Almeria’s experience could be very helpful and also further cooperation between ISE and Incheon city regarding utilizing photovoltaic energy to generate hydrogen energy is discussed.

University of Almeria proposed PHD student/Researcher exchange student programme and further collaboration on joint research programme between Incheon university and UAL. Incheon city also invited University of Almeria to join the Hydrogen Energy Forum in November which will be held in Incheon. The further specifics will be discussed bilaterally.

Figure 3. A snapshot of the second bilateral meeting of Incheon and Almeria

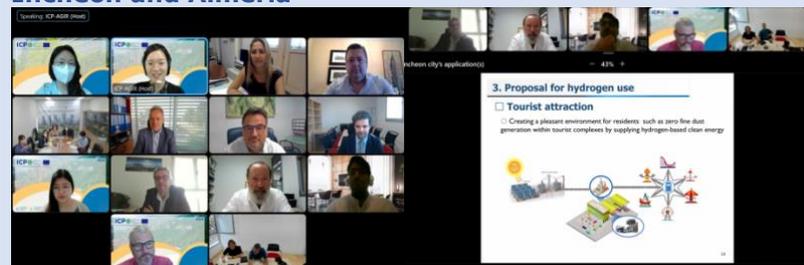


Figure 4. A snapshot of the media press released by University of Almeria



[\(https://news.ual.es/ciencia/la-ual-apuesta-por-las-energias-renovables-y-el-hidrogeno-verde/\)](https://news.ual.es/ciencia/la-ual-apuesta-por-las-energias-renovables-y-el-hidrogeno-verde/)

The third online bilateral meeting was conducted on July 28, 2022. The meeting topic was Green Hydrogen Energy. For this meeting, both cities mobilized Green Hydrogen Energy experts from University of Almeria and Inha University. Dr. HyunSeok Cho, Senior Researcher, Inha University Mechanical engineering department / KIURI Center for Hydrogen Based Next Generation Mechanical System introduced Inha University and KIURI center which conducts research projects on 1) Hydrogen production technology, 2) Hydrogen-based Mobility Energy, 3) Fundamental material for hydrogen application, 4) High-Precision Manufacturing/Sensors, 5) Extreme pressurized material.

From Almeria side, Dr. Sixto Malato introduced a solar energy research center CIESOL which is a research center between University of Almeria and center for energy, environment and technology (CIEMAT). CIESOL focuses on 6 topics including 1) solar resources and solar cooling, 2) modeling and control, 3) organometallics and photochemistry, 4) analytical evaluation of water treatment and environmental analysis, 5) water treatment, and 6) photosynthesis and desalination.



From September 25-29, the delegation from Incheon visited Almeria as a first study visit between two cities. Under the theme of main two cooperation topics which are Circular Economy and Sustainable Energy, Incheon delegates visited many sites including Mobility Department of Almeria City Council, PITA - Science and Technology Park of Almeria, Municipal Desalination Plant, University of Almeria, and Chamber of Commerce of Almeria. During the visit, both cities confirmed that they want to expand their cooperation to private sectors and research institutions. In line with this, University of Almeria and Inha University will start to draft MOU for the future cooperation. Along with this, Incheon and Almeria discussed a joint participation to hydrogen energy forum which will be held in both cities.

Figure 8. A snapshot of the second study visit in Incheon



From October 24-28, the delegation from Almeria visited Incheon as a second study visit between two cities. To continue the discussion and develop the cooperation in a deeper level on Sustainable Energy, Almeria delegates visited many sites including Incheon Chamber of Commerce and Industry, Inha University, Incheon Free Economic Zone, and local energy companies in Incheon (JH Energy, Incheon Green Energy, SK Incheon Petrochem, Incheon Fuel Cell Co., Ltd).

