

# Facilitating Co-Governance and International Collaboration for Sustainability in Jakarta by Urban Transition Management

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## Jakarta: The endangered Megalopolis

In view of the threats of climate change, the urban centres of Indonesia, especially in the coastal regions, face existential challenges. What is true for all urban Indonesia appears as condensed for the capital Jakarta. Like hardly any other megacity in Asia, Jakarta stands for the extreme culmination of risky processes of ecological, socio-demographic, and socio-economic qualities. With respect to the dynamic interaction between all these different processes, the emergent reinforcing effects fundamentally challenge the persistence of one of the most densely populated areas in the world. Exposure in the world's leading media, mostly with respect to impacts of climate change, has made Jakarta known as "the sinking megacity". However, the factors behind this catchphrase are complex and, on a closer view, are representative of many highly urbanized areas in Asia and worldwide, both in terms of the challenge and in terms of possible solutions.

First of all, in addition to the absolute increase in urban population, an acceleration of physical and functional urbanization through construction of buildings, sealing of surface and the expansion of transport infrastructures is striking, which has begun to shape the current image of the region, again accelerated in extreme forms within the last two decades as shown in Fig. 1 (Fitriyanto et al., 2019). Population growth in Jabodetabek, the Jakarta Megacity Region - i.e., Jakarta City plus the functionally merged neighbouring cities - has averaged around 4% per year

over the last two decades. Jakarta City currently has almost 12 million inhabitants, while the megacity region counts around 34 million (Rustiadi et al., 2021).

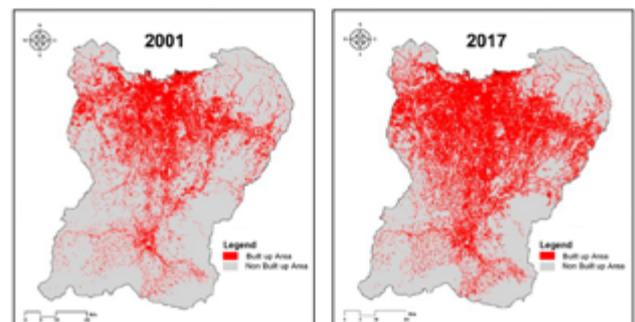


Figure 1: Physical and Functional Urbanization in Jakarta 2001-2017 (Fitriyanto et al., 2019)

This expansion, linked with increasing intensity and, for a long time, unmonitored human activities has caused significant errors in the region. Obvious are spatial planning failures leading e.g., into extreme unsustainable sealing of surfaces, as well as serious traffic (congestions) caused by an unsustainable mobility system (Abidin et al., 2010).

Remarkable are severe environmental damages to the ecological resources, ecosystem structures and services of and within the region. To name some vital aspects of ecological destabilization, Jakarta's temperature increased in a rate that exceeds the mean global temperature rise over the past century, caused by both global warm-

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ing plus the local effects of rapid urbanization (Siswanto et al., 2016). Some parts of the land -particularly in the north- are experiencing severe land subsidence by up to 28 cm/year, and has reached already 5 m in total (Cao et al., 2021) though few comparative analyses have been conducted on the similarities and differences of their adaptation approaches. Thus, this study aims to investigate the current adaptation pathways of Asian deltaic cities to flooding induced by slow onset events such as urbanization-induced land subsidence and sea level rise, by looking at Tokyo, Jakarta, Manila, and Ho Chi Minh City as case studies. Evidence from them shows that an engineering approach towards flooding adaptation is shaping the future of Asian deltaic cities. However, emerging challenges question the sustainability of this approach. Recommendations on how to improve current adaptation pathways and direction for future research are also provided. The drastic sinking of the sediments of Jakarta is mainly caused by massive groundwater extraction (Widodo et al., 2019) and change to distance. The displacement map is the final result of interferometry SAR and external Digital Elevation Model (DEM). Reinforcing effects stem particularly from the destructive dynamics between land subsidence and sea level rise. The region suffers from frequent heat waves, tropical cyclones, and heavy rains which cause repeated flooding of huge areas (Hellman et al., 2018).

