



TANGO-W

Transformative capacity in energy-food-water

Impact Monitoring and Adaptive Indicators

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About TANGO-W

The TANGO-W project is an applied research project that develops urban transformative capacities (UTC) as a novel governance ability at the interface of food, energy, and water. TANGO-W follows Wolfram's (2016) capacity building approach, adopting a needs and requirements-based focus on the capacity building priorities of urban stakeholders. At the heart of TANGO-W is the two-level capacity building approach. At the urban level, TANGO-W designs and implements Urban Living Labs 2.0 (ULL). At the European level, TANGO-W establishes a transdisciplinary Community of Practice (CoP) as an integrative coordinating transformation system. Both provide the spaces for the development of UTC according to the needs of urban actors in several dimensions (i.e., transformative governance formats, shaping new transformation roles, self-organisation, and technical skills and tools). At the same time, the ULLs and CoPs act as novel governance formats at the local and EU levels to accelerate urban change in a desired, sustainable direction. The activities of TANGO-W result in policy recommendations for replication and upscaling measures as well as in training concepts and pilot courses that support capacity building in TANGO-W fellow cities.



Technical references

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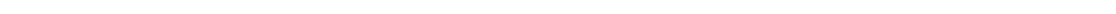
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Executive summary

This document is the formulation of the TANGO-W Impact Monitoring system that was developed based on the results of the visioning workshop on the 20 to 21 June 2022 in Vienna between the members of the TANGO-W consortium.

Impact monitoring within the TANGO-W project has two major goals – to monitor achievements in Urban Transformative Capacities during the project and to provide a learning space for sustainability impact in the participating cities.

The model was derived not only from the TANGO-W vision but considers also actual developments on a European level concerning environment activities and the “Green Deal”.





Introduction

The TANGO-W project

TANGO-W project brings together researchers as well as local and regional authorities to strengthen European municipalities in their capacity of change towards more sustainable and resilient cities. The project addresses the three most critical areas for human well-being - energy, food, and water - and their interrelation. The TANGO-W project therefore promotes urban transformation capacities (UTC) at the interface of energy, food, and water in seven Urban Living Labs 2.0 (ULL) in Austria, Sweden, Norway, and Lithuania. By establishing a transdisciplinary community-of-practice (CoP) transformation system, TANGO-W aims to drive transformative change at the social, organisational, technological, and economic levels.

Result 1: TANGO-W Impact Monitoring

This paper describes a concept for impact monitoring within the TANGO-W project and can also serve as a basis for future implementations of impact monitoring in the cities involved in the project.

Background

Basis of all activities within the TANGO-W project and related to impact monitoring is the TANGO-W project proposal - Development of Urban Transformative Capacities (UTC) in accordance with the JPI-UrbanEurope call.

JPI-UrbanEurope asks to “build capacity for urban transformation based on urban liveability, equity, inclusivity and active community engagement”.

Goals mentioned in the call from spring 2021 are:

- address climate change
- promote social and political participation and address the needs of social minorities
- link sustainable circular economy and liveable urban development
- address democratic deficits and conflicts of interest
- enable participatory decision-making practices
- promote urban equity
- support liveable urban areas
- enhance quality of life and benefit public health.
- integrate community-led development
- make local urban innovation ecosystems resilient

TANGO-W wants to cover most of those goals on two different levels:

On the project level it focuses on an exchange of technical and practical knowledge and experience and learning from each other. This should be achieved by so called Communities of Practice (CoP). Impact on this level is mainly generated by transferring the lessons learned into the cities and project partners for (re)use in future projects.



Experience is generated in TANGO-W's seven Urban Living Labs (ULL). These want to develop local solutions in the areas of water, food and energy in accordance to local urban strategies which are (or at least should be) in turn in accordance to general EU strategies like the "Green Deal".

