SUGI FWE Nexus Special edition newsletter

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European Commission

Sustainable Urbanisation Global Initiative (SUGI)

FOOD-WATER-ENERGY NEXUS

This special edition newsletter marks the end of the SUGI FWE Nexus initiative and highlights the results and outcomes from the 15 international research and innovation projects that started in 2018 with the aim to better understand the interconnectivity between food, water, and energy in an urban environment, advance indicators and assessment tools and offer innovative solutions for sustainable cities.

Do you want to learn about the projects, their most important results and outcomes and legacy? Read the insightful articles below based on interviews with the project coordinators and explore useful tools, models and guidelines from the projects' subpages at the JPI Urban Europe website.

Do you need guidance to better understand the complex interrelations of urban food-, water- and energy systems? Read the articles under the heading "SUGI Food-Water-Energy Nexus in a nutshell" by CityChangers.

While SUGI FWE Nexus has ended, topics related to food, water, and energy in urban environments will continue to be high on the agenda in the context of the European partnership Driving Urban Transitions to a sustainable future and its Circular Urban Economies transition pathway as well as in future Belmont Forum calls and the Sustainability Research & Innovation Congress! SRI2023

The SUGI Food-Water-Energy Nexus Legacy

The *Sustainable Urbanisation Global Initiative (SUGI)/Food-Water-Energy (FWE) Nexus* is a first of a kind global initiative supported by the European Commission, the Belmont Forum and the JPI Urban Europe defined at a global scale to deliver the Food-Water-Energy nexus in cities.

It is a visionary initiative for various reasons. It involves 26 funding agencies from all around the world in a collective effort to deliver impacts on the ground through knowledge exchanges and replication of good practices across the globe. Even more, it looks at the city from a systemic point of view, not as a space defined by its geography, but as a living changing environment constantly interconnected with other dynamic dimensions. For this reason, the outcomes generated by the 15 funded projects pave the way to a different way of addressing urban challenges and policies, based on a systemic and transdisciplinary approach rather than vertical 'inside the box' thinking.

The success of SUGI stands in the interconnectivity of the programme and the projects at all levels, which stresses the importance for more similar global collaborations in the future.

Daniela Melandri and James Taplin, Innovate UK, coordinators of the SUGI FWE Nexus

June 2022
FINAL VALORIZATION EVENT
Sustainable Urbanisation Global Initiative (SUGI) Food-Water-Energy Nexus

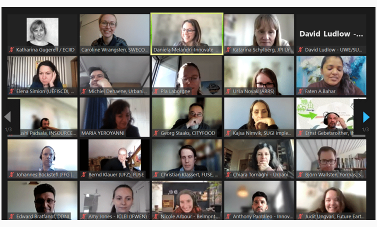
The report from SUGI Food-Water-Energy Nexus final valorisation event is now available. The report captures lesson for the future including projects' experiences and learnings from efforts to involve stakeholders, influence policies and cross-collaboration during a pandemic.

Read the report

SRI 2023

Are you working on innovative ideas for advancing sustainability? Come share them at the Sustainability Research & Innovation Congress! SRI2023 is inviting contributions to the program through informative demonstrations, sessions, workshops, and more. You can submit your proposal in English, French, Japanese, Mandarin, Portuguese and Spanish. SRI2023 is being held in Panama City, Panama and online 26 - 30 June 2023.

Details on the call
More information about the Congress


Katharina Gugerell / ECIID
Caroline Wrangsten, SWECO...
Daniela Melandri-Innovate ...
Katarina Schylberg, JPI Ur...
David Ludlow -...
David Ludlow - UWE/SU...
Elena Simion (UEFISCDI, ...
Michiel Dehaene, Urbani...
Pia Laborgne
Urša Novak (ARRS)
Faten A.Bahar
...shi Padsala, INSOURCE...
MARIA YEROYANNI
Georg Staaks, CITYFOOD
Kajsa Nimvik, SUGI imple...
Ernst Gebetsroither, I...
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Johannes Bockstefl (FFG |...
Bernd Klauer (UFZ), FUSE
Christian Klassert, FUSE, ...
Chiara Tornaghi - Urbani...
Björn Wallsten, Formas, S...
Edward Bratfanof, DDNI
Amy Jones - ICLEI (IFWEN)
Nicole Arbour - Belmont...
Anthony Pantaleo - Innov...
Judit Ungvari, Future Eart...

