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GEOGRAPHIC STUDIES-ESSENCE OF LAND USE PLANNING: A REMINDER

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Introduction

Land surface of the earth appears enormous, but it is only 149.5 million square kilometers against the water surface of 360.5 million square kilometres. In other words, only 29 per cent of the total surface area of the earth is land while 71 per cent is occupied by water. The land of the earth, therefore, be taken as fixed in extent since there is hardly any land left unexplored. Moreover, the whole land available on the earth cannot be put to use as a large part of it is under rugged mountains, cover of ice, hot deserts, dense forests, marshes, lakes, etc. that cannot be brought under use. There is hardly any scope to bring more area under use by way of reclamation. Thus, land available for use is definite, finite and truly speaking inextensible.

On the other hand, the population is not only increasing in number but it is multiplying at an alarming rate putting additional pressure on the resources of land. India has an area of 32,87,263 square kilometres and a population of 1027 million persons projecting an average density of 324 persons per square kilometre. Similarly, India contributes 18 per cent to the total population of the world whereas its share in the total geographical area of the world is only 2 per cent. For the 15 per cent of the world's livestock, India has only 1 per cent of the world's forest reserves and 0.5 per cent of the pasture land. Similarly, per capita availability of forest in India is only 0.08 hectare against the world average of 0.8 hectare. Increasing pressure on land necessitates judicious utilization of land, because land available for use varies not only in kind but also in quality as a result, any kind of land cannot be put to every type of use. To achieve optimum utilization of land, it is imperative to check over use, under use, and miss-use of land. This demands a spatial land use planning for the sustainability of land resources.

Spatial Planning Urges Harmonious Relationship between Man and Land

This world is beset by innumerable immediate problems and each one is a long-range problem that stands out above all others. One such problem is the uncontrolled increasing pressure of population on land resources that concerns directly to the physical planner who has to evolve a comprehensive system of town and country planning for integrated urban and rural development. To evolve a comprehensive plan, it is essential to study the man-land relationship at different levels which can be expressed as under:

1. The carrying capacity of the globe, as a whole, in relation to the increasing population should be calculated. While this may sound hypothetical or of somewhat academic approach as there exist innumerable man-made barriers of territorial sovereignty of each country which prevents free movement of men and materials.
2. At the national level, one can endeavor to identify the similarities and the dissimilarities between the states. Here, state can be taken as a unit to study its potentials.
3. At the third level of study is the regional level. It may encompass two or more states or there can be regions within the state. Its extent is to be governed by the listed identical characteristics to establish the homogeneity of a region.
4. At the fourth level of studies, the unit of study may be a town or a village. The focus is to pinpoint relationship between an individual settlement and its geographical environment. This refers to assessing the carrying capacity of resources of an area and their sustainability.

Concept of Sustainability

The concept was revived by the geographers as oecumene or ecumene – the habitable earth: those parts of the earth's surface which are capable of permanent settlement and development to produce human food. With this concept in mind we may eliminate about a fifth of the total surface as being too cold to support permanent settlement. Another fifth can be eliminated as too arid and having no water supplies available. Another fifth is too elevated, too mountainous or rugged. Perhaps another tenth is bare rock or lacking soil which could adequately support crop growth.

Out of this habitable area about 1(one) acre is actually cultivated for the present production of food (and certain non-food crops). It can be put in another way that it takes the production of a little over 1 acre of cropped land, plus the animal products of open grazing land and plus the products of the forests, to support one 'average' human being. It is a daunting task to understand how wide is the actual range in terms of actual land requirement to support one person according to differing standards of living, type of diet, type of farming, and so on. However such studies may be considered as a yardstick to measure the carrying capacity of land resource in relation to needs of the man.

In India we have about 1.5 acres of land per head but there are large areas which are either arid or mountainous. The potentially cultivable land, if possibly reclaimed and irrigated, may not exceed one acre. (These figures were calculated from different sources, may not be accurate, but certainly reflect the intense pressure of population on land resource) Thus the increasing pressure of population on land and land resources warrants logical and factual objective study of population in its many aspects on one hand and similar objective study of the land, its use or abuse on the other.

