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**JESS Special Issue: Integrating and Interdisciplinary Approaches to Sustainable Cities and Regions**

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# Operationalizing Holistic Urban Concepts

Several holistic urban concepts point to the importance of taking an integrated resources approach in the city. The reason for this is obvious: resource flows are highly interconnected. Think for instance of the high water, energy and land input for most of our food production, or the vast energy input in water desalination processes. In addition, taking a single-resource approach to cities, mostly done for energy, often leads to negative feedbacks on other resource flows. Carbon neutral cities do usually not account for higher material in- and output for insulation, efficient appliances or renewable energy systems, and most often don't even account for the embodied energy of these extra material flows. If, on top of that, carbon offsetting is allowed, one should definitely question if the claimed carbon neutrality weighs against all the externalities of realizing this claim. Therefore, on a conceptual basis, an integrated approach towards resources makes a lot of sense. It is however in the translation from theory to practice that such concepts often get stuck. One of the obvious obstacles with respect to hindering progress in implementation is the difficulty to realize cooperation between institutions, experts and bureaucrats that are neatly organized in a sectorial way, the famous silo effect. Other challenges that are often mentioned are short-termism, lack of mandate & financing of local governments and corruption (WFC, 2014). While these are well-known obstacles, I will discuss some often missed elements that are crucial for a successful implementation of holistic urban concepts aiming at Sustainable Cities and Regions. These elements are: Transformative Change, Transdisciplinarity, Performance Measurability and Demand-side Change.

## **Transformative Change**

A first problem with holistic urban concepts is that most are still based in the realm of efficiency improvements and optimization. This will however not lead to the transformative change that is necessary to seriously tackle climate change, resource scarcity and other global environmental problems. Thus, if the concept does not intend transformative change from the very start, the aim to reach Sustainable Cities and Regions in practice is predestined to fail.

First examples are urban concepts, such as 'Smart Cities' or 'Morgenstadt', which are mainly based on the idea that technology will solve everything. They largely focus on replacing or improving 'products', which very often leads to more consumption and more throughput of materials. Transformative change however, demands a change in focus from 'products' to 'functions' and thus concentrates on changing the way we 'do' things, next to changing the way we 'make' things (as effectively advocated by Cradle-to-Cradle) (McDonough and Braungart, 2002). As a simple illustration: if we would change all our cars for electric cars,

they would still paralyze our cities, and cause at the same time a huge extra material throughput for the sake of saving some operational energy. Instead of concentrating on the ‘car’, focus should shift to its basic ‘function’: ‘mobility’ and to exploring ways of re-organizing this function within the urban environment.

A second example is the Nexus concept, which has become highly visible over the last years, also in political circles. Positive aspects are the clear recognition of the interconnectivity of the resources water, energy and food (and sometimes climate) and the intention to tackle the problem of political and institutional silos. There are however also several problems related with it. First, by focusing on food, water and energy, most Nexus discourses leave out other crucial resources such as soils (Campbell, 2008), nutrients and non-food materials. Second, the Nexus (in most of its interpretations) doesn’t take a transformative approach, but stays mostly with optimization and efficiency strategies and doesn’t seem to bring so much new to the table since Integrated Resource Management. Third, Nexus literature barely addresses inequality issues, nor pro-actively respects planetary boundaries. The concept seems to systematically avoid tackling the cause of the problem, namely our current consumption and production patterns. Hence even if important efficiency gains can be realized by the Nexus approach, they will soon be caught up by an increase in consumption.

Concepts such as the ‘Regenerative City’ (WFC, 2014) place the urban metabolism central and advocate a return from linear to circular resource flows. Here the aim for changing urban systems is more outspoken, nevertheless the translation into practice also often struggles with achieving transformative change. Most presented examples are either for energy, or food, or waste or mobility. Those from the Global North still rely mostly on efficiency gains and technological solutions without touching much upon the ‘ways of life’ in the city. If zero waste is translated into 100% curbside separation, we are still stuck in end-of-pipe solutions. The examples from the Global South, e.g. the food sovereignty framework in Belo Horizonte, are the most promising, since these are often sparked by necessity. They have the precondition to do much with little means and tackle several problems at the same time without having the option of relying on grand technologies.