The production of scientific results and cooperative learning therefore happen on both levels and additionally in two conceptionally different areas, the building of UTC and the more technical progress concerning water, food and energy related goals. Both have to be covered by impact monitoring:

- Monitoring of achievements concerning UTC during the project and providing a proven approach and lessons learned to the cities for future projects concerning transformative capacities and governance structures
- Monitoring of achievements concerning the scope of the ULL and learning about the methodology of impact monitoring in the different thematic areas

In the following both aspects and a proposal for implementation will be described in detail.

UTC Monitoring

UTC is described in detail in the publication of Wolfram¹ in 10 major categories and many different aspects. Some of those aspects are related to governance structures.

Key questions are:

- Can we monitor an increase in UTC within the 7 different ULLs?
- In which categories and aspects (referring to Wolfram) can progress be monitored? Which of those are related to governance structures?
- Which qualitative and quantitative indicators are meaningful and available to monitor that progress?

In order to get comparable results and to report progress on the project level, we propose to have a common set of indicators for all ULLs. However, the ULLs will not be able to cover all aspects, therefore we propose to focus on a rather small number of indicators.

UTC focus areas

The monitoring should focus on the following areas (proposal):

- Participation of citizens and different types of organizations in defining goals, planning, implementation of measures and review
- Decision making within ULL during different phases of the project (who is involved, in which role, how many persons, way of deciding, etc.)
- Areas covered by shared vision (different social, economic and quality of life needs)
- Resources provided for different types of activities during the project (information and knowledge sharing, time for discussion and decision making, financial resources for technical and social implementation, etc.)
- Results from internal reflection and review - lessons learned

¹ Wolfram, M. (2016). Conceptualising urban transformative capacity: A framework for research and policy. *Cities*, 51, 121–130.



- Capacities developed by different participating groups and individuals (knowledge and skills, network resources/social capital, financial resources)

For each area a qualitative description of achievements should be provided on a regular basis.

Additionally some quantitative indicators should be provided for participation and decision making:

- Number of citizens (in different roles) and different types of organizations involved in participation and decision making
- Percentage of jointly made decisions during the project (with people from at least two other groups or organizations involved)
- Number of public servants or municipal employees involved in participation and decision making
- Number of public servants or municipal employees trained in participatory processes

ULL Sustainability Monitoring

We understand that all ULLs have defined goals which are in line with the general approach of the EU “Green Deal”. Nevertheless the ULL have very different individual goals and approaches and even act in different focus areas.

We propose not to have a common set of indicators measuring progress in the areas of water, food and energy, but rather implement monitoring on an individual basis. A common guideline should help the ULLs in order to define their goals precisely and to find meaningful and affordable indicators. Exchange of experience and cooperative learning should not focus on single indicators but on implementing impact monitoring as part of a governance structure.

The impact monitoring guideline will cover:

- A common set of terms and definitions
- A general model structure for the definition of goals and indicators that covers all relevant types of impact
- A guideline on how to define indicators
- A definition of roles and responsibilities involved in the process

A first draft for some of those definitions is provided below.

Monitoring model²

Goals and (qualitative and quantitative) indicators should be identified for every action field that is appropriate for the individual ULL.

² The monitoring model has been derived from a similar model described in: Peter Biegelbauer, Manfred Kofranek, Doris Wilhelmer (2022), „Die Transformation durch Prozesse der Stadtplanung unterstützen: ein Planungstool“, *Gaia*, Vol.31, Issue 2, pp.65–128



	Impact dimension						
	Economy	Ecology	Social	Politics	Knowledge	Individuals	
Action fields	Food						
	Energy						
	Water						

Goals, Measures and Indicators

Figure 1. Matrix for impact dimensions and action fields, by which goals, measures, and indicators can be derived

Action fields are:

- Food
- Water
- Energy

All relevant impact should be described with respect to the following systems:

- Economy
- Ecology
- Social system
- Political system
- Technology and common knowledge incl. sharing of knowledge and learning

Additionally, the impact on the quality of life of citizens (including new potentials and change in behaviour – e.g. use of public transport, buying of regional/bio products, energy consumption) should be described in a qualitative way.