"You were doing nexus before nexus was cool!" - Report from SUGI Food-Water-Energy Nexus Final Event

It's a (global) wrap! Some seven years later, the global SUGI team came together for a proper goodbye, or should we say, an inspirational "see you later"… Sustainable Urbanisation Global Initiative (SUGI)/Food-Water-Energy (FWE) Nexus is the success story on many funding agencies' lips, and Belmont Forum, Future Earth, JPI Urban Europe and the European Commission made this very clear when thanking the 15 funded projects for their R&I contributions to the global sustainability scene. What did the projects conclude in their final get-together, and what happens next?

Outputs from SUGI Final Event

SUGI Food-Water-Energy Nexus in a nutshell

What is the Food-Water-Energy Nexus?

Food, water, energy: in terms of creating sustainable cities, they are virtually impossible to separate. Optimising outputs for one relies on efficient resource management for all three, intrinsically locked as they are in a nexus. So why don't we design urban systems holistically to capitalise on this? If we intend to futureproof cities and sustain a decent quality of life – and environment – we need to start.

Challenges of the Food-Water-Energy Nexus

While the food-water-energy nexus offers great advantages on one hand, on the other it's important to keep in mind this system is not yet widely acknowledged, so it naturally comes with some challenges. Read about the most typical ones here for your head start into the nexus.

Read the article

Food-Water-Energy Nexus facts & figures

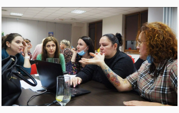
Trying to understand the food-water-energy nexus has a lot of us scratching our heads. Trying to get anywhere with it is like unravelling a knotted ball of wool: you can tug at the threads, but they don't come loosely because it is so intrinsically intertwined. Getting to the bottom of the nexus – if possible! – could be exhausting work. Thankfully, we've pulled together some of the most succulent facts and figures to set you on the way.

Read the article

Data & policy: Interpreting the Food-Water-Energy Nexus

The food-water-energy nexus is complex. People and organisations are funnels for the details that allow us to unravel the puzzle. This information sheds light on the interconnected domains and how we can use them to create more resilient cities. But how can digital interfaces help us communicate the intricacies of the food-water-energy nexus and inform policy for better resource management?

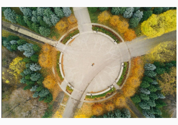
Read the article



How to involve stakeholders in the Food-Water-Energy Nexus

If you want a say in what happens within your city, the food-water-energy nexus is a perfect opportunity. It impacts almost every aspect of our lives and every function of our cities. Involving as many people as possible, via cross-societal and multidisciplinary engagement, we can make improvements to food, water, and energy systems that benefit us all.

Read the article



How to make cities resilient with the Food-Water-Energy Nexus

While the case for the food-water-energy nexus concept is relatively clear to make in a theoretical, academic context, translating it to urban reality can be a struggle. Against a backdrop of climate change, urban population growth, and global supply chains that are limited in their ability to function in times of global health crises, we ask: how can the nexus make a city more resilient? How can it be put into policy and practice?

Read the article

The case for the Food-Water-Energy Nexus: How cities benefit

It's about synergy of sectors – not competition – for sustainable use of given resources. We're talking about the food-water-energy nexus. Food, water, and energy "are highly interconnected: water is required for almost all forms of energy production and supply, energy is required to treat and transport water, and both water and energy are essential to produce food."