	<p>During the visit, KIURI and CIESOL signed MOU to consolidate the cooperation between two research institutes, and the private company from Almeria (ISE) established meaningful connections with Incheon local energy companies. Both cities also expressed interest in holding Hydrogen Forum jointly both in Incheon and Almeria to strengthen the cooperation on hydrogen solutions and bridge private companies in Incheon and Almeria to implement green Hydrogen production in Incheon.</p>
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Best practices or Challenges identified in the questionnaire		
Topic	Incheon (Republic of Korea)	Almeria (Spain)
Circular Economy/ Renewable Energy	<p>Sustainable Hydrogen Energy</p> <p>Create a hydrogen production cluster in Incheon which can produce 30,000 tons of liquefied hydrogen per year.</p> <p>Implement policies to encourage citizen to use more hydrogen energy such as Hydrogen vehicle policies, install more charging stations.</p> <p>Provision of a distributed blue hydrogen power supply system</p> <p>Wind power - planning to supply of new and renewable energy, 3,673MW, through offshore windfarm construction until 2027</p>	<p>Renewable Energy</p> <p>Sustainable Water Management</p> <p>Utilize Renewable Energy for operating government facilities</p> <p>Sustainable Agro-industry management</p> <p>Smart and Efficient use of water in agriculture innovation in the renewable energy</p>
Sustainable Mobility	<p>Sustainable Mobility</p> <p>Incheon Metropolitan City is cooperating with SK Incheon Petrochem and Hyundai Motors to encourage citizens to utilize more hydrogen energy and change the city into hydrogen-based city</p>	<p>Sustainability in Transport</p> <p>Sustainable Urban Mobility Plan (PMUS): Integrated on mobilities; traffic, parking, public transport, and pedestrian mobility</p>
Smart City / Start-up support center	<p>Incheon Free Economic Zone / Incheon Startup Park</p> <p>Incheon is one of the most advanced local authorities in the field of adapting new technologies for operating smart city. IFEZ (Incheon Free Economic zone) is the main leading team of smart city implementation. IFEZ is also closely working with Incheon Startup Park to develop smart city technologies in Incheon</p>	<p>PITA - Science and Technology Park of Almeria</p> <p>PITA – Science and Technology Park of Almeria has many internationally well-known private companies located in the park who have advanced technologies in sustainable farming, sustainable water management and sustainable agro-industry.</p>

Confirmation of Priority Areas	
Key focus of cooperation themes following the idea generation online workshop	<p>Energy Transition</p> <ul style="list-style-type: none"> • New & Renewable Energy special focus on Hydrogen Solutions • Research cooperation on Sustainable Energy <p>Smart Mobility & Business Support</p> <ul style="list-style-type: none"> • Cooperation on Smart Mobility operation polices and facilities • Startup and SMEs support policies and facilities
Short description of main actions and key outputs	<p>Under the theme of Energy Transition, Smart Mobility, and Business support, Incheon and Almeria are cooperating on topic of New and Renewable Energy (Hydrogen Solutions), Sustainable Energy (Research cooperation), Strengthen Cooperation (Partner exchange, MOU).</p> <p>The first action is to bridge private companies in Incheon and Almeria to implement green hydrogen production in Incheon. Under this action, Almeria city council plans to host a hydrogen energy forum in Almeria in July 2023 with University of Almeria (UAL) and Ingenia Solar Energy (ISE). Holding a hydrogen energy forum in Incheon in 2024 will also be discussed by cities.</p> <p>The second action is to perform collaborative research and the exchange of researchers, students, and professors. Under this action, co-workshop, exchange visit of researcher/student/professors, and student training program will take place. To solidify cooperation between research institutes, MOU was signed by representatives from CIESOL and KIURI in October 2022. MOU between Inha University and UAL will be signed in 2023.</p> <p>The third action is to create mutual learning experience in the topic of Smart Mobility and Startup, and promote business exchange between cities. Relevant stakeholders from both cities will be connected to carry out planned activities. Outside of local municipalities, Chamber of Commerce in Almeria/Incheon and technology park in Almeria/Incheon are the main stakeholders of this action.</p> <p>The fourth action is to build long-term partnership between two cities. Both Incheon and Almeria will have series of discussions on long-term partnership establishment, and will explore the needs and areas of mutual cooperation.</p>
Expected results and benefits	<p>Mutual learning and exchange between government officials from both cities, long-term cooperation</p> <p>Jointly hosting hydrogen conferences in both cities would bring exposure and give opportunities for Incheon and Almeria to share their practices abroad</p> <p>Agreement between research institutes (University of Almeria, Inha University, CIESOL, KIURI) will provide more research opportunities to the researchers in Energy Transition field.</p>

Energy Transition – New and Renewable Energy – Hydrogen solutions	
Counterparts	<p>Incheon Metropolitan City</p> <p>Almeria City Council</p> <p>University of Almeria</p> <p>Inha University</p> <p>ISE / Incheon Fuel Cell / Incheon Green Energy / SK Petrochem / JH Energy</p>
Objective	<p>Strengthening the cooperation on hydrogen solutions</p> <p>Bridging private companies in Incheon and Almeria to implement green Hydrogen production in Incheon</p>
Activities	<p>Hosting a Hydrogen Energy Forum in Almeria in July 2023 (with the cooperation with UAL, ISE) – maximum number of participants: 200 people</p> <p>Exploring the possibility of hosting a Hydrogen Energy Forum in Incheon in 2024 (hosted by Inha-KIURI) with the cooperation of Incheon Metropolitan city and Incheon private sectors</p> <p>Using ISE’s participation to Incheon visit to establish business contacts</p>
Outcomes	<p>Participants report to the event</p> <p>Networking business event takes place</p>
Indicators	<p>Reports to each government</p>
Sustainability of the action	<p>One time event</p>
Time and Resources	<p>Timeline</p> <ul style="list-style-type: none"> July 2023 (one time event) <p>Resources</p> <ul style="list-style-type: none"> Request for competitive fund: 5000 EUR Responsible cities can contribute 5000 EUR <p>Overall Budget Plan</p> <ul style="list-style-type: none"> Sponsor participants to conference: 8000 EUR Publish Incheon & Almeria’s best practices on Hydrogen Energy/Circular Economy: 2000 EUR <p>*No cost for ISE – Networking meetings in Incheon</p>