All ULLs are requested to define their major goals with respect to the three action fields. For every goal impact indicators should be defined for all target systems for which some significant impact can be defined or is likely to occur (including impact on individuals). Impact indicators can be derived from the examples mentioned in appendices 2 and 3.

Monitoring process

Every ULL should define:

- A single person responsible for the overall monitoring tasks (probable from the scientific partners) and reporting in the CoP. This person should focus on the periodic reporting of monitoring results and the exchange of experiences. It should also bring back lessons learned to



the ULL, initiate necessary changes and support the experts in implementing measurement or assessment

- A definition of ULL goals in accordance to the TANGO-W project proposal
- A set of indicators for each of the goals, with a clear definition and a guideline for measurement or assessment
- Experts responsible for the measurement or assessment of every indicator
- Representatives of civil society and other organizations/groups involved in the field (e.g. local producers or distributors of goods, utility or building companies, local energy communities) – which groups to involve has to be decided by each ULL on the basis of a potential significant contribution to the decisions and implementation process

Definition of goals and indicators

In general the process of defining goals and indicators will follow this scheme (milestones):

1. There is a common vision for urban development – ideally this is defined in a participatory process involving all relevant stakeholder groups
2. Goals and measures are defined in order to get closer to the vision. Both are integrated into a timeline – this is what we call a strategy. This strategy should be defined immediately after the vision is made clear and this process should also integrate all stakeholders. Field experts can be involved in order to ensure feasibility of the measures.
3. The impact of the measures envisaged shall be identified. In this step the involvement of field experts from administration or public utility companies is necessary in each case. It should be ensured that also unplanned impacts get into the focus, especially in the social and governance areas and it should be ensured that experts from these field can participate as well.
4. Finally indicators from reaching the goals need to be defined in all areas where a significant (planned or unplanned) impact has been identified. Experts need to ensure significance, validity and feasibility of all indicators defined.
5. Goals and indicators make up the monitoring system. This can be tested by using already finished or still ongoing development projects.

In the TANGO-W project we will use a simplified scheme for definition of goals and indicators because the project has to deal with projects that have a limited scope. Nevertheless the experiences from those projects are relevant for future and larger projects as well.

UTC Monitoring process

- AIT will provide a proposal for a unified monitoring of UTC based on initial ideas and results from survey (WP2)
- Offline of all partners feedback will be possible
- The decision on final indicator set will be taken during next F2F meeting in Norrtälje (April 2023)
- Each ULL will describe the initial situation at project start and achievements during the project

Sustainability Monitoring process

- Initial CoP Meetings will define initial goals, targeted impact and indicators for each ULL. A forecast for indicator values at the end of the project shall be given.
 - Stakeholders that shall be involved in the process will be defined too
 - General support (incl. guidelines) is provided by AIT, overall responsibility is with local scientific partners
 - Local experts for reporting of data shall be defined by each ULL
-



- Each ULL shall adapt goals and indicators according to urban needs and results of regional vision processes (spring 2023). During that process potential not intended impact and indicators shall be added to the ULL monitoring system.
- CoP Meetings after spring 2023 shall be used for progress reporting and exchange of experiences (lessons learned), adaptation of indicator sets is possible

Reporting will be done on a regular basis during the CoP meetings. A written form should be provided for every indicator.





Appendix 1

The following excerpt from the call for proposal³ states clearly which goals the projects should head for.

Theme 2: Community-based developments and urban innovation ecosystems.

This implies innovative neighbourhoods that enable social innovation and local entrepreneurs, resident engagement, co-creation and co-design to support liveable, equitable, inclusive and attractive neighbourhoods.