What is true for Jakarta is concentrated in its north, especially in terms of culminated local land use change and climate change impacts. More than 60% of North Jakarta is already below sea level and vast areas are predicted to be inundated by 2050 (Takagi et al., 2016). That together puts Jakarta under the spotlight of the most endangered delta cities in the world (Triyanti & Marfai, 2018).

The occurring problems are expected to increase when plans and resulting actions remain with no appropriate focus on sustainability issues (Takagi et al., 2016). Therefore, addressing sustainable urban development in terms of alternative concepts, planning and practices in Jakarta not only depends on the implementation of sustainable solutions but also must be associated with building resilience against incalculable risks, chronic stresses, and an increasing quality of diverse uncertainties.

Both mitigation and adaptation measures are needed for transforming land use, economic practices, lifestyles, and urban development. This requires the integration of ecological, social, cultural, institutional, economic, infrastructural, and technological factors for alternative development pathways.

Responding to the issue of flooding, some institutional and technological development projects have evolved already. A well-known example is the "National Capital Integrated Coastal Development (NCICD)", which was undertaken in close partnership with the Netherlands, jointly established by several Indonesian governmental agencies (van Dijk, 2016) to prevent Jakarta from flooding. It summarizes and criticizes the ideas of the National Capital Integrated Coastal Development (NCICD). It basically aims to protect the coastline from the sea and reduce the effect of land subsidence i.e., by strengthening the previously built "great sea wall", waste management, subsidence monitoring and preventing illegal groundwa-

ter pumping. Moreover, Jakarta's current management promoted projects under the "Jakarta Regeneration Plan" such as the modernization of the centre, the establishment of an integrated public transport represent positive impulses.

Nevertheless, despite all these efforts, social and environmental challenges do remain in principle and are still increasing with further urbanization under the risky regime's unsustainable land use and the impacts of climate change.

We must confess that the basic problem expands beyond the addressed merely physical issues themselves and even the financial resources to solve them. A core question is, on the one hand, whether the measures taken focus on symptoms of different root causes instead of addressing the root causes themselves. On the other hand, whether the acting capacities, governance structures and institutional settings are fundamentally able to adequately grasp the complexity of the problem and to comprehensively implement new proactive (!) countermeasures. Research shows that current solutions create a mismatch with the given complexity of the problem (CDC, 2015). According to international studies, the core issue is the lack of organizational consolidation, effective collaboration, and transparency among all the needed stakeholder groups such as the private sector, the civil society/NGOs, public administration, and finally academic institutions (Schramm et al., 2018). An insufficient degree of intersectoral solutions findings, deficits of democratically founded "bottom-up" innovations and still inadequate governance and institutional structures hinder possible solutions. Consequently, strong course changes, planning, decisions, and concrete transformations in favour of sustainable urban development cannot be implemented effectively.

It seems certain that despite a noticeable progress in local policies, governance that is seriously oriented towards sustainability and resilience at the same time requires new inclusive structures, processes, institutionalizations, and mindsets beyond the present mainstream mechanisms of problem solving and solutions finding.

### **Urban Transition Management as a Door Opener for "the New"**

To enable a system-oriented and co-creative change in the given regional dimensions and the necessary depth of complexity, the approaches to urban development in Jakarta must be fundamentally redesigned. A key is bringing different levels of actors together based on their interests, competences, values, and potential roles in the transformation. This in turn should complement innovations in the framework conditions, rules, and structures of (co-)governance.