### **Transdisciplinarity**

Integrated urban concepts need to be based on a strong interdisciplinary cooperation. However, beyond this obvious prerequisite, operationalization will demand a transdisciplinary approach, bridging science, policy and society. This stands in close relation with the fact that applying ‘models’ to the ‘City’ has proven not to work. We have to change focus to more experimental and reflexive ‘processes’. The time of the Master Plan is over,

“we need processes of incremental learning” (Brugmann, 2009) that can deal with constant changes in the urban environment, including both its concentrated local and extended global social, political and economic forces. “The real City is complex and incomplete” (Sassen in: Guadalupe, 2013, p.66) in which simplifications, too much technology or models lead to unexpected outcomes and “de-urbanise the city” (Sassen in: Guadalupe, 2013, p.66). One cannot just transfer solutions from somewhere else onto a new territory without risking serious feedbacks. Some have understood this already and created for instance local ‘transition arenas’ (transition theory), which are made up of a number of locally relevant ‘change agents’ to initiate a transdisciplinary transition process. However, the idea that participatory processes need to go further than information provision and acceptance seeking, and move towards different forms of ‘cooperation’ and ‘co-designing of solutions’, is only slowly gaining ground. Most technology-based urban concepts, including the ready-made eco-cities, are strong proponents of copy-paste solutions as they are trying to make a business model from sustainable urban development.

### **Performance Measurability**

Even though cities are open systems and resources cross borders, one aspect that seems to be crucial for the applicability and mainstreaming of holistic urban concepts is performance measurability. As Brugmann and Mohareb (2012) argue: the effective establishment of a new performance category in the urban sector will depend upon broad agreement upon definitions, boundary issues, and metrics for evaluation of such performance. They compare the success and mainstreaming of for instance ‘green building’ (several consensus measurement tools exist such as LEED or BREEAM) and ‘urban climate action’ (measured in greenhouse gas emissions) relative to less precisely defined agendas such as ‘healthy cities’ and ‘competitive cities’. This means that if a holistic urban concept is to be taken up on any serious scale, it will first have to get a broader consensus on system boundaries, definitions and indicators; deal with problems such as data unavailability or incomparability; and set up a practically applicable performance measurement framework. It is important for integrating concepts that transparency is kept and no weighing factors are used to cover up some less-performing resource areas. The dashboard principle (where the different resource performance indicators are visible next to each other) avoids this and would serve these concepts best. This doesn’t mean that the dashboard, as all other indicator systems, can be all-encompassing. However, in my opinion, few transparent indicators say more than a blurry accumulation of many weighed values which in the end turn ‘gold’ or ‘silver’.

### **Demand-side Change**

A fundamental aspect that is usually avoided by focusing on product replacement or efficiency improvements is 'change'. It is naïve to believe that a real transformation towards Sustainable Cities and Regions can be realized without change on the resource demand side.

First, I want to argue that operationalization problems are not caused by of lack of ideas, a lack of technology or even a lack of money. As I mentioned before, transformation means change, and change is usually not welcomed in situations of relative comfort. In addition, established powers have strong interests in staying with the old systems. On the other hand, people and cities are much more flexible than we claim they are. This has been demonstrated most often in situations of necessity or shock. When people are forced to change and cope with new limits, we see that cities and its citizens have a huge flexibility to adapt and find new ways of organizing themselves and their urban systems. In fact, shocks and crises are being actively used to change urban systems. The systems are in these cases clearly meant 'not' to return to their previous state, as in 'ability to bounce back', but to change to a different state. Hurricane Katrina was for instance used by neo-liberalists to clear the way for a privatization of the educational system (Klein, 2008). Even if we don't agree with the motivations or outcomes of these changes, we could learn a lot from the used strategies. Thus one of the tactics of urban strategies pushing for a transition in urban resource flows should be preparedness for action when the next shock hits. Shocks are clearly not the only way to transform the urban environment but they are definitely important 'Opportunity Time Frames', which can be used to push for urban systems transformation. Others will be prepared as well!

