



# Sustainability and Quality of Life

4<sup>th</sup> China Forum, Graz, 24 October 2018

**Brigitte Hasewend, eseia Director**

- 1. Climate Change: World Challenge**
- 2. Eseia. How can the alliance respond**
- 3. Eseia Projects**
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# Climate Change. World challenge

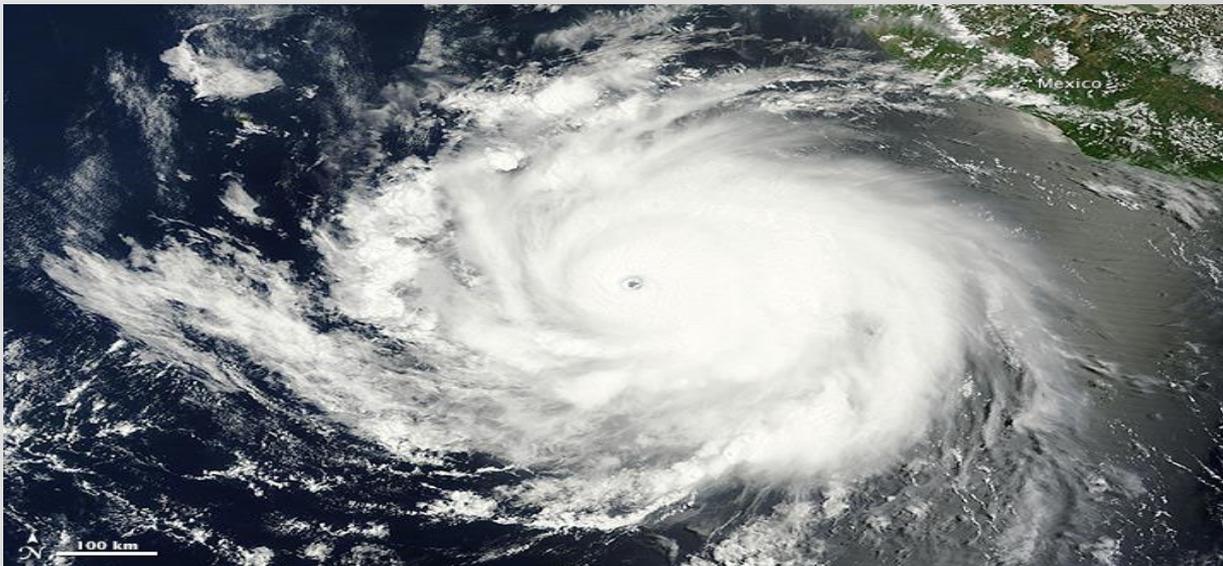


Floods in the streets of Wilaiporn Hongjantuek, Thailand, 2012. Credits: Gideon Mendel/ National Geographic.com

# Climate Change. World Challenge

## *What would happen if we do not take action?*

- Sea levels rise **between 18 and 59 centimetres**
- Stronger **hurricanes and storms** as well as more common floods and droughts
- Less fresh **water available** in certain regions of the planet
- Possible **extinction** of species not able to move



LANCE/EOSDIS MODIS Rapid Response Team at NASA GSFC. Caption by Adam Voiland

# The Paris Agreement

*The Paris Agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change (16 November 2016)*

Essential elements:

1. Limit global temperature rise **below 1.5 degrees** Celsius (latest update at the 48<sup>th</sup> session of the Intergovernmental Panel on Climate Change in Korea, 1-5 October 2018)
2. Reach a **global peaking** of greenhouse gas emissions (GHG)
3. Make finance flows consistent with **low GHG emissions** and support sustainable development
4. Maintain a **national determined contribution** (NDC) assessed every 5 years (e.g China announced to increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030, and the EU a domestic reduction of at least 40% in GHG emissions compared to 1990)



To this date, **181 Parties** have ratified of 197 to the Convention

# EU-China Summit 2018, Beijing

## *Leader's Statement on Climate Change and Clean energy (16 July 2018)*

The EU and China agree to **exchange** best-practices and experiences on **clean energy production**, such as from renewables or highly efficient combined heat and power (CHP) and discuss possible solutions, such as **interconnecting** energy networks, to meet the global power demand with clean and **green alternatives**.



# The European Sustainable Energy Innovation Alliance - eseia

European non-profit association of leading research and innovation organisations in sustainable energy.

The *eseia* umbrella covers the full value chain of energy intelligence and integration across research, academia, industry, and government.

*eseia* fosters international cooperation, manages sustainable energy innovation projects, organizes expert panels, designs entrepreneurial education programmes, and promotes dialogue with European citizens.

*eseia* has currently **35 members from 14 countries**, among which 17 Higher Education Institutions (HEIs), 8 research organisations, 7 businesses, 2 clusters and 1 regional non-profit organisation.



