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URBAN HEALTH AND WELLBEING
A SYSTEMS APPROACH
POLICY BRIEF

Financing & Implementing Resilience with a Systems Approach in Beirut

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1. An integrated urban environment is beneficial for health, the ultimate goal of resilient cities. It is increasingly challenged in Beirut by rapid urbanisation outpacing appropriate planning.
2. Improving health in Beirut was prioritised to focus on planning public transport, green and public spaces and walkability. Each can be an entry point for taking a systems approach for urban resilience in Beirut.
3. Resolving this priority in Beirut can lead to improving urban health and wellbeing and achieving Roadmap 2030 for making city regions healthy, resilient and sustainable.
4. An integrated collaborative systems modelling and implementation approach, proposed by BAU, TRUST and UHWB can improve planning to resolve the interconnected urban health problems of Beirut.
5. Harnessing complexity for resilience building in Beirut should take into account its diverse sociocultural profile and distinctive development phases from research to financing and implementation.
6. Knowledge-action transfer needs to extend from networks (KANs) to systems (KASs) and incorporate committed financing to make plans actionable for resilience in the long term. The Resilience Brokers Programme of TRUST can facilitate this process.

About the author

Jieling Liu is journalist and PhD candidate in Climate Change and Sustainable Development Policies at the Institute of Social Sciences, University of Lisbon. She collaborates with the International Council for Science programme on Urban Health and Wellbeing based in Xiamen, China and The Ecological Sequestration Trust, UK and was actively involved in the "Implementing Resilience in the City Region of Beirut" workshop Oct 18-20, 2017. Prior to that, she was trained at Imperial College of London on how to use the resilience.io, a prototype software developed by The Ecological Sequestration Trust (TRUST) for resolving city-region systems challenges.

Her interests are in urbanisation and sustainable development, urban planning, climate governance, renewable energy and societal changes induced by social media and technology. Her research examines how urban planning incorporates green spaces for climate change adaptation amidst rapid urbanisation and assesses the quality of urban ecosystems in megacity Guangzhou, China. She was the managing editor for Redstar, an English-Chinese bilingual publication agency in China, responsible for producing three bilingual magazines. Jieling shares wide journalistic interests ranging from culture, history, social justice to environmental issues.

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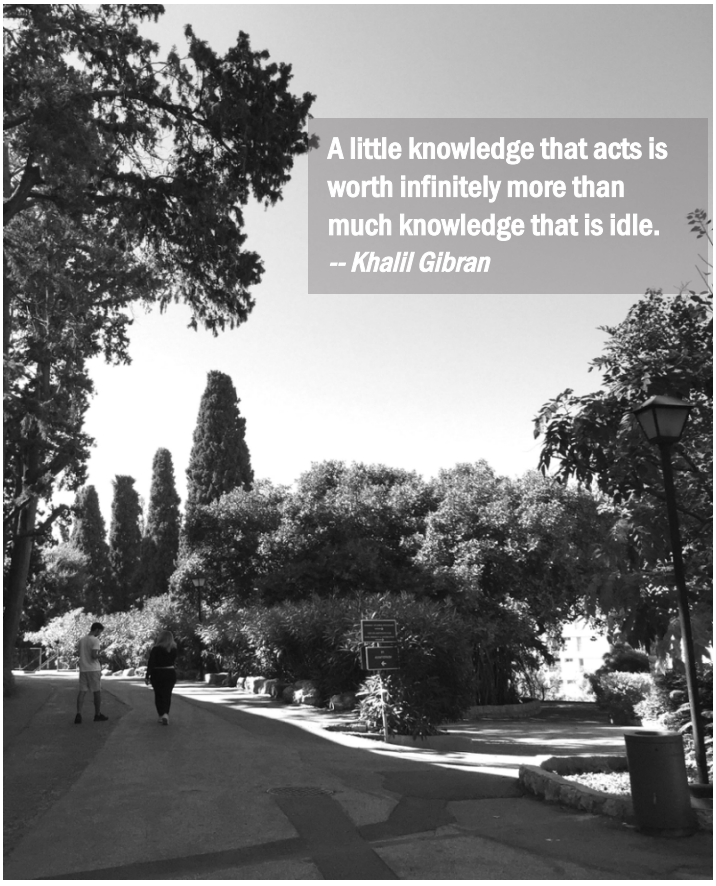
Urbanisation Context of Beirut

