CASE STUDY

The Application of the Assemblage Theory to Inter-Linkages Model - Case Study Australia

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A. Introduction

The Sustainable Development Goals (SDGs) is a set of aspirational ideas that build on a set of tangible targets and indicators that provide the bedrock on which these ideas can be achieved. The SDGs cover a vast array of social and scientific topics; some as diverse as womens' rights, cities, economics etc. all with the intent of providing a roadmap towards a more sustainable world in the future. A way of interpreting the goals and making tangible links between the different goals, targets and indicators is the "inter-linkages" model (Nilsson et al, 2016). The basic logic behind the interlinkages model is that each goal, target and indicator is directly linked to each other goal, target and indicator within a rating scale that of +3 (very positive link, actively contributing to the other) to -3 (a very negative, or actively negating the other). The suggestion is therefore that goals are intrinsically linked to each other, but not all are necessarily possible to co-exist to their fullest in the presence of all the others. The inter-linkages model has many theoretical similarities with the assemblages social theory (DeLanda, 2006) which is a social application of a philosophy introduced by Gilles Deleuze and Felix Guattari (Deleuze, Guattari, 1980). At its core it is a way of understanding all human interactions as being in concert with one another. DeLanda explains this point as "in short, analysis in assemblage theory is not conceptual but casual, concerned with the discovery of the actual mechanisms operating at a given spatial scale (DeLanda, 2006, pg.31) It discards the Heideggerian notion of the essence of things (Heidegger, 1927) being at the base of all things, and suggests that all things have to be looked at as casual mechanisms acting upon one another, irrespective to scale. Within the paradigm of SDG interlink-ages, one can interpret this as suggesting that each goal, target and indicators acts upon each of each other not only at the scale of each but at each scale. This is to say that a certain indicator cannot be distilled to its essence, and that each only exists as an interaction between the many.

B. Application

To illustrate the application of the assemblage theory on inter-linkage model, this case study focus on three specific indicators within three specific targets and goals that impact each on each other only when compared in tandem.

Indicator 8.4.1 and 12.2.1 are identical in their wording and also have the same parameters attached, however sit within two different targets and goals. Goal eight (8) deals with economic growth and employment, whilst Goal twelve (12) is concerned with sustainable material production and consumption. Therefore the obvious link between these two is that maximum sustainable economic growth can only be achieved through a sustainable material footprint.

At a target level therefore the link is that natural resources have a link to sustainable economic growth. However when Goal eleven (11) is introduced to the linkage model a deterritorializing link is made apparent. If

11.3.1 is looked at as a singularity, devoid of inter-linkages, the logic that the ratio of land consumption to population growth directly means a large population per unit of land surface area. In practical terms this means more architectural density in housing, proportionate to population growth. Hence we can deduce that 11.3.1 suggests that, for example, skyscrapers are a sustainable housing method.