Energy Transition – Research cooperation on sustainable energy	
Counterparts	<p>INHA University – University of Almeria</p>

	CIESOL - KIURI
Objective	Perform collaborative research and the exchange of researchers, students, and professors
Activities	Co-workshop (To identify common research themes) Exchange visit of Researcher (based on the needs) Exchange of Students (based on the needs) Exchange of Professors (based on the needs) Student Training Program with ISE
Outcomes	Signing of MoU between Inha University – UAL Signing of MoU between CIESOL – KIURI Exchange of professors, researchers, students Co-hosting workshops in Almeria and Incheon
Indicators	Number of research visits or online seminars Number of student exchanges and interactions (online meeting, visiting)
Sustainability of the action	Funds are provided by relevant stakeholders
Time and Resources	October 2022-on going

Strengthened Cooperation – Business / Smart Mobility	
Counterparts	Almeria City Council – Incheon Metropolitan City Camara de Comercio – ICCI PITA – Incheon Start-up Park
Objective	Have a mutual learning experience in the topic of Smart Mobility in Incheon and Almeria Strengthen Cooperation Business Exchange between Incheon and Almeria through Chamber of Commerce (potential funding by Almeria chamber of commerce) Have a mutual learning experience in the topic of Start-up in Incheon and Almeria
Activities	Establish contact between Mobility Department of Almeria City Council and IFEZ and relevant department in Incheon Establish contact between Chamber of Commerce of Almeria and ICCI Establish contact between PITA and Incheon Start-up Park

Outcomes	<p>On-going discussion between Almeria Mobility and Smart City Division of IFEZ</p> <p>On-going discussion between chamber of commerce in Incheon and Almeria</p> <p>On-going discussion between Incheon Start-up Park and PITA</p>
Indicators	Number of Meetings or discussions
Sustainability of the action	Costs borne by relevant stakeholders
Time and Resources	October 2022-on going

Long-term City Partnership Discussion	
Counterparts	Almeria Municipality – Incheon Metropolitan City
Objective	Discussion on long-term partnership for encompassing city cooperation
Activities	Explore the needs and areas of mutual cooperation
Outcomes	Discussion on long-term partnership
Indicators	Number of meetings/discussions
Sustainability of the action	The cities will identify the areas
Time and Resources	Long Term – Need to have actual cooperation

City Partnership Monitoring and Evaluation	
Description	<p>Action 1 (Energy Transition – New and Renewable Energy – Hydrogen solutions)</p> <ul style="list-style-type: none"> - Publish Incheon & Almeria’s best practices on Hydrogen Energy/Circular Economy <p>Action 2 (Energy Transition – Research cooperation on sustainable energy)</p> <ul style="list-style-type: none"> - Signing of MoU between Inha University – UAL - Signing of MoU between CIESOL – KIURI
Mid-term evaluation	Incheon and Almeria have planned to publish best practices on Hydrogen Energy and Circular Economy to share their experiences on transforming cities into Hydrogen energy and sustainable energy-based cities.

	<p>To strengthen the research cooperation on sustainable energy between Incheon and Almeria, two research centres (KIURI (Inha University), CIESOL (University of Almeria)) in Incheon and Almeria have planned to sign MoU.</p>
<p>Final evaluation</p>	<p>Incheon and Almeria published their best practices booklet on Hydrogen Energy/Circular Economy in March, and this was distributed on the ICP-AGIR EU-Asia Final Conference in April to all ICP-AGIR participating cities from Asia and EU. The production of the best practices booklet was sponsored by European Union.</p> <p>The MOU signing ceremony between KIURI (Inha University) and CIESOL (University of Almeria) took place in Incheon in October 2022. Through this agreement, CIESOL is organizing a Summer School programme in University of Almeria and KIURI confirmed its participation which will be held in June 2023. Furthermore, KIURI and CIESOL are continuing the discussion to further expand the cooperation to the university level.</p>