In the context of European cities, Urban Transition Management (UTM) (Roorda et al., 2014) has for several years demonstrated a valuable solution and potential for a strongly participatory mode of sustainable urban development (SUD). Good examples come from the flagship EU-funded project "Mitigation in Urban Areas: Solutions for Innovative Cities" (MUSIC)<sup>2</sup> led by the Dutch Research

<sup>2</sup> <https://drift.eur.nl/projects/music/>

Institute for Transition (DRIFT) (Roorda et al., 2014). This experience was taken up by the Joint Centre Urban Systems (JUS) of the University of Duisburg-Essen (UDE) together with a delegation of Indonesian universities during workshops in the Ruhr Area (Germany) and bilateral concept evaluations in 2018 to introduce UTM-based methods as a “turnaround” for urban development in Jakarta. Therefore, a binational consortium of partners<sup>3</sup> was formed and later further supported by international organizations such as the international society for city and regional planners (ISOCARP), to propose a new solution pathway. As a baseline of the “Integrated Regional Climate Lab North Jakarta and Port” (“JaC-Lab”), UTM served both as a guiding process and as a backdrop to enable specific transformation paths at different levels in Jakarta and was from 2019 until end of 2021 financed by the German Ministry of Education and Research (BMBF). The goal of JaC-Lab was “integrating the short-term necessary climate change mitigation and adaptation needs into mid- and long-term urban development frame- and networks” (Krumme et al., 2019). JaC-Lab was establishing a UTM-guided multi-stakeholder co-design process to elaborate a framework as a “coordinate system” and to identify R&D issues that would have a maximum multiplier effect to feed back into a sustainable urban development process. In addition to the participatory character, UTM can facilitate joint knowledge production (JKP), system analysis, scenario building and stepwise extraction of future strategies, as well as solution upscaling and the formation of new actor networks.

As used for the purpose of JaC-Lab, in principle, UTM establishes an orderly process of creative, integrated, and cross-stakeholder solution concepts, transformation pathways and pilot solutions in urban communities in a highly collaborative, participatory manner. In addition to certain work phases, structures of cooperation are established.

Figure 2 summarizes the most important features of UTM. These are: (1) Orientation for the heterogeneous stakeholder groups involves in terms of system and target knowledge and the exchange of perspectives as well as the consolidation of boundary concepts, 2) Agenda Setting with respect of a commonly identified and agreed order of innovation set-ups and the needed measures selected by back-casting procedures and finally 3) Activating different promising pilot innovations as much as possible for concrete implementation.

In the first part, as a social setting, namely the “Transition Team” responsible of planning and implementation is formed consisting of decision makers, scientists, practitioners, and civil society representatives. They analyse problems in real-life context and create the knowledge pool to orientate the process. Secondly, communities are engaged more intensively to express their visions in the area and together co-create the “Transition Agenda”. This will be the major blueprint of UTM including achievable short- and long-term targets and pathways. The final step is to transfer plans into “Transition Experiments”.

3 Partners involved: German Institute for Urbanistic (Difu), University of Bremen (UB), Ruhr University Bochum (RUB), Wuppertal Institute (WI), University of Gadjah Mada (UGM), Bandung Institute of Technology (ITB), University of Indonesia (UI), University of Sultan Ageng Tirtayasa (Untirta).

tain innovative ideas brought in cooperation with communities are tested in real-life context expressed as the “Transition Arena”.



Figure 2 Illustration of Urban Transition Management (Roorda et al., 2014)

After the completion of JaC-Lab’s funded definition phase of the transition agenda and the selection of future transition experiments by the end of 2021 the application of UTM has proven to be successful in Jakarta. We can conclude, this first phase of a UTM-guided procedure was able to create new solution pathways that are ready to be implemented in the form of living labs<sup>4</sup>. Efforts focused on strategic cooperation between German and Indonesian institutions for joint international and local capacity development. The results are suitable for mobilizing planning, decision-making and action alternatives and moreover for raising options of new institutionalizations in Jakarta.

WE could identify three major influence factors of UTM, which empowered the potential of JaC-Lab’s outcome as a solution layout.

