

Ecological Footprint In Spatial Planning: An Analysis At Community Level

The concept of Ecological Footprint (EF) developed over 25 years ago helps in developing a clear metric of the changing demands of the human on ecology. This helps in making comparisons between the demand on ecological resources and the available supply. EF has a wide variety of applications at various levels of planning. Due to its potential in representing all the factors of its concern in numerical terms under the same unit of 'global hectares', it acts as an efficient tool in communicating the global issues at local context and vice versa.

The various levels of planning which are addressed for Ecological Footprint Analysis (EFA) includes global, regional, block, metropolitan, institutional, household, and individual levels. Since the EF deals with the accounts of entire flow of resources at various levels, the availability of the data and the reliability on the source from which data is obtained remains always as a matter of concern.

At global and regional levels, the Global Footprint Network and the National Footprint Accounts (NFA) conducts EFA and updates annually with the information regarding the ecological credits, debts and the current issues at the time. But when it comes to the other sub levels like national, block, metropolitan, institutional, household and individual levels, the methodologies and applications vary based on the questions raised and the parameters considered.

At present EF has replaced GDP and is adopted as an indicator to measure sustainability along with the Human Development Index (HDI). Also, the SDG's or the global goals which came into effect on 2016 stress on actions to end poverty, protect the planet and ensure peace and prosperity to all people. Studies have stated that a Hybrid approach of top to bottom and vice versa is required to bring SDG's into action.

This research is conducted to define the role of EF in enabling SDG to work at local levels. The 'SDG 11 – Sustainable Cities and Communities' mainly focuses on making the cities and communities inclusive, safe, resilient and sustainable. This is a call for the improvement of the efficiency of cities and communities through various measures of which effective spatial planning plays a major role. The impacts of increasing emissions of green house gases and the unplanned growth of the cities can be resolved only through grass root level interventions (bottom up approach).

Hence, this study is conducted to define and analyze the role of EF in enabling SDG to work at local level through spatial planning. The study is conducted at community level by taking two residential developments - one sustainable and the other conventional. The study is carried out in six phases where, Phase 0 deals with the literature survey on the concept of Ecological Footprint and case studies related to its application at various levels. Also, it deals with the literature on the aspects of community development, the existing rules and regulations related to such developments, and the role of SDGs. Phase 1 deals with the calculation of total EF of both the communities. Phase 2 deals with the finding of the share of housing and mobility (directly related to spatial planning) components on the total EF. Phase 3 deals with the analysis part making comparisons between the two communities based on planning aspects and techniques adopted. And Phase 4 deals with the inference part where the result is illustrated in diagrams for easy communication by showing the difference between the land areas which the community requires for its survival over the actual physical land area on which it is built upon. Finally Phase 5 deals with the formulation of policies and strategies for community development.

Keywords: Ecological Footprint Analysis, Yield Factor, Equivalent Factor, SDGs, Sustainability, Community Development.