In the past five decades, Lebanon has gone through consecutive waves of rapid urban expansion driven by rural exodus, suburbanisation, war displacements and an influx of refugees. More than 87% of the country's population living in urban areas, 64% are estimated to be residing in large agglomerations in the metropolitan areas of Beirut and Tripoli (UN-HABITAT, 2016). Beirut, the capital city, is facing multiple urban environmental challenges like water, soil and air pollution. They are aggravated by climate change and demographic pressures, in form of a high influx of refugees. The lack of green and public spaces for walking and exercise in the city and heavy reliance on private transport have been identified as some of the most obvious and urgent urban health problems to be tackled in Beirut. The city's urban planning capacity is overwhelmed by these challenges which are essentially complex.



Therefore, it has been suggested that the City of Beirut adopts a holistic, and systemic vision and jointly manage urban planning incorporating all levels of institutions, practices and procedures, to issue urban policies and deliver quality services to cope with its complex and interconnected urban health challenges. Addressing issues of urban health and wellbeing in Beirut is delicate regarding the plural cultural communities in unequal development phases. Nevertheless, the variety of challenges, if addressed by a systems approach, also mean high potential of encountering solutions (Gatzweiler, 2017).

Good health and wellbeing are the most forthright indicators and essential goals of urban environmental sustainability. This message is reflected in many global and local commitments. For the City of Beirut, the Urban Resilience Masterplan resulting from a comprehensive risk assessment and planning process from 2015-2017 aims to strengthen understanding of multi-hazard risks, develop the city's preparedness and response capacity, and better support and catalyse the city-level investment plans needed to protect lives and assets.

April 2017 Seminar

Resonating with the same aim, Beirut-Arab University (BAU), in collaboration with the International Council for Science (ICSU) global science programme on Systems Thinking for Urban Health and Wellbeing (UHWB), organised an interdisciplinary seminar entitled "Urban Health and Wellbeing: Advancing Systems, Science and Technology" during April 26-27, 2017. Participants including members and sponsors of the ICSU programme, the CEO of the Ecological Sequestration Trust (TRUST), and a group of experts in urban sciences from Beirut-Arab University, jointly identified priorities for improving health and wellbeing in the City of Beirut.

The April seminar introduced participants to the fundamentals of Systems Approaches, which facilitate knowledge creation and effective action through the use of computer-supported systems tools alongside participatory processes of engagement with academics, professionals and citizens. At this workshop, participants

- agreed that Systems Approaches are needed to effectively harness urban complexity and improve health and wellbeing in the city of Beirut
- developed a preliminary priority list of action areas to be addressed
- underscored the value of a modeling platform to illuminate urban complexity and facilitate collaborative action for implementation of sustainable development priorities
- decided to organise a workshop in October 2017 to further explore the Systems Approach and to establish a collaborative systems modeling suitable for Beirut, and
- concluded to organise an international conference on implementing systems approaches for Urban Health and Wellbeing in 2018.

October 2017 Workshop

Implementation of the resilience strategy and associated action plan such as the aforementioned Urban Resilience Masterplan for the City of Beirut is expected to improve the health and wellbeing of Beirut's residents. In particular, planned investments in infrastructure, risk preparedness, and recovery capacity should reduce the vulnerability of Beirut's residents to natural and man-made hazards, including the risks associated with climatic, epidemiological and demographic changes, in part by ensuring access to fresh water, sanitation and energy and enhancing mobility. These investments in resilience will also contribute to the inclusive implementation of the SDGs and NUA, most critically by improving human health and wellbeing, reducing poverty and providing affordable housing for all. The success of this broad effort to secure resilience will depend on the adoption of an integrated systems approach, a reality increasingly recognised by the scientific and policy communities.

Hence, a second workshop in October 2017 aimed to present Roadmap 2030 (TRUST), which sets out an action plan to deliver the agreed Global Goals and implement the New Urban Agenda (NUA), and the Urban Resilience Master Plan for the City-Region of Beirut. The goal was also to focus on the application of systems thinking to urban health and wellbeing challenges, including model development and application throughout the process of drafting the implementation plan for Beirut. Finally, the workshop aimed at building capacity and contributing to an international conference at BAU planned for September 2018.