First, UTM is *inclusive*, and the success is based on an early integration of change agents, i.e., decision makers from different sectors and community representatives. On one hand, JaC-Lab had strong communication channels with the Jakarta provincial government as well as with NGOs and academia even before the beginning of the project. Having this, ensured that existing agendas are considered and prevent efforts on irrelevant issues. On the other hand, JaC-Lab was able to integrate local knowledge from – due to climate change – extremely disadvantaged communities and made sure that problems are articulated as close to reality as possible.

Second, UTM is highly *participative*; it ensures an active participation of stakeholders from various perspectives, quite heterogeneous interest backgrounds and motivations, expertise, and forms of opinions on future trans-

4 The first priorities for the living labs to start with were given to watershed/ ecosystem-based urban water management (“watershed dialogue”), empowering informative economic small business networks between Kampung (“Kampung Network”), the harmonization of port expansion and logistics management with urban planning decisions (“Virtual Decision-Making Logistics Lab”) and first and last mile solutions for mass mobility systems (“sustainable urban mobility lab”).



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formation needs under one roof. Having clear guidelines and methods of participation held a higher value in JaC-lab than pure scientifically guided activities.

Thirdly, UTM is *experimental*. Most innovations fail due to unclear values to defined communities in specific geographical settings. Moreover, they are pushed towards implementation depending on feasibility studies or master plans only. In the case of UTM, solutions are tested, integrated and improved based on problem-based learning in the form of “Open Experimentations” or “Living Labs” in defined scales and geographical areas in a participative and inclusive way. Though, the process can be relatively slow, the living experiments can create values before a nation-wide acceptance of the proposed solutions. While they act as a testing pool for accumulated intersectoral “joint” knowledge and boost transdisciplinary frameworks.

### Boosting EU-ASEAN strategic partnerships by UTM

Based on the example of JaC-Lab, in our opinion, a strategic connection of local transformations in international action networks, e.g., Indonesian-German, or Indonesian-European, as well as the involvement of globally present organizations, is promising to achieve significant short-term progress in the field of sustainable urban and regional development. Even if the distribution of roles and possible multilevel institutionalizations still must be clarified here, our results and experiences show that UTM-inspired pathways initiate new ideation, planning, decision-making and collaboration dimensions. In addition, by considering some further developments, the method allows new alliances to be found for shaping the future in highly complex megacities such as in Jakarta, beyond the local contexts. In terms of strategic content,

it offers space to combine different approaches such as participatory neighbourhoods design, frameworks for climate-resilient urban development, models of the collaborative and experimental city or the smart city in new on-site solutions.

For further steps, we would recommend focusing on the integration of UTM into EU-ASEAN partnerships, which have recently created important foundations for new cooperation and options for further actions. In 2020, the European Union (EU) and the Association of Southeast Asian Nations (ASEAN) have further strengthened their relationships by becoming strategic partners<sup>5</sup>. Such partnerships are elevated with intensifying the commitment of both sides to regular summits at leadership level. The two organizations have set key principles of their partnership that is rooted in rules-based international order, effective and sustainable multilateralism, free and fair trade. Clear headlines include economic cooperation, security, sustainable connectivity, and sustainable development. Under the latter, the issues of climate change, environmental protection and green energy transition were included. The actions are explicitly meant to transform the course of development by “*rethinking our approach to development in the context of a rapidly warming and increasingly interconnected planet*”, as said by the EU-Commissioner for International Partnerships Jutta Urpilainen. For that purpose, a combination between the European Green Deal and the ASEAN Community Vision 2025 was addressed<sup>6</sup>.

It is just recently that partnerships are heading into the

5 <https://www.consilium.europa.eu/media/46994/fact-sheet-euasean-strategic-partnership.pdf>

6 [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_21\\_6111](https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6111)

direction of environmental sustainability, hence beyond pure economic interests. Various bi-lateral partnerships between south-east Asian and European cities have been established individually during the last few decades. One of those is between the city of Berlin and Jakarta<sup>7</sup>. Both have celebrated the 25th anniversary of their stable city partnership with many individual projects on various themes that took place throughout the year, with Berlin helping to organize or providing financial support to these projects. One of the most significant is what is called “Smart City Partnership” in response to Jakarta’s transformative vision to City 4.0. This includes plans to support Jakarta’s efforts to enhance smart city guided developments with “intelligent” concepts for mobility, housing, environmental management, and good governance.