Read the article

Modelling tools, hardware and software technologies for urban FWE development

Rigous and credible water models can help us fight against future water scarcity

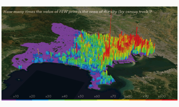
Visualised land use scenarios for food and energy production in cities

FUSE, a project financed in the SUGI FWE Nexus call, is using a holistic food-water-and energy approach to address future water shortage scenarios in Jordan and India. In doing so it has created the most detailed and comprehensive national water model on Earth, assisting decision-makers to choose the best strategies for tackling water scarcity. Its work also demonstrates that a rigorous approach to modelling is necessary for credibility.

Read the article

Findings from the IN-SOURCE project shows decision-makers that it is possible to find solutions that tackle the food demand and energy requirements of cities at the same time. Building on an existing model, the IN-SOURCE project financed in the SUGI FWE Nexus call, has develop a data model that lets urban planners directly compare urban land use scenarios for food production with scenarios for generating renewable energy. In addition, a 3D rendering tool lets policymakers create visualisations of land use scenarios suitable for public communication and consultation.

Read the article


How many times the value of FEW print is the area of the city (by census truck)?
x10
x20
x30
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x70
x80
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x100

Results from M-NEX help policy makers redesign urban environments to lower CO2 emissions

How do you meet the everyday needs of citizens, and lower CO2 emissions simultaneously? The M-NEX project has designed a measurement system that allows urban policymakers to pinpoint and quantify exactly which neighbourhoods produce the most CO2. The system provides a nine-step methodology to reduce carbon emissions.

Read the article

Vertical Greening is a low-cost source of food, energy, and building cooling

The Vertical Green 2.0 project has developed tools to predict the cooling potentials of vertical greenings and their water demands to better understand and manage vertical greening as a viable source of food and energy. The project results help answer one of the big questions on this topic, namely why vertical greening has not been applied on a large scale before, despite its promising nature.

Read the article

With the right tools, complexity is not a barrier to implement urban sustainability in the food-water-energy nexus

If policymakers are provided with decision-making tools that reduce the complexity of food, water, and energy systems, they can integrate these systems to improve circularity and sustainability in urban areas. According to results from the CRUNCH project, decision makers will only succeed with this if they embrace co-creation and public engagement. The project's coordinator, Alessandro Melis, tells us about the impact of their Integrated Decision Support System (IDSS), and how they created it.

Read the article

Cities need to go beyond local level

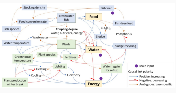
Cities need to go beyond the local level for a rich perspective of urban innovation's sustainability impacts. This is one of the conclusions from the GLOCULL project financed in the SUGI Food-Water-Energy call. Building on existing tools GLOCULL has managed to produce a toolkit that will enhance participatory assessment by making it more reflective of the complex FWE interrelations and by making it go beyond the local context without sacrificing a city-level perspective.
Read the article

Circular Economy considerations

Collective knowledge can turn urban farming into a sustainable way to grow food and forge communities

FEW-meter investigates the environmental and social impacts of urban farming and gardening. In doing so, it has created the largest database in the world on the resource efficiency and productivity of urban agriculture. Its results include showing the value of citizen science, giving urban farmers a way to evaluate their environmental impacts, demonstrating the importance of infrastructure in urban agriculture, and a roadmap for urban planners on implementing urban agriculture sustainably.

Read the article



CITYFOOD makes the case for bringing food production into our cities

The CITYFOOD project, funded by the SUGI FWE Nexus call, investigates the feasibility of food production in cities, assessing the environmental impacts and advantages of production systems in different regions. CITYFOOD has shown Berlin's decision-makers if scaling up aquaponics would meet the city's food demand sustainably, and it has created a precise definition of aquaponics that will avoid legal dilemmas. These results help answer the question, can you and should you bring food production into cities?

Read the article

A different governance of joint resources? Results from the Creating Interfaces urban living labs

What are the benefits of targeting food in the food-water-energy nexus? Is it time to govern these resources differently in cities? The Creating Interfaces project has carried out international research on how food, water and energy systems interact (as a nexus) in three cities: Slupsk (Poland) Tulcea (Romania) and Wilmington (U.S.A). We met with Pia Laborgne and Iulian Nichersu to learn from their results.