Partners and participants involved in the October 2017 workshop

- Beirut Arab University (BAU), represented by a group of experts in urban sciences, with the prospect of establishing a centre of Urban Health.
- International Council for Science (ICSU) global science programme on Systems Science for Urban Health and Wellbeing (UHWB), represented by its Executive Director and members of the programme's scientific committee.
- Ecological Sequestration Trust (TRUST), represented by its CEO and Chief of Platform Delivery.




Finding 1: Building resilience by applying a systems approach

The urban and environmental contexts in which problems of public health and wellbeing emerge are interconnected and complex. Consequently, implications on health impacts and quality of life can be costly. It is important to understand the multiple layers of economic, cultural, political and ecological elements as well as stakeholders that compose a city, prior to offering humanitarian or developmental solutions. This urban complexity can be properly captured and modelled using A Systems Approach: co-producing knowledge for urban health and wellbeing in collaboration with science.

As Beirut is facing multiple complex urban environmental challenges, using a systems approach can help Beirut to better harness urban complexity, facilitate data-informed transdisciplinary intelligence to synergize urban planning and policymaking at different levels among diverse stakeholders, hence generate solutions that could build resilience for Beirut.

Proposed Architecture for Harnessing Complexity and Building Resilience

The participants of the second Beirut Workshop on "Implementing Resilience in the City Region of Beirut" elaborated and demonstrated an approach to enhancing health and wellbeing. The architecture proposed to harness complexity for resilience building, includes four equally significant components:

- Evidence-based, transdisciplinary knowledge as a result of taking a systems approach across sectors and agents in urban systems.
- A Systems Approach, which can guarantee the transdisciplinarity in the process of data gathering and that of involving stakeholders.
- An integrated tool of analysis comprising collaborative modelling and evaluation to produce scientific outcomes and indicate gaps for actions in policy making and financing.
- Adequate financing models ensure the shift from knowledge to action, provide incentives and sustain transformations.

Figure 1: Proposed Architecture to Harness Complexity for Resilience Building

Finding 2: Resilience Brokers Programme - a collaborative model for healthy and resilient city-regions

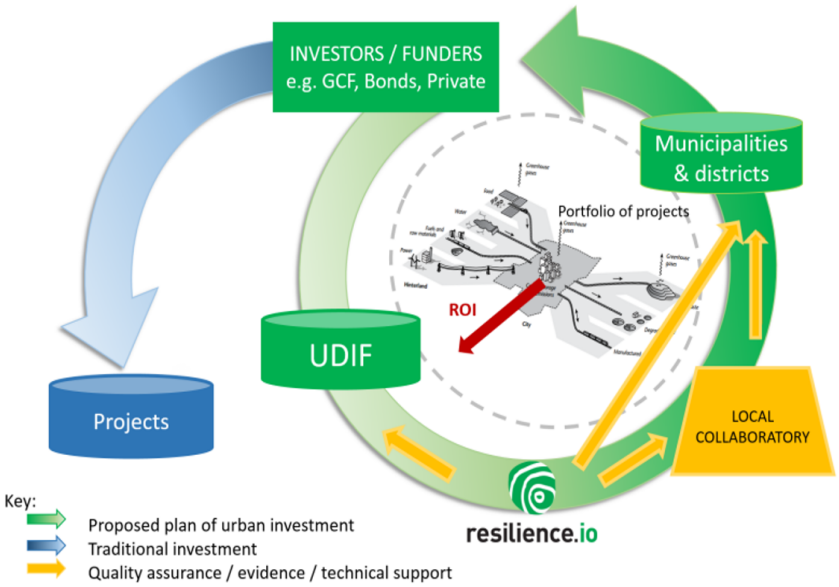
The Ecological Sequestration Trust (TRUST) has brought together a multidisciplinary group of global leading experts and organisations, the Resilience Brokers, to develop and implement the Resilience Brokers Programme, an initiative designed to facilitate the implementation of Roadmap 2030, an action plan for achieving the SDGs, the NUA and suitable for implementing the Urban Resilience Masterplan for the City of Beirut.

The Programme champions a collaborative human-ecological-economic and resource systems approach (CHEER approach), to harness data and scientific evidence for investment and planning decision making by integrated modelling of social and natural systems and their interlinkages. The Programme aims to foster new forms of collaboration between the public and private sectors by acting as a neutral catalyst, and to promote new and effective means of involving communities and building their capacity for innovation.