It is a particular challenge to explore and build capacity for urban transformation based on urban liveability, equity, inclusivity and active community engagement. The transformation to a resource-efficient society matters to everyone, so transformation pathways need to be rooted in all social groups and existing local resources. Cities must be developed to remain attractive yet leave no one behind, integrating the built environment with the socio-politics of urban spaces, including green and blue open spaces and social and cultural infrastructure and heritage.

Innovations must benefit all sectors of society while addressing climate challenges.

Whether they aim to digitise cities, improve the quality of life in cities, adapt cities to demographic ageing or innovate public services, innovations should promote social and political participation and address the needs of social minorities.

Sustainability requires linking with a sustainable circular economy and liveable urban development. In doing so, this theme also targets projects that address democratic deficits and conflicts of interest in community development and functional urban areas.

Experimental governance approaches and conflict resolution methods can be considered as viable options that enable participatory decision-making practices to promote urban equity within and between divergent communities of interest.

The urban transitions pathways to be pursued by projects for this call theme should:

- Incorporate local urban innovation ecosystems that support liveable urban areas, enhance quality of life and benefit public health.
- Integrate aspects of social and cultural heritage and infrastructure, and community-led development.
- Test business models, including but not limited to cooperatives, bottom-up enterprises, sharing businesses and economies, through disruptive innovation, civic and social innovation approaches.
- Address the challenge of how to make local urban innovation ecosystems resilient and robust in the face of global and 'intrinsic' emergencies and crises, volatile financial, natural and political events, and environmental conditions such as the COVID-19 pandemic, the asylum crisis and climate change.

³ <https://jpi-urbaneurope.eu/calls/enutc/>



Appendix 2

In order to define relevant indicators the ULL can orientate themselves on definitions of the “European Green Deal”⁴.

Green Deal general targets relevant to this project are:

- Pollutant-free environment (zero-pollutant target).
- Conserve and restore ecosystems and biodiversity
- Fair, healthy and environmentally friendly food system
- Supply of clean, affordable and secure energy
- Clean and circular economy
- climate neutrality
- a just transition

Examples for goals and indicators (from the EU 8th environmental action program⁵) – each ULL should decide which of them might be applicable on the local level:

- Greenhouse gas emissions (in tonnes of CO₂ equivalent).
- Reduction in total economic (monetary) losses due to weather and climate events.
- Reduction of material footprint by reducing the amount of raw materials needed to produce the products consumed
- Reduction of total waste generation
- Reduction of total energy consumption (in tonnes of oil equivalent)
- Increase the share of renewable energy in gross final energy consumption
- Increase the area used for organic farming
- Reduction of water consumption (index)
- Reduction of consumption footprint (based on life cycle analysis)
- Additional employment and gross value added of the environmental goods and services sector (as % of total economy)

⁴ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

⁵ https://environment.ec.europa.eu/strategy/environment-action-programme-2030_en



Appendix 3: Indicators derived from the TANGO-W vision process

The following indicators have been derived from the description of the TANGO-W vision process. Since the project can only cover some of the aspects mentioned there and the ULL are dealing with a subset of goals only, the indicators are just examples, but might help in defining the ULL specific indicators, although most of them are no impact indicators.

Water

- Drinkable water consumption
- Water footprint: sums over all water-consuming or polluting processes taking place
- Existing sustainable water management system: measuring consumption, defined goals, measures and monitoring

Food

- Reduction of transport (related emissions, km) of food (per unit)
- Amount of locally produced food (of different type) per agricultural land area
- Water footprint of food production
- Agricultural water withdrawal as % of total renewable water resources
- Greenhouse gas emissions per unit produced

Energy

- Existing monitoring system for energy produced and consumed by households, industry and other businesses
- Amount of renewable energy produced/consumed, share of total energy used
- Investments in improving energy efficiency
- Greenhouse gas emissions per unit of energy produced

Governance

- Participation in decision making
 - Jointly developed values, visions and roadmaps
 - Agile, co-creative, municipal development processes
-