The pattern of urban expansion since the Industrial Revolution has been swamping, and indeed obliterating the old rural agricultural pattern, with its farms, hamlets, villages, or the market towns, which had steadily been evolved over the centuries. The process of convergence of various smaller settlements in the dominant settlements started with the industrial revolution generating

exponential growth of urbanization. This incidence was brought to the fore as the geographical concept of the conurbation – the term introduced by Sir Patrick Geddes. However, one of the great questions of the present day is whether the rural revenue estates are still sustainable as viable units? These type of studies might have been conducted for academic interests but are yet to be realized as essence of spatial planning for the sustainability of the society.

Place of Geographic Studies in Spatial Planning

The eminent jurist, the late Lord Justice Scott, once said that '**town planning is the art of which geography is the science**'. This judicial mind had seen clearly the influence of geographical factors in all that the physical planner would wish to do. If we consider geography as a science which studies the earth as a home of man; it implies that it is studying man and his activities over space in time as the key factor. It comes within its scope to establish the areal differentiations, distributions or locations, whatever we call, as when it happened, why it happened, where it happened. Such studies are conducted in a sequence or chronological order. This is how geography holds its command in spatial planning differently from the rival sciences.

The judicious application of geographic information was effectively applied in National planning on a grand scale nearly 2000 years ago by the Romans. They were masters of the urban life. Their concept was one of well-placed cities where the gracious Roman way of life could be followed within protecting walls, linked by straight roads well paved and maintained. The countryside was left to the natives, except where rulers with a taste for country life chose to establish their mansions (village) and farm estates.

Thus unique contribution of geography to the discipline of Spatial Planning is the holistic approach to establish relationship between man and land and man and his environment including attendant problems, in totality. Geography as a science studies the locations or distribution or dispersal of human activities over space in three dimensions with time as the key factor. The relationships which are deduced or established are not from the present alone it sees the present as a stage in a natural process of evolution. Here is the genetical

relationship between geography and the physical/spatial planning. Planning of any sort presupposes a policy. Any policy may be based on considerations which are far removed from geography. The geographer may consider his work ending with survey and analysis. At this stage the objective survey and analysis of the geographic studies pass on to the subjective judgment of the planner.

Land Use Surveys-Backbone of Spatial Planning

Owing to the increasing pressure of population on land resources and management thereof Great Britain established the Ministry of Town and Country Planning in 1943. The land use surveys were conducted by involving school children and where it was difficult for the school children to carry out the surveys the university students or graduates were encouraged to cover those areas. They were considered appropriate because they were accustomed to finding their way about the country, and once they are taught to read a detailed map with accuracy they would face no difficulty in recording the facts on the maps. Their parents also took a keen interest in completing their work.

The maps were prepared by the Maps Office under the control of Dr. E.C. Willarts. It was established that many rural areas experienced decline in population. A strategy was evolved by the British Government. to indicate the relative decline, absolute decline, depopulation which could be shown to be the most severe in areas where physical factors such as inherent poverty of land and difficulty of access were the most marked. These maps were published by the then Ministry of Town and Country Planning. The classification of land use which was used at that time was the result of a number of pioneer experiments in different parts of that country.

The British Government in 1941 set up the interdepartmental Committee on Land Utilization in Rural Areas under the Chairmanship of Lord Justice Scott to consider the conditions which should govern building and other constructional development in country areas consistent with the maintenance of agriculture having regard to the well-being of rural communities and the preservation of rural amenities.

The main report of the committee traced first the genesis and character of the problem and then gave a wide range of recommendations. The government proceeded almost immediately to set up a Ministry of Town and Country Planning – not truly on the terms advocated in the report with overall powers of review, but as a departmental Ministry. However the basic recommendations of the Scott Report were embodied in the Town and Country Planning Act of 1947 and the Agriculture Act of 1947.