During several exchange events and meetings during JaC-Lab, together with our partners we concluded that these promising partnerships can still be challenged and enriched particularly. Of course, the initiatives were brought up just shortly before the Corona Pandemic which has hindered substantial progress. On the other hand, the pandemic crisis also showed the need for international alliances and to foster our capacities for a resilient multinational urban society. However, strategic, and inter-institutional problems play a significant role. A clear scope for smart city Jakarta within the wider important context of sustainable urban development has not been clearly recognized. We appreciate that “smart” technology assets can certainly ease up communications, enhance data collection and foster innovation. However, it is not clear how technological levers would be systematically embedded into the frame- and networks of a sustainable and resilient city development. On the one hand, it is important for us to emphasize that in the context of effective transformation, technological innovation must be related to aspects of business and organizational development and social innovation in a comprehensive agenda. On the other hand, newer modern approaches to sustainable urban development always consider systemic interactions of social, ecological, and technological levers as “Social-Ecological-Technological Systems” (Krumme, 2016).

Based on the results of JaC-Lab, we propose to further develop and implement an UTM-guided process to address urgent sustainability issues and alternative transformation practices. In a further implementation and in line with the EU-ASEAN Partnership, we see the potential to operationalize the Berlin-Jakarta city partnership through UTM-coordinated pilot projects.

### **Perspectives for further Action**

Efforts of JaC-Lab have in principle focused on the strategic cooperation between German and Indonesian institutions for joint international and local capacity development for the sustainability transformation.

The structure shown here for binational or multinational cooperation with a focus on Jakarta brings a new dimension of capacity development, exchange, cooperation, and

ownership for local piloting of sustainable development and resilience designs. Based on the initial model of JaC-Lab, an innovation alliance could start from the city partnership of the capitals Jakarta-Berlin and bring together targeted stakeholder groups from the two countries Germany and Indonesia or from selected urban transformation areas in joint, comparative and cooperative pilot projects.

Formats and events should take place both via a virtual cooperation platform (to be created, with co-creative features) and via physical exchange. The principle is participation in the partnering transformation project and mutual consultation. International organizations that are already part of the JaC-Lab network, could be won as supporters to facilitate the international framework for action in specific local settings. In addition to the UTM-based transformation processes in concrete living labs in Indonesia (with a focus on Jakarta) and in Germany (with a focus on Berlin), supporting co-creative formats and events could also be set up. Below the city twinning level, this could be based on “quarter/ neighbourhood twinning”, include guest stays by transformative researchers, host international student or young researchers’ workshops on concrete problems and pilot developments. Ideally, an annual “Urban Transition Management Forum” could take place alternately in Jakarta and Berlin, in which the interim results would be collected, presented, discussed, and further developed with the wider international public.

**Nawwar Harfoush** studied Masters in Sustainable Urban Technologies at the University of Duisburg-Essen (UDE). He is currently working as a research associate at the Joint Centre Urban Systems (JUS) in UDE. His main research interest is the role of “Innovation Ecosystems (IES)” in facilitating development processes towards more sustainability. He is currently attempting to integrate a variety of conceptions and systemic views to define and evaluate IES. This is considered as his main passion and an essential step for improving innovation performance at different project scales.

One of the key projects that Nawwar Harfoush worked in was the BMBF funded “Integrated Regional Climate Lab North Jakarta and Port (JaC-Lab)”. He was successful in facilitating the implementation of Urban Transition Management (UTM) methodology within bilateral collaboration networks between Germany and Indonesia. He uses JaC-Lab and other collaborative environments to observe innovation processes to tackle complex problems such as climate change, draw conclusions and ideas. Another key project is an EFRE funded “Competence Net urban- industrial Supply (CONUS)”, in which he is developing a tool for evaluating innovation performance of Living Labs in Regional Innovation Systems (RIS) – The Lower Rhine Region. Also, the role of knowledge transfer in adopting innovations is a key theme in his research. He is applying this in a working package within the EU funded project “Innovation in the By-ProdUct Supply chain of citrus in Mediterranean area (ImPULse)”.

