


Chapter 42

Transition of Ecosystem Services Based on Urban Agro Ecology

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ABSTRACT

This chapter analyzes the implications of the transition of ecosystem services based on urban agro-ecology. It advances on the debate over the negative effects of the traditional and industrial-oriented agricultural production on the ecosystem services, food systems, climate change, etc. and analyses the principles, methods, and some practices that support the transition to urban agro-ecology. The method employed is the analytical of the theoretical and empirical literature review. It concludes that a transition from traditional and industrial-oriented agriculture towards more urban agro-ecology is inevitable to improve the ecological and environmental services, the economic efficiency, the social equity and justice, and the environmental sustainability of cities.

INTRODUCTION

A debate over the negative impacts of industrial input-intensive agriculture is leading to consider a feasible transition to other alternative forms capable to provide ecosystem services and produce food. Agro ecology emerges in response to the problems associated with the industrial model of agricultural production. The simplified form of agroecosystem is altered with the input substitution that occurs in industrial agro systems. The industrial agriculture framed in the free market economic model has a destructive impact on sustainable natural resources, biodiversity, food security, environmental services and climate change, leading to ecosystem disruption and human hunger. Conventional agriculture is not sustainable for the rarefaction of inputs, global competition, loss of biodiversity and benefits from ecosystem services, climate change, etc.

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The current consumption model based on industrial agro culture is disconnected from food production leads towards poor consumption patterns and choices of diets beyond the requirements of urban land planning and development.

There is a gap in the agro ecological transitions between the agro ecological practices and the ecosystem services delivery. The relationship between agro ecology and nature is relevant in the current crisis is framed by the land used for agriculture and the land dedicated to conservation of biodiversity and ecosystem services.

The agro ecological struggles leading to demands for right to food, land redistribution, concerns for pollution of soil, land and water, provision of ecosystem services, corporate dismantling and access to fair markets of organic products, etc., are some of the emerging issues in urban environments. To break this pervasive relationship, it is required the incorporation of an integral conservation programs framed by minimizing land use dedicated to agriculture and more to conservation of agroforest ecological biodiversity and other ecosystem services.

Agro ecology and food production systems face some economic, social and environmental challenges when economies are organized around a competitive export orientation of crops that have impacts on the ecosystem services integrity, food quality, public health, and disruption of traditional rural livelihoods. The autonomy and solidarity between peoples of rural and urban agro ecology displaces the control of global markets.

Research on agro ecology is based on the assumption that there is a positive relationship between biodiversity and the rate of ecosystem services. Agro ecological research tends to enhance agroecosystem functions of biodiversity systems based on ecological principles such as facilitation, niche partitioning, competition, etc. Sustainable urban agro ecology take into consideration the efficient competition of resources between the strategies developed by actors in the urban environment to enhance benefits and securing access to land use.

ECOSYSTEM SERVICES

Ecosystem services are “the direct and indirect contributions of nature to human wellbeing” (The Economics of Ecosystems and Biodiversity (TEEB) 2010). Urban agro ecology has direct impacts on ecosystem services, environmental sustainability, food security and socio economic development in urban and peri-urban areas. The impact of urban agro ecology in the ecosystem services in urban environment, economic viability and productivity has been given little attention by organizations and institutions than the peri-urban commercial farms. Agro ecological techniques can improve yields and increase productivity while improving the supply of critical natural resources and environmental services (Pretty et al. 2006).

To enhance this situation, it is recommended to provide more extension, education, training and support for the agro economic services. The urban economies benefit from urban agro ecology if local governments develop institutions with a policy framework to provide agro ecological services, promote sustainable urban development and urban food security aimed to enable urban agro ecological participants to unlock supporting financial and technical services.

The analysis of agro ecology theory and practice may contribute to the discussion to pursue to the institutionalization of agro ecological development based on a farm system with investments and services supported by networking interactions between the state, society and inclusive participatory organizations.

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