This ambitious initiative aims to support the financing of sustainable development paths in 200 global city-regions by 2022, to trigger a rapid scale up to 70% of all city-regions in the world by 2030 and to improve the lives of more than five billion people. The Programme's high potential for global impact underpinned by the advanced technology of resilience.io has attracted leading organisations from all sectors of society. Resilience Brokers Programme delivery partners include the Group on Earth Observations (GEO), the International Centre for Earth Simulation (ICES), the Urban Climate Change Research Network (UCCRN), Imperial College London (ICL), the Institute for Integrated Economic Research (IIER), the United Nations Sustainable Development Solutions Network (UNSDSN), and the International Council for Local Environment Initiatives (ICLEI). The combined knowledge, far-reaching networks, influencing power and established operational excellence of the Programme partners allows for a rapid mobilisation and seamless deployment of the Programme in any region in the world – making the vision of its ambitious scale-up schedule a practical and achievable goal.

The Resilience Brokers Programme as a unique opportunity for Government and Business to invest in leading edge solutions is proposed to the City of Beirut to build resilience and to promote urban health and wellbeing, with the priority set on improving the city's green and public spaces and walkability.

Figure 2: The Resilience Brokers Programme



Policy recommendations

1. A Systems Approach is recommended to harness the complexity of urban health challenges, to analyse existing policy and financing gaps and to identify priorities for actions that can plan-out risk and build-in resilience.
2. A Systems Approach is recommended to co-create collective intelligence from multiple stakeholders of public and private sectors, civil society organisations and communities, in order to foster social learning and make policies more inclusive for community resilience capacity building.
3. Policies should facilitate knowledge-action networks to be extended into knowledge-action systems, which is important to enable the functioning of urban systems for health and secure stable financial resources and thereby making resilience building plans actionable in the long term.
4. An integrated science-policy-financing framework of collaborative systems modelling and implementation, such as the Resilience Brokers Programme, has come of age in the issue of addressing complex urban health and wellbeing problems, for instance, in the City of Beirut.

References

1. Government of Lebanon, Council for Development and Reconstruction (CDR), Grand Serail – Beirut, Lebanon. January 2016. Habitat III National Report.
2. The Ecological Sequestration Trust. Peter Head CBE FREng. 2016. Roadmap 2030: Financing and Implementing the Global Goals in Human Settlements and City-Regions. Version 1.0. Available at: https://ecosequestrust.org/roadmap2030/
3. About the Urban Resilience Masterplan for the City of Beirut: "Urban Resilience Masterplan for the City of Beirut" Available at: https://nl4worldbank.org/2015/05/29/urban-resilience-masterplan-for-the-city-of-beirut/"EMI Beirut Mission" Available at: http://emi-megacities.org/news/emi-beirut-mission/
4. Gatzweiler, F.W., Ayad, H.M., Boufford, J.I., Capon, A., Diez Roux, A.V., Donnelly, Ch., Hanaki, K., Jayasinghe, S., Nath, I., Parnell, S., Rietveld, L., Ritchie, P., Salem, G., Speizer, I., Zhang, Y., Zhu, Y-G. (2016). Advancing Urban Health and Wellbeing in the Changing Urban Environment. Implementing a Systems Approach. Hangzhou: Zhejiang University Press and Singapore: Springer.
5. Lawrence R.J. and Gatzweiler, F.W. 2017. Wanted: a Transdisciplinary Knowledge Domain for Urban Health. J Urban Health. DOI 10.1007/s11524-017-0182-x.
6. "What Is Resilience.io?" Available at: https://resilience.io/resilience-io-supported-by-the-ecological-sequestration-trust/

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A SYSTEMS APPROACH

The *Urban Health and Wellbeing: a Systems Approach* (UHWB) Programme, is a global science programme, of the International Council for Science (ICSU). The vision of the Programme is: cities functioning as integrated complex systems which sustainably provide benefits for the health and wellbeing of its residents. It aims at (1) promoting and coordinating research, (2) developing and identifying data needs, (3) building and strengthening capacity and (4) communicating new knowledge.

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The International Programme Office of the UHWB Programme is hosted by the Institute of Urban Environment (IUE), Chinese Academy of Sciences (CAS) in Xiamen, China.

The Policy Briefs of the UHWB Programme aim at highlighting and drawing attention to policy relevant findings and insights from research and researchers and communicating them with decisionmakers at all levels of society in order to encourage the co-creation of knowledge for healthy urban environments and people.

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