**Klaus Krumme** is the Executive Director Joint Centre Urban Systems (JUS) at the University of Duisburg-Essen (UDE) since 2019 and Board Member since 2008. Between 2006 and 2019, he was Executive Director of the University’s Centre for Logistics & Traffic (ZLV). He is co-founder of the Sustainable Development Group (SuDeGroup) at the University of Duisburg-Essen (2004). Klaus is an interdisciplinary scholar, graduated in En-

<sup>7</sup> <https://www.berlin.de/rbmskz1/en/international-relations/city-partnerships/jakarta/artikel.23690.en.php>

vironmental Sciences / Integrated Studies in Ecology as well as in Geography, Biology and Educational Science (University of Essen, Ruhr University Bochum). He completed his dissertation in Geography on the topic of "Sustainable Urban-Industrial Supply Systems" with reference to transdisciplinary sustainability science. Research activities concentrate on transdisciplinary sustainability strategies/ knowledge based sustainable development frameworks with a focus on Resilience Design, Social-Ecological-Technological Systems (SETS) in smart sustainable cities/regions, sustainable urban-industrial supply systems under climate change as well as supply chains/ metabolisms of the green, circular and urban economy.

Klaus is member of the German Committee for Sustainability Research (DKN) Network "Future Earth" (Co-initiator of the DFG funded "Urban Sustainability Transformations" working group, 2017-2019), Co-speaker of the "resilient infrastructures" research field (Competence Field Metropolitan Research (KoMet) of the University Alliance Ruhr, 2017 onwards) and belonged to the "Morgenstadt" expert group at the BMBF (2010). Klaus has (co-)directed different sustainability-oriented projects, a.o.: Learning Bioregion Meru/ Program for Academic Cooperation and Transfer (PACT), Germany-Kenya (2002-2006, UNEP, GIZ, DAAD); Climate Initiative Essen (BMBF competition Energy efficient City, 2009-2015); EfficiencyCluster LogisticsRuhr (BMBF leading-edge cluster competition, 2010-2015); EU Regions of Knowledge, "Log4Green" (2011-2014); Innovative Logistics for Sustainable Lifestyles (ILoNa) (BMBF, 2015-2018); Integrated Regional Climate Lab North Jakarta and Port (JaC-Lab) (BMBF, 2019-2021); Competence Net Urban-Industrial Supply (CONUS) (EFRE NRW.Regio, 2019-2022).

**Josefin Schürmanns** began her work at the Centre for Logistics and Traffic (ZLV) in Duisburg at the same time as she was studying for a master's degree in 'Urban Systems' at the University of Duisburg-Essen. Mainly entrusted with public relations, she continuously supported research applications and projects, e.g., the BMBF project ILoNa, the ECoL Summer School or the Duisburg climate protection concept. With the start of the Joint Center Urban Systems (JUS), she changed to the new working group on the Essen campus, in which Josefin is working on setting up the JUS structure, new research initiatives and event formats. In the CONUS project, which is coordinated by both ZLV and JUS, she works in public relations and networking. At UDE, Josefin connects her bachelor's degree in linguistics and communication sciences at the TH Cologne as well as professional experience in a journalist office with her interests in sustainable urban development and circular economic systems.



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„Für den Inhalt dieser Publikation ist allein Watch Indonesia! – Für Demokratie, Menschenrechte und Umwelt in Indonesien und Osttimor e.V. verantwortlich; die hier dargestellten Positionen geben nicht den Standpunkt von Engagement Global oder des Bundesministeriums für wirtschaftliche Zusammenarbeit und Entwicklung wieder.“