# Eseia's role

## Strategy and Vision

- eseia strives to become **the first European address for renewable energy systems innovation** by 2025, and supports the European Union in taking the leading role to make Europe the most innovative energy region in the world.
- eseia's expertise and activities focus on international cooperation, management of sustainable energy innovation projects, organizations of expert panels, planning of entrepreneurial education programmes and promotion of dialogue among European citizens.

Three major **strategic challenges** on which eseia works:

1. Setting the Agenda for RES on the European market;
2. Capacity Building both for people and institutions;
3. Forging International Partnerships.



# Setting the Agenda for RES on the European market

With its interdisciplinary and trans-sectorial expert membership of currently 400 experts from all sectors of renewable energy systems, the eseia Working Groups are particularly equipped to advise EC decision-makers on the key issues, existing knowledge gaps and necessary implementation instruments. This expert knowledge helps to bring about the necessary change to achieve a sustainable and highly competitive energy system in Europe by 2050.

## WG 1 on Bioresources

In this thematic area the main challenge is to provide a framework for contextualised and rational use of bioresources. These resources are the most contested input to renewable energy systems as the food sector, the energy sector, and, increasingly, the industrial sector all compete for these resources.



Michael  
Narodoslawsky, TU Graz

## WG 2 on Smart Cities and Regions

The challenge in this area is the integrated utilisation of efficiency technologies, grid overarching optimisation of energy systems, and the societal challenges of implementing complex energy solutions utilising all available resources. Within WG 2, eseia developed two Focus Groups on Smart Grids and Smart Mobility.



Teresa Ponce de Leão  
LNEG

## WG 3 on Education and Training

WG 3 conceives and implements innovative training courses for the brightest students and for professionals. WG 3 exploits the full potential of eseia members for linking practice and education and providing the best training opportunities for the brightest young scientists and professionals.



Ion Visa  
UTBv

## WG 4 on Smart Energy Materials

WG4 addresses the synthesis, processing and application of materials and chemicals (e.g. nanomaterials, energy carriers, etc.) to be used for improving the energy efficiency of e-vehicles, energy generators, buildings. WG 4 supports the new EC Cluster on Materials and Nano-technologies for Energy Applications.



Katarzyna Siuzdak  
IMP-PAN

# Capacity Building both for people and institutions

[www.etp.eseia.eu](http://www.etp.eseia.eu)

*eseia* is striving to become the **premier provider of practice-oriented education and training** in renewable energies. ETP has trained some **600 students and professionals** over the past six years.

The different professional education formats within the *eseia* Education and Training Programme (ETP) include:

## 1. *Postgraduate students*

- Interdisciplinary Student Camps (ISC)

## 2. *Postgraduate students and professionals*

- *eseia* International Summer Schools (ISS)
- Pilot Plant Courses (PPC)

## 3. *Policy makers, experts and professionals*

- Professional Training Course (PTC);



eseia Student Camp on “Regional Challenges of Bio-Based Economy”  
26 February- 2 March 2018 at Energy Agency Styria, in Graz, Austria

The ETP has its own unique learning platform with its [Best Lecture Library](#).

Additionally, *eseia* collaborates in the coordination of **other training activities** such as the *eseia* biannual International Conference; two European Masters ; Brokerage Events; and the Marie Curie staff exchanges.

## Forging International Partnerships

The EU has a strategic approach to international cooperation in **research and innovation**. It includes openness in international cooperation, meaning that the Horizon 2020 is fully **open to participation** from all over the world. Some calls are targeted specifically to include third countries.

eseia is cooperating with **major international groups** according to the EU approach fostering international cooperation in research and innovation, **specially with China**.

- Planned project proposals are open for relevant partners from countries outside the EU.
- All ETP training activities are open for participants from all over the world.



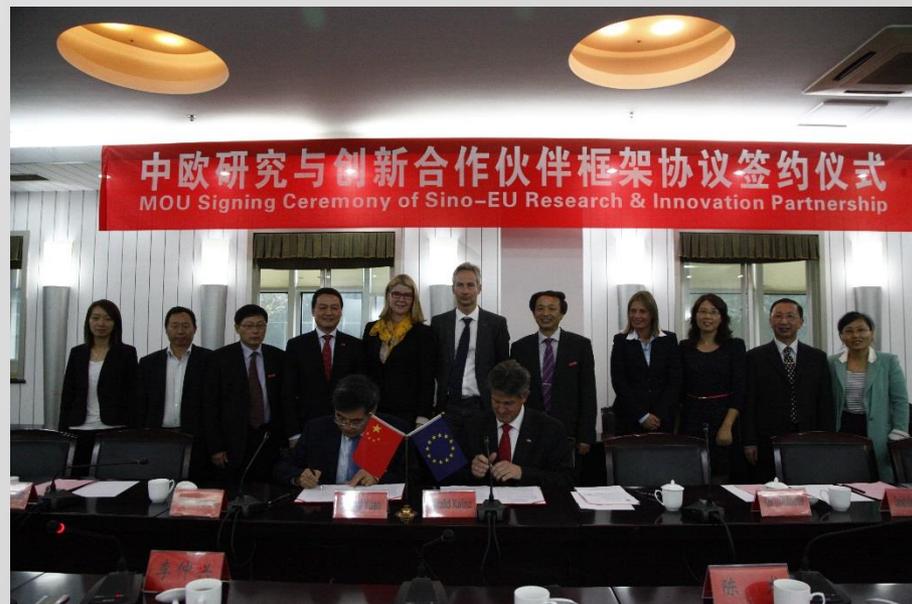
The Sino-Austrian Electronic Technology Innovation Centre was opened in May 2015

