

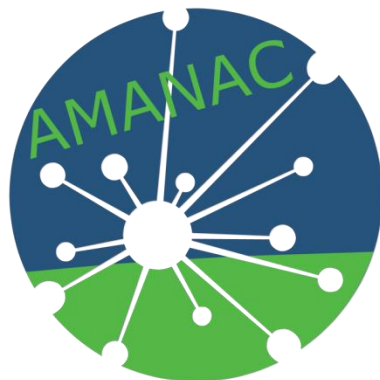
Indoor Environment Quality beyond the AMANAC group

News from the IEQ cluster
an initiative of the CETIEB project

www.cetieb.eu



CETIEB



Jürgen Frick



Indoor Environment Quality (IEQ) cluster



- At ECTP conference 2014 in June in Brussels
 - 1st meeting of the IEQ cluster
 - European projects
 - Cost action EuNetAir
 - EeB: Advanced Material & Nanotechnology cluster (AMANAC)
 - National projects



- Outcome: Research Ideas for IEQ contributing to
 - Renaturing Cities: Addressing Environmental Challenges and the Effects of the Economic Crisis through Nature-based Solutions
 - Materials & technologies for improved Indoor Environment Quality

Session and cluster documents see Download at www.cetieb.eu



Research Ideas IEQ Cluster (1 of 2)



- **Impact of material emissions on the Indoor Environment Quality (IEQ)**
 - Renewable materials for construction, conservation, cleaning, etc.
 - Safety requirements (flame retardants, biocides, etc.)
- **Outdoor pollution influences IEQ**
 - Renaturing cities could lower this impact
 - Modelling and assessment at district level and tools for monitoring, treatment and filtering
- **New control strategies to improve IEQ**
 - Tools for efficient comfort systems (thermal, moisture, illumination, and noise)
 - Self-cleaning capacity and smart materials with controllable properties



Research Ideas IEQ Cluster (2 of 2)



- **Management, maintenance and monitor IEQ**
 - Sensing systems for specific pollutants (VOCs, dust, particulates, biological and chemical)
 - Standardisation of sensor technologies and assessment of health and toxicological impacts of pollutants
- **Human behaviour and perception**
 - Influence on IEQ together with pollutant's properties and building characteristics
 - Subjective human IEQ perception vs. real IEQ measured
- **Benchmarking and assessment strategies (stakeholders, policy makers)**
 - Procedures to measure progress and identify changes in IEQ
 - Identification of best solutions to improve IEQ



IEQ cluster 2nd meeting



- 2nd meeting at WGs and MC Meeting of Cost action EuNetAir in Istanbul, 3rd to 5th December 2014
 - IEQ cluster (Jürgen Frick)
 - EuNetAir (Michele Penza)
 - <http://www.eunetair.it/>
 - NanomeCH cluster (Adriana Benardi)
 - www.nanomech.eu
 - AMANAC IAQ group (Lorenzo Miccoli)
 - Additional:
 - Several members of IEQ cluster made project presentations in several sessions.
- Meeting documents at <http://www.cost.eunetair.it/> visit MEETINGS - Year 3 - Istanbul Meeting - section Presentations



IEQ cluster 3rd meeting



- Joint AMANAC and Indoor Environment Quality (IEQ) Cluster meeting at ICAE 2015, 28th May 2015

ICAE  2015
VII Congreso Internacional de Envolventes Arquitectónicas
VII International Congress of Architectural Envelopes

Related clusters for IEQ



- ESSC launched on 27th November 2014 sponsored by DG Research & Innovation, Directorate Key Enabling Technologies - Unit Advanced Materials and Nanotechnologies
- ESSC Kick-off Meeting, inside AMA Conference 2015 at SENSOR+TEST Fair, Nuremberg, Germany, 19th May 2015
- Like AMANAC cluster, CSA is planned
- <http://www.cluster-essc.eu/>



Working Groups

- WG1: Environmental Sensors
- WG2: Indoor Air Quality (Sensors)
- WG3: Health Monitoring and Comfort Sensors
- WG4: Monitoring of Industrial Processes
- WG5: Integration and Commercialization
- WG6: Dissemination and Outreach

Technological challenges

- Improved 3S (Selectivity, Sensitivity, Stability) and More 3S of Sensors and Sensor-Systems
- Functional Materials for Advanced 3S Sensors
- Miniaturization and Integration
- Integration to Systems





Particular challenges of ESSC for R&D and commercialization:

