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Connecting urban and regional socio-ecological transitions: Paths to a non fossil society in the

## Swedish Stockholm-Malar area

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## Abstract

Introduction: The embedding of cities in a wider regional frame is central for long term planning regarding the transformation of such parts of society. This holds especially true for urban centers of national or sub national status. In this presentation we are drawing on 4 years of research work and stakeholder consultations in the Swedish part of the EU COMPLEX project dealing with the transition to non fossil societies. In our presentation the regional multi layered governance which encompasses both a large (the Swedish capital) city and its surrounding region with an archipelago of larger and smaller towns is at the heart of the presentation. Our core interest is in the transition to sustainable and resilient urban futures. Especially we are drawing on the experiences from the Swedish case in the EU project COMPLEX.

Method: We are relying both on stakeholder consultations with regard to long term planning as well as on specific regional modelling efforts covering specific features as municipality planning, economic regional analysis, land use studies and cognitive analysis regarding decision making by individuals.

Results: We have focused on the systemic interactions of many different kinds covering long term developments (up to 2050). Our focus is to analyze features of the transition process of our urban-region at large and the connected decision making features e.g. in terms of scenario elaborations.

Discussion: We highlight the differences of opinions among a wide range of stakeholders with regard to their understanding of the issues, their ideological positioning about core matters of concerns and the various positions about appropriate paths for reaching the goals of the transition to a non-fossil urban-

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#### super region situation in our chosen case area.

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### 1. Introduction

The interest for urbanization processes has further increased the last decade. One important reason is that already half of world population already now live in urbanized areas and a reasonable prognosis in the UN system indicates a raise to 70 percent within the next few decades.

However, the focus of the interest has been varying. Of course the role of megacities and connected structural issues are high on the list of interest - both scientifically and policy wise. This concerns especially how the challenges with regard to these structures should be sustainably planned, managed and being made livable. Also the tele connections between these megacities is of increasing interest [1].

But in parallel to these concerns also the development of urbanized regions - including a pattern of a multitude of larger and smaller cities and urbanized areas - in an interplay with what since long and in a different context has been called their "hinterlands" is of rising concern. This zooms in on the relationship between the core urban areas and the areas of non urban character that do feed the more intensely urbanized "hot spots" also in a globalized world. [2, 3, 4]. Referring to the German language origin of the word "hinter" (meaning roughly "beyond") it refers to a structural situation in which a strong distinction can be made of urban "city" centers positioned spatially in a broader surrounding area of more or less non – urbanized character.

However, especially in an European context, the urban cores and the "hinterlands" are closely blended in a broader spatial pattern. This development is in itself of great importance. It holds true for traditional concerns related to the feeding of the urban spaces with needed raw material and energy. It also deals with handling of the reverse streams i.e. of getting rid of the waste from the urban cores. In some scientific and planning traditions this has been referred to as the issue of "metabolism".

But these concerns have gradually expanded to other considerations as well e.g. with regard to climate change issues. Here both the adaptation issues related to urban space - i.e. to be better prepared to handle changed heightened intensified temperature and shock weather conditions - as well as the mitigation concerns, i.e. the urban contributions to the global climate change conditions through emissions to the atmosphere from these urban "hot spots".

Not least the urban contributions to the carbon dioxide component of such outlets is here of great concern, especially as the urban part of this contribution globally is becoming increasingly more dominant e.g. through the coupling to the energy systems serving the urban configurations. Thus the interest in urban structures in their relation to the more or less non- urban structures – often in a regional context – is quickly growing.

During 2015 the world community - in the form of the member countries of the UN - have both agreed to adopt and carry through the 17 Sustainable Development Goals (SDG) as well as agreeing on an ambitious program to combat the current direction of global climate change (as was done through the Paris December 2015 Agreement of COP21). The goal is to keep global warming to stabilize below 2 degrees centigrade (and as close to 1.5 degrees as possible). In both these two UN agreements the role of sustainability for the urban parts of the world has been noted as strategically very important. These urban related issues will not least be discussed at the next UN meeting in Habitat III in Ecuador in the Autumn 2016. In this context the special SDG for sustainable development in urban areas ("cities") (i.e. SDG11) will be of central interest. The background to these concerns is that soon - in a few decades - 70 % of global energy use and 70 % of GDP are according to reasonable prognosis to be generated in the constantly larger conglomerates of cities. And over 70 % of the global population will live in these areas.

There are many more aspects to these increasing roles of cities/urban conglomerations worldwide [5] both in a historical as well in a forward looking perspective. Just concentrating here on the urban

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