C. Inter-linkages mind map

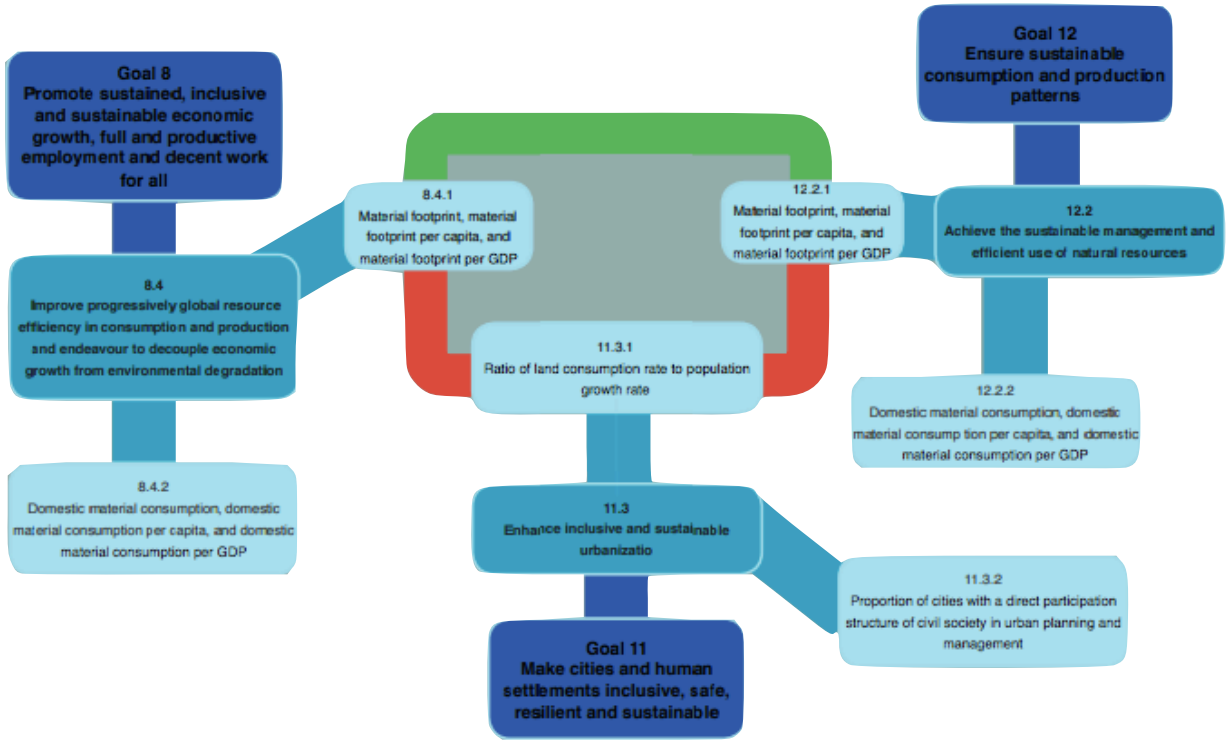

Fig. 1 The inter-linkages model on SDGs: Goal 8, 11, and 12

The thirteen super-tall residential skyscrapers seen above can be potentially observed as a valid solution to Target 11.3 when approached irrespective of their impact on the other Targets. They all objectively house more people per horizontal surface area than any other building typology in the world; therefore an argument can be made that they are the ideal housing type. However, these thirteen super-tall, irrespective of their physical location (across four continents), embody a much larger footprint per vertical square meter than low-rise housing, for example. Furthermore due to the engineering requirements of each the materials used generally have much larger ecological footprint, due to the embodied energies (in the predominantly aluminium, glass and silicone facades) and the freight required to supply them to the location of the construction site.