Second, if we would ask ourselves: 'what are the cities we want'; we realize that we are far from having a shared vision of an ideal human environment (Peñalosa, 2007). The biggest reason for this is the fact that public interests often don't coincide with individual interests. In the 'public' interest, we could say that we want a city where quality of life and the environment are more important than GDP, diversity is celebrated and inequality is limited. 'individual' interests however, often pull the opposite way. In practice we see that people with pro-environmental attitudes often take the car to move in the city because they find it more comfortable. This contradiction is the reason why it is so difficult to change our urban systems for environmental reasons and why sustainability got the infamous 'triangle' explanation. Rovers (2012) summarizes this reluctance to change as "law, money and fun": if it is not mandatory by law, does not save you money or provides the client with "fun", nothing happens or changes. On the other hand, the terms 'Good Living' (Ecuador) (SENPLADES, 2010) or 'Gross National Happiness' (Bhutan) (Zurick, 2006) suggest that there is more to quality of life than can be measured in quantitative terms of Gross Domestic

Product. This becomes apparent when looking at people's living location choices. Most people who choose to move to a new city do so in part for economic reasons. However, 'often people are willing to accept lower real incomes as long as they live in a better city. And of course higher pay is demanded when a job requires living in an undesirable city' (Peñalosa, 2007). In a similar way, people sometimes prefer to commute daily or weekly rather than change their main place of residence. When in Germany governmental offices were moved from Berlin to several cities in the new Federal States (e.g. UBA moved to Dessau), many employees kept living in Berlin. What is it that makes some cities preferred over others if not money or jobs? If it is fresh air, green spaces, good education, cultural events, big sidewalks or good bike lanes, good public space, family and friends, etc., then these elements of 'Good Living' relate just as much to the 'public interest' as to the 'individual interest'. This will of course imply a reshuffling of some costs and benefits.

Third, if it is a fact that pro-environmental attitudes and values are consistently higher than the percentage of people who take measures to change their behavior, then this so-called 'value – action gap' reveals a critical lacuna in behavior change policies (DEFRA, 2008; in: Warde, 2013). Recently there has been growing attention, including high up in the policy chain, on the influence of 'choice architecture' on people's behavior. This new emphasis on changing the social and material environment of action rather than the beliefs or intentions of individuals is welcomed by many precisely because policies aimed at getting individuals to change their own behavior are so rarely successful (or are too slow) and because the scale and urgency of the problem of sustainable consumption is unprecedented (Warde, 2013). Similarly, the 'nudge' argument, introduced by Thaler and Sunstein (2009) has sparked a vivid discussion on the role of cognitive versus automatic behavioral change, on the importance of default settings (default is what happens if you do nothing), and above all, on the legitimacy of governments to use 'nudging' as a strategy. In line with my argument above outlining the need to transform urban systems and re-organize functions in the urban environment, I very much welcome this discussion on new modes of intervention (with less emphasis on ethical conversion and more on reviewing the social organization and infrastructures of particular practices), since this can have wide implications on the production of urban space. It tackles exactly the problem of operationalizing Sustainable Cities and Regions, what are the barriers for change and who should be (or not be) involved.

## **Conclusions**

This opinion paper intended to provoke discussion and debate on how holistic urban concepts could go further than being just good ideas. As the literature has already done well at discussing implementation obstacles such as breaking down silos, corruption, short-termism

or local lack of mandate, this opinion paper focused on four lesser-known elements: 'transformative change', 'transdisciplinarity', 'performance measurability' and 'demand-side change'. Each of these could be the topic of an in-depth study but they can also serve as a first checklist for identifying a promising concept.

Finally, one could discuss the question of holism in itself. Is a holistic urban concept truly all-encompassing? I believe this discussion is less crucial than the question if the concept lends itself to push an integrated practical 'transformation' towards Sustainable Cities and Regions. Moving to practice will always demand choices and priority setting. It is however the central recognition of urban complexity (characterized by a.o. interconnectivity, system feedbacks, incompleteness and emergent behavior) that is a critical basis for any holistic concept.



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