The Scott Committee's recommendations to establish National Parks and Nature Reserves and to survey all footpaths were exhaustively studied. In due course of time it resulted into the establishment of the National Parks Commission and the demarcation of the appropriate parks and of the Nature Conservancy Parks Act of 1949. The survey of footpaths was assigned to the Country Planning Authorities. In practice Britain at that time was more advanced in the planning of land resources than any other country in the world. The Town and Country Planning Act of 1947 made the planning compulsory for the whole country and the county was the planning unit. Each county was required to prepare:

- (a) a factual survey;
- (b) a plan for future development based on the survey; and
- (c) each county was given a period of five years to carry out this work before submitting its results to the Minister. Thereafter the survey and plan were examined by Ministry officials so as to achieve co-ordination of the policy between one region and another.

This urgency at the global level was realized in the Congress of the International Geographical Union held at Estater in 1949 in Lisbon. A project was brought out by Professor Samuel Van Valkenburg, the Head of the Graduate School of Geography at Clark University, Worcester, Massachusetts, to form a commission which would look into the question of drawing up what he called a Land Use Inventory for all countries in the World.

Population and Land-use Patterns

The complex, intricate pattern of land use or non-use is the result of the action and interaction of many factors; some physical, such as elevation,

slope, drainage, soil, rainfall and temperature; others historical, such as ownership and tenure of land and still others purely economic such as working costs and agricultural prices. In the densely populated countries the pattern of population distribution and the present complex land use is the result of centuries old history of human settlement and development. Whatever the reasons for the present complex land use pattern, it is from this and upon this the planning for the future takes place. Town and country planners would be very happy if they are allowed to regard the land as a blank sheet of paper on which they could develop their concepts for future planning. Practically this is not possible because this complex land-use pattern is the result of thousand of years of land utilization.

In essence land use planning in an 'over-populated' country like India, is the appropriate or judicious allocation of land between the rival claimants considering the land a commodity which is in short supply. Therefore the planner's task is to determine the optimum use of every inch of the land, in the national interest. The land use planning, therefore, must start from the present position, based on a carefully conducted detailed survey aiming at interpretation of the present position for futuristic planning to satisfy the basic needs of mankind by putting land under a judicious use.

Earlier there were six globally acknowledged basic needs of man which involve the use of land for man's satisfaction such as; (i) land for food production (this includes agriculture and forestry) (ii) land for shelter, (iii) land for work or economic activities, (iv) land for recreation, (v) land for movement or transport and communication, and (vi) land for security and defense.

With the innovative technologies the surface landscape is also changing fast. One such technological sector is power or energy. The hydroelectric power, thermal power, atomic power, solar power and wind power have considerably affected the landscape through the network of power grids, sub-stations and power distribution networks. However this can be clubbed with the industry for broad categorization of land use.

All the above listed land uses tend to invade the present open land of the country available for the production of food and raw materials by the

farmer and the forester. Despite the fact that we have enacted various laws to govern and regulate the use of land a comprehensive system of town and country planning is still not available. There is a need to regulate and monitor the land use in order to establish the rate at which land is currently being lost from farming and forestry to other claimant land uses.

In these fast changing technologies as soon as a man owns a vehicle he tends to use less of his lower limbs. He will go wherever the vehicle can reach and barely walks for longer distances. With the exponential increase in the vehicular traffic there is a new demand for caravan sites for holidays. This is the time the planners must realize the need for the open land to be conserved. The planning of such recreation integrates the needs of the townsman with the country side. We may emphasize here that the National Parks be regarded as exclusively for such purposes. It is here that the multi-purpose use of land is of paramount significance and importance. The objective here is to eliminate conflict between town and country planning by adopting an approach of establishing interrelationship and mutual dependence so far as land use planning is concerned.

It would be difficult to pretend that the hasty building of the industrial age gave us automatically either pleasant or efficient towns. But it certainly aroused national conscience on the need for physical planning which was, at the initial stage, essentially town planning to provide better housing. The countryside was just left unattended over which the towns expanded either as garden cities or garden suburbs. The resultant unhealthy and imbalanced development was the apparent result of *laissez-faire* growth.