D. The Australian case study on skyscrapers

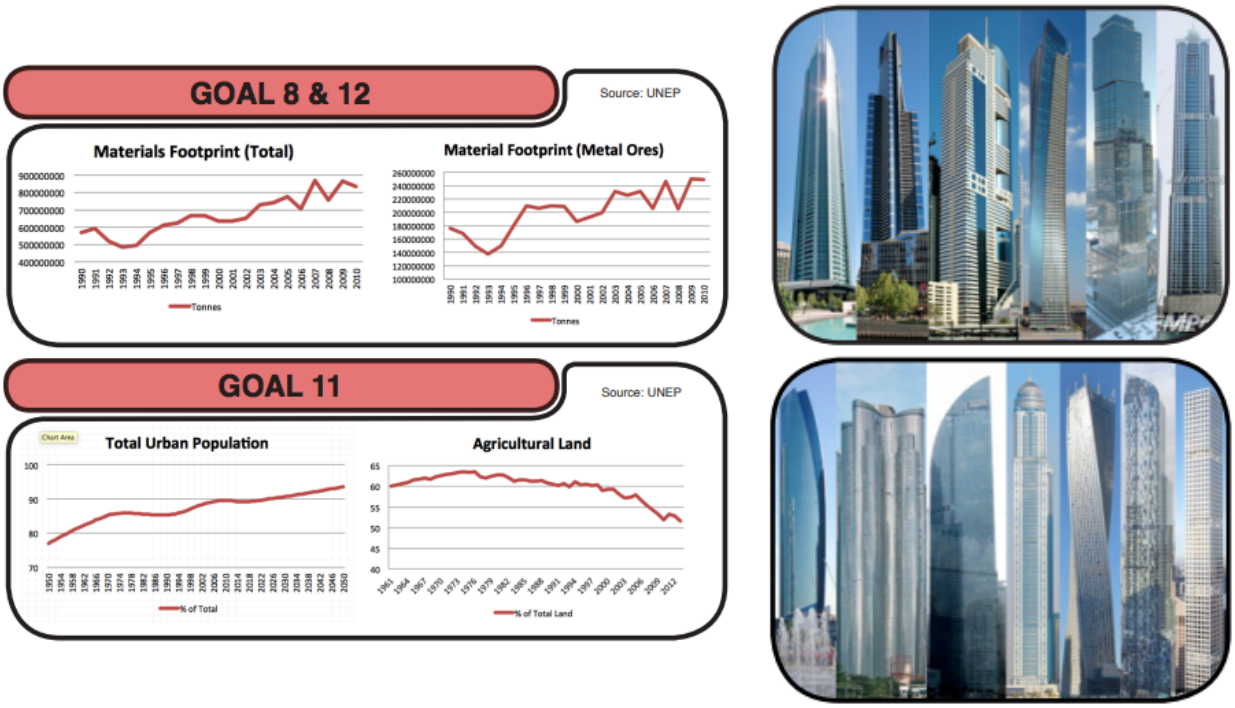

Fig. 2 Data Analysis

Through the Australian case study on skyscrapers have shown that they are however an incredibly inefficient form of building when looked at a micro scale. This is to say when, for example, a material life-cycle assessment is conducted on a typical modern skyscraper the findings are that the predominant materials used in a façade, being aluminium, glass and silicone in fact have a very large material footprint. Furthermore, the second indicator within Goal eight (8): 8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP is also jeopardized, as aluminium, glass or silicone may not be a domestic product of that particular country. Therefore when indicator 11.3.1 is introduced to the 8.4.1 / 12.2.1 nexus, a new requirement is formed. No longer can the conclusion, that was deducted from separate analysis of the three indicators, be valid without linking all three together. When all three indicators are observed as inter-linked a possible outcome could be seen as: Indicator 11.3.1 only works towards the Goal eleven (11), make cities and human settlements inclusive, safe, resilient and sustainable, if the linkage to Goals nine (9) and (12) is made. Fundamentally only a building that is of a certain height, aesthetic appearance and materiality can be sustainable, respective to the specificities of their location. Simply, what is sustainable for one location may or may not be sustainable for another. The data provided (source: UNEP) to illustrate this point is specific to a location, Australia through the rough period from 1970's until today. What can be observed within the data is that: 1. Australia has a very urban bound population, with the number of urban dwellers increasing yearly, and the numbers of rural inhabitants dwindling. 2. Australia's population density is increasing. 3. Domestic material consumption (metals) is increasing. 4. Agricultural land percentage is

declining. A way of interpreting this data is that Australia specifically is increasing in population as well as having more people more towards urban centres. The material footprint is also rising due to this exodus towards urban centres that are being constructed in an unsustainable way. However, the amount of agricultural land is also diminishing.

Each indicator, target and goals within the SDGs ultimately has a certain direct or indirect implication on each other indicator, target and goal. A way of approaching the task of inter-linking each of the actors can be achieved only when in tandem with each other actor, as there is no true essence to any of the actors without relation to others.

The focus of the research will be on a specific location; Fisherman's Bend Melbourne, Australia – and. It will encompass the following points.

- To review the inter-linkages between Goals 8, 11 and 12 and establish the way that each acts on the other.
- To find the 'tipping' point when any given indicator starts to adversely effect any other indicator.
- To establish equilibrium for a sustainable nexus between the three goals

The resultant outcome will be an example of a sustainable district where the material footprint, material sourcing and the building size will work in tandem to provide for a sustainable outcome. This could provide for a framework of building design to give local government a tool for sustainable future planning.

References

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