# Forging International Partnerships

## China

In 2015, EU-China AgroNet proposal was submitted to the EC to ensure a sustainable use of agricultural waste, co-products and bio-products with 21 business and research partners from EU, including eseia members, Jiangsu University, Nanjing University of Technology, Jiangsu Academy of Agric. Science, China Oils and Foodstuffs Corporation, other SME.

Recently, eseia has undertaken the WeMove2Zero KIC proposal under the call for EIT Urban Mobility together with more than 70 partners, including Chinese members. The consortium competes for funding with the EIT to create a strong knowledge community on smart urban mobility solutions for the future



The MoU was signed in October 2014 between TU Graz and Jiangsu University

# BioEnergyTrain

## European cooperation for higher education



**Period:** 48 months, 2015 – 2019

**Funding:** 3.7 Mio EUR (H2020-LCE-2014-2)

**Coordinator:** Brigitte Hasewend, *eseia*

**Partners:** 15 partners from 6 EU Countries (Austria, Germany, Netherlands, Portugal, Romania and Slovenia)

**Objective:**

Set and scale up **two European Master Programmes** integrating **professional education formats** in **cooperation with industrial and regional players.**



UNIVERSITY OF TWENTE.



## BET Approach



The BioEnergyTrain focuses on four core activities:

1. **Education and curriculum development** at the post-graduate level (degree MScs), and vocational training (through flexible access to accredited courses, though no degree will necessarily be awarded through vocational channels).
2. **Engagement with industry** through the mechanisms of industry placements/exchanges, internships (for example industrially sponsored MSc projects and project-oriented learning in collaboration with industry). Industry will also be interacting with the curriculum development team to ensure that professional needs gaps are met and long-term collaborations are developed.
3. **Engagement with regional stakeholders and EU decision bodies.**
4. **Engagement with standards and curricula organisations.**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°656760

[www.bioenergytrain.eu](http://www.bioenergytrain.eu)

## BET Approach



Two new master programmes:

- **Biorefinery Engineer (BRE)** at **Graz University of Technology**, Austria.
- **Bioresource Value Chain Manager (BVM)** at the **University of Twente** in the Netherlands.

The two pilot programmes started **in the Winter semester 2017/2018**.

Watch the promotional video of  
the  
**BRE and BVM**  
Master Programmes



*[Available in Chinese on the eseia Team YouTube Channel](#)*

Would you like more information on how to get involved in the BET educational formats?

Please, send an email to [office@eseia.eu](mailto:office@eseia.eu)

## WeMove2Zero KIC



The WeMove2Zero proposal for H2020 **EIT KIC Urban Mobility** is a flexible, growing, integrated community that spearheads best practice with the goal of *radically re-imagine EU's cities and urban planning to make European mobility emissions free.*



Painting created by Architect Prof. Klaus Loenhardt, TU Graz

## WeMove2Zero Mission



*The WeMove2Zero KIC consortium's mission is to pioneer the ambitious use of disruptive technologies to leverage radical transformations in European mobility, urban planning, and social services for the benefit of European health, welfare, and quality of life. To achieve this, the KIC will re-imagine the mechanisms and linkages between education, new business formation, and research and government.*



*Painting created by Architect Prof. Klaus Loenhardt, TU Graz*



## WeMove2Zero add value to citizens life

- **enabling citizens and organizations to access goods, services, and information** in a sustainable manner;
- **enhancing eco-mobility**, eco-mobility supports citizens' quality of life, increases travel choices, and promotes social cohesion;
- socially inclusive, and **environmentally friendly transport options**, including and integrating walking, cycling, public transport and other climate and people-friendly innovative modes of transport;
- **multi-disciplinary approach**, including all emissions (noise emission, light emission);
- simple and efficient goods delivery without emissions;
- awareness raising;
- we move to zero with all burdens of sustainable urban mobility (focusing on pollution, security, accident rates, environmental aspects);

as a result, **WeMove2Zero will create a better environment for European citizens in urban regions.**

**eseia**

European Sustainable Energy  
Innovation Alliance



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**Thank you!**