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## **Can the Blue economy paradigm provide a pathway of sustainable development for the coastal cities in Brazil?**

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**Knowledge Area:** Economia Política e Desenvolvimento

### **Summary**

Padua (2017) e Issberner (2017) signalize the need for the economic system to be revived and reconstructed and, in this vein, introduces the perspective of the Anthropocene as means to conciliate the different vectors of the complex reality, society-environment-economy, and to address the differentiated responsibility and the historical reference of the human impact on nature. According to Padua (2017), Antropocene is an era of radical human lead transformations, as recognized by Polanyi (2001), which lead to great acceleration of the natural socio-ecological cycles impacting heavily our planet. Also, Brazil, after the early phases of colonialism when the export of natural resources, including sugar and coffee, declined, the formation of coastal communities in the southeast was reinforced in response to the stagnated and underdeveloped economy by dedicating, for subsistence purposes, initially to the extraction of local flora and later to the exploitation of marine resources, which consolidated the surviving tradition of small-scale fishing (Mourão, 1971; Diegues, 1983; and Mussolini, 1980). Even further, since 50s Brasil transformed vividly its economy, through the acceleration of fossil extraction which was facilitated by the contemporary political and ideological coalitions at the time (Padua, 2017). Fortunately, Brazil's ecological footprint is still lower than its biocapacity,

yet the country can be rapidly lead to ecological deficit. Scholars have already accentuated the need for reflection upon the existing models of development and re-articulation of institutions to accompany change towards a more efficient, sustainable and inclusive economy. In this task, new tools for analysis are necessary regarding, for instance, the use of land, and the orientation in transformation and aggregated value rather than the low-cost but highly impacting economic activities (Rovere, 2017).

In search of sustainable economic models, the inland natural resources were greatly acknowledged in literature, mainly forests and inland water bodies, largely neglecting the coastal and the oceanic ecosystems. Yet, most of the current socio-ecologic challenges, including exposure to flooding or extreme weather conditions are spotted in coastal areas. The coastal urban agglomerations concentrate a great percentage of the population that overwhelmingly pollute and degrade the natural resources, but they are also poles for markets, innovation and industrial activity, making them an excellent point of reference for further research with territorial focus on marine and coastal ecosystems (Cicin-Sain et al., 2011). In such territories, particularly for the population that lives and economically acts in the Brazilian coasts, there is a need for an integrated governance on the basis of a fuller understanding of the urban development impact, which overshadows the needs of the local communities and perpetuates the current model of economic development, thus resulting possibly in cultural incorporations, or paradoxically, to identity reaffirmation (Martins, 2000) depending on the "adaptability" of these populations to face the environmental changes resulting from the penetration of market relations Begossi (1998).

Beatley (2014) elaborates on the integration of an extended range of development policies and strategies on the urban scale, with the appreciation and sustainable use of ocean resources. According to the author already emerging practices facilitate the transition to alternative "green" or "blue" models of economic activities foremost for the heavy industries related directly to the oceans including fishing, shipping and energy industries, as well as for urban planning that reference oceanic ecosystems.

Though still there is no consensus on the term, the principles of the blue economy are also based on the recognition that nature systems have various qualities favoring innovation induced economic competitiveness. Their dynamic equilibria, despite creating risks, manage to be efficient by constantly evolving, making use of its vast biodiversity in a symbiotic manner, and by creating cascades of nutrients, matter and energy (Pauli, 2010). Those innovative and sustainable mechanisms as observed in nature systems were neglected and disassociated from the dominant models of economic development since the era of industrialization, which is characterized by heavy infrastructure interventions, intensive and accelerated production and perception of the environment as exogenous variable in the production cycle. This parasitic and competitive behavior of the economic actors over limited or even natural resources, is reversed by the blue economy concept that targets to explore economic opportunities by internalizing the environmental issues and making use of cleaner and simpler technologies and locally available resources for the benefit of all stakeholders.

WWF (2015) expanding the term originally used by Pauli (2010) defines blue economy as a marine-based economy that provides social and economic benefits for current and future generations while restoring and protecting the natural capital of marine ecosystems

based on clean technologies, renewable energy, and circular material flows. Inclusive, transparent, adaptive and innovative governance on the basis of consistent and regularly monitored goals and targets, coupled with economic incentives, knowledge sharing, guidelines and the in parallel promotion of sustainable green economy on inland ecosystems.

Similarly, the World Bank and UN DESA (2017), consider as blue economy the sustainable use of ocean resources for economic growth, improved livelihoods, and ocean ecosystem health encompassing economic sectors such as renewable energy, waste management, maritime transport, tourism, fisheries.

The premises of the blue economy are in interdependence with green economy paradigm. Its combination, the blue-green economic paradigm, promotes mindset change that would disregard current priorities for the economic development, while favoring practices that abide by the triangular view of social-ecological-economic sustainable development, among which can be included the alternative means of fishing at the small and medium scale.

Yet, Brazil is currently in a diametrically opposed phase of specialization and commercialization of raw natural resources which implies the intensive extraction of fossils and other natural resources, both of which are not labour-intensive economic activities and lead to the reprimarization or deindustrialization of the matrix economic production matrix as reflected in the gross domestic product (GDP) (Young, 2016). Indicatively, Beirão and Pereira (2014) in analyzing the United Nations Convention on the Law of the Sea (UNCLOS) of 1982, a main political and legal framework to regulate the use of the oceans and other maritime activities concluded that Brazil was seeking to safeguard the richness of the Blue Amazon in favor of national interests related to the discoveries of hydrocarbons in the pre-salt layers<sup>1</sup>.

Leapfrogging for this case would require steering the economy towards knowledge and labour-intensive economy under the blue-green economic paradigms. The latter lack both the necessary academic and/or political consensus on their orientation, and an existing institutional system that could accommodate the transition towards a model of a dynamic and open information, participatory pro-growth economic model. Even more so, in case of Brazil, where institutions at local, regional and national level precise a new collaborative culture and a process of consolidation under tripartite coalitions that will target the tackling of inequalities observed between different states or municipalities.

Parr et al. (2017) suggest for the recovery of Brazil from the economic crisis of the latter years, scaling up wind power capacity, the protection of forests, efficient land use and modernization of urban public transport networks. Nevertheless, developing countries such as Brazil which concentrate the astonishing majority of the population and the national economic activity, may have a relative advantage in converting through innovative means the socio-ecological services, provided by the local and regional coastal

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<sup>1</sup>According to the World Energy Outlook 2013 report of the International Energy Agency, oil discoveries on the Brazilian coast could put Brazil, in 2035, among the six largest producers in the world. Projections also indicate that the growth in offshore natural gas production should be sufficient to meet domestic demand by 2030. Source:

[https://www.iea.org/publications/freepublications/publication/WEO2013\\_Executive\\_Summary\\_Portuguese.pdf](https://www.iea.org/publications/freepublications/publication/WEO2013_Executive_Summary_Portuguese.pdf)

and marine ecosystems, to sources of economic competitiveness (World Bank and UN DESA, 2017).

Still, the sustainability of the coastal and oceanic ecosystems depends from natural cycles and climate change impacts that, in turn are affected by inland urban agglomerations through the fluvial channels and temperatures. This is also an argument that establishes the interdependence of the two economic models, green and blue and the consequent necessity to integrate the development strategies for both inland and coastal territories.

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