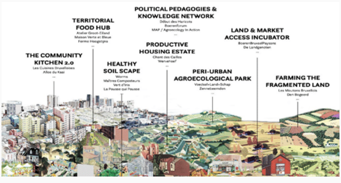
Read the article

Modelling approaches give new insights

Radically reducing food waste should be an important objective for urban decision makers across Europe. The U.K. throws away about £13 billion per year as avoidable food waste, while in the city of Bristol alone it is around £151 million. Daniel Black and Marco van de Wiel from the WASTE FEW ULL (Waste Food-Energy-Water Urban Living Lab) project, one of 15 projects funded in the SUGI Food-Water-Energy Nexus Call, explain how their work is attempting to address this problem in a case study on Bristol's food waste.

Read the article

Aspects of Food-Water-Energy Nexus and Green Economy considerations


POLITICAL PEDAGOGIES & KNOWLEDGE NETWORK
TERRITORIAL FOOD HUB
LAND & MARKET ACCESS INCUBATOR
PRODUCTIVE HOUSING ESTATE
THE COMMUNITY KITCHEN 2.0
HEALTHY SOIL SCAPE
PERI-URBAN AGROECOLOGICAL PARK
FARMING THE FRAGMENTED LAND

Agroecological farming could hold the key to resilient urban food supplies and social justice

Michiel Dehaene and Chiara Tornaghi from the Urbanising in Place project explain how agroecological farming offers a model for supporting smallholder farmers whilst increasing soil health and meeting social justice goals. To help overcome the knowledge gap on agroecological practices, the project has identified eight building blocks offering the direction necessary for implementing agroecological urbanism.

Read the article

Cities are like people: an efficient metabolism is essential for a vibrant, resilient and healthy existence

Building on more than 30 published academic papers and extensive modelling the METABOLIC project proves possible energy- and water gains from treating food, water and energy as interrelated systems and delivers recommendations to policy makers on national as well as local level in Brazil, Taiwan and Japan.

Read the article

Project results from ENLARGE pave the way for sustainable urban heating, tailored to neighbourhood needs without compromising energy resilience or social justice

Combining data and modelling with an ethnographic approach, the ENLARGE project demonstrates why a nexus approach to urban heating (integrating energy and water systems) can decrease reliance on oil and gas, increase energy security, and mitigate risks such as water stress and social conflict. Project outputs include an optimisation model that determines which heating technologies produce the lowest carbon emissions and provides relevant data for decision-making at the neighbourhood scale and determining city level emissions.

Read the article

SUNEX: delivering 'win-win' outcomes on energy and climate

The integrated modelling framework analyses alternative development pathways, showing the impacts on the supply and demand for food, water and energy different scenarios produce, these can inform decision-makers of the advantages and disadvantages associated with low-carbon options when evaluating future development trajectories. In all of SUNEX's pilot cities, sustainable development scenarios were shown to decrease energy demand and to be viable options for achieving ambitious city-level climate action plans.

Read the article

Green and blue infrastructure empowers local governments to design the high-quality integrated urban systems of tomorrow

In the fight against climate change, combining Green and Blue Infrastructure (GBI) planning strategies with urban systems integration is a promising strategy for reducing carbon emissions and waste production whilst strengthening cities' ecosystem services. GBI is well suited for integrating food, water, and energy into a single system called the Nexus. Creating the Nexus will increase efficiency and reduce environmental strains. The IFWEN project demonstrates which types of GBI and ecoservice are connected, as well as showing policy-makers how GBI can be used as an instrument for transformative change.

Read the article

A JPI Urban Europe Special edition Newsletter in cooperation with Future Earth

You receive this newsletter since you are a subscriber of one of the above mentioned organisations' newsletter or have been an active member of the SUGI FWE Nexus community.

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