- Indoor Sensing
- Environmental Sensing
- Biosensors
- Chemo/Bio Sensors for Liquids
- Modelling and Simulation
- Analytical Tools and Metrology
- Standardization and Regulation
- Business Models and Spin-offs



Indoor Air Pollution Working Group



- Main theme are developments in research into indoor air pollution and conservation
- A conference series was established
- IAQ 2016
 - Heritage Research to Conservation Practice Indoor Air Quality - in Heritage and Historic Environments.
 - 12th International Conference, Birmingham, Thinktank, 3 - 4 March 2016
- <http://iaq.dk/iap.htm>



IEA-EBC Annex 68

- Indoor Air Quality Design and Control in Low Energy Residential Buildings
 - See presentation by Carsten Rode

Air quality partnership led by NL

- REGIO, RTD are participating as observers and provide input
- This partnership will draft an action plan on air quality by September 2016



Future Calls in 2017 Climate + Focus



- SC5-18-2017: Novel in-situ observation systems (RIA)
- SC5-19-2017: Coordination of citizens' observatories initiatives (CSA)
- IoT-01-2016: Large Scale Pilots
Pilot 1: Smart living environments for ageing well (IA) deadline 12-04-2016
- SCC-02-2016-2017: Demonstrating innovative nature-based solutions in cities
 - a) Demonstrating innovative nature-based solutions for climate and water resilience in cities (2016) (RIA) deadline first stage 08-03-2016
 - b) Nature-based solutions for inclusive urban regeneration (2017) (RIA)
- SCC-04-2016: Sustainable urbanisation (ERANET-Cofund) related with JPI Urban Europe deadline 08-03-2016
- WIDESPREAD-02-2016: Support to JPI Urban Europe (CSA) could be followed to contribute



Future Calls in 2017 NMP + ICT



- EEB-02-2016: Performance indicators and monitoring techniques for energy-efficiency and environmental quality at building and district level (CSA) could be followed to contribute
- EEB-05-2017: Development of near zero energy building renovation (IA)
- ICT-29-2016: Photonics KET 2016
Pervasive high-specificity and high-sensitivity sensing for a safer environment (RIA)
deadline 12-04-2016
- EUB-02-2017: IoT Pilots (with Brazil)
 - Environmental monitoring
 - Utilities: energy management at home and in buildings
 - Smart assisted living and wellbeingOnly 4.5 Mio. €, max. 1.5 Mio. € per theme
- **Conclusion: Nearly no direct call for IEQ. We need lobbying**



Stakeholder Consultation of SC5



- Societal Challenge 5 "Climate Action, Environment, Resource Efficiency and Raw Materials"
 - Prepare WPs 2018 to 2020
 - Volume around 1 Billion €
 - 5 Key questions
 - Deadline 8th April 2016
- Priorities:
'Growth, jobs and investment', 'Energy Union and Climate', 'Digital Single Market' and 'A Stronger Global Actor'
- Themes: Cultural Heritage, Environment and Climate, Raw Materials and Resource Efficiency



Consultation Questions



1. What are the challenges in the areas of Societal Challenge 5 'Climate action, environment, resource efficiency and raw materials' that require action under the Work Programme 2018-2020? Would they require an integrated approach across the Horizon 2020 Societal Challenges and Leadership in Enabling and Industrial Technologies?
2. What is the output/impact that could be foreseen? Which innovation aspects could reach (market) deployment within 5-7 years?
3. Which gaps (in science and technology, innovation, markets, policy, financing and governance, regulation etc.) and potential game changers, including the role of the public sector in accelerating changes, need to be taken into account?
4. Which areas could benefit from integration of horizontal aspects such as social sciences and humanities, responsible research and innovation, gender aspects, international cooperation?
5. In view of the recent evolution of the socio-economic and policy context (see point 3 of this document), what are the emerging priorities for Societal Challenge 5?



Stakeholder Consultation of SC5



- **General info:**

<https://ec.europa.eu/programmes/horizon2020/en/climate-action-environment-resource-efficiency-and-raw-materials-work-programme-2018-2020>

- **Link to consultation:**

<https://ec.europa.eu/programmes/horizon2020/en/climate-action-environment-resource-efficiency-and-raw-materials-work-programme-2018-2020>



- Documents of IEQ cluster are hosted at CETIEB homepage www.cetieb.eu
 - See Download > ECTP-conference 2014 – Indoor Environment Quality Session
 - Contact: juergen.frick@mpa.uni-stuttgart.de

- **Thank you very much for your attention**