Initiatives in India

With the increasing pressure of population on land resources there is an urgent need for careful planning of land resources in India. In the early seventies the then Prime Minister of India Smt. Indira Gandhi emphasized the need to have the land use maps of the country almost 25 years after the Lisbon Congress held in 1949. It was at the initiative of visionary Prime Minister that the State Land Use Boards were constituted to perform the duty of preparing the land use maps.

In 1993 India effected 73rd and 74th amendments in the constitution of India to achieve the similar objective. One of the duties assigned to the local elected Bodies is to prepare the land use plans at the local level, district level and state level for physical social and economic development. These plans will regulate the use of land for the 'foreseeable future'. These plans usually consist of four categories, namely, (i) an outline plan for the county as a whole, (ii) an outline plan for the state, (iii) district plan, and (iv) town development plan with more detail on a larger scale.

The above distinction is based primarily on administrative units, which have greater importance in the context of administrative divisions. There is a need to effectively demarcate the built-up area associated with a village or a town for future expansion. The town planner here is free to make changes that he considers desirable within the Urbanizable area or Urban Fence or urban fringe in the case of towns. Whenever there is a need to expand the town and wishing to use land outside the Urban Fence which is still rural and farmed, the Department of Agriculture must be consulted. It derives significance from well laid out farms around the towns. If the size of the farm is sufficiently large in one block and is well equipped with machinery and building; it is obvious to keep it as an economic unit and to be preserved as a whole. On the other hand, if the land is sub-divided into small sections, cultivated or otherwise used, it is of less importance to retain such holdings. All these factors require to be taken into account at the time of land acquisition. Further, it often happens that around a town agriculture has been rendered difficult or almost impossible by various urban influences. All these influences render the land 'urbanized' and of comparatively little significance for agricultural purposes. This is particularly the case if there is a wedge of agricultural land almost surrounded by housing. It also occurs when an old farm is engulfed by the natural sprawl of the town.

A farmer liable to lose a few fields – perhaps his specially valued home meadows – for development or liable to find his farmstead cut off from his holding by a by-pass or new road is in an intolerable position. The farmer, especially one

concerned with livestock such as keeping a dairy must be assisted to plan years in advance to evolve his future programme. He must know that he is safe to use his land the way he likes for a given period. Similarly, the farmer engaged in agricultural is also in the same position if he is to incur necessarily considerable expenditure in fencing, draining, ditching, liming, and leveling his land. He is sinking capital in his land and therefore, he needs to know how long he is going to hold his holding intact. Town planners often forget this when they suggest that taking just one or two fields from a farm can make but little difference. The farmer must have security of tenure. What therefore he needs to know in advance are the possible changes envisaged in the overall plan of the town by which he may be affected.

The town-planner's point of view is somewhat different. He is concerned with the future expansion of town over the land as a whole he has included in the development plan. He does not consider this zone as an area of production. He prefers the stringent controls, as far as possible, over the use of land and buildings.

There was a time when town planners thought considerably about the actual demarcation of Green Belts. The concept of the Green Belt has become a somewhat unmanageable. A Green Belt surrounding and bounding a town has been looked upon as an area prohibited for urban expansion. But to have a Belt of a definite width around a town would rather naturally cause such a town to jump over the Green Belt and to start expanding beyond it or mutilate the green belt in the absence of effective enforcement. Thus, in due course of time the city itself might invade green land for its sprawl. The successful planning of land use therefore requires co-operation and goodwill of all concerned. Despite the compulsory regulations, the best results are never achieved by using stick.

The Town and Country Planning Departments in all the States must be entrusted with the job of conducting land use surveys to collect and apply the geographical information because the preparation of a plan, based on the survey, is the field of a professional Spatial Planner. It is a daunting task to demarcate the specific piece of land which would be developed. Therefore the

general policy should aim at indicating certain villages likely to be chosen for purposes of expansion where buildings can be permitted. Certain parts of the state may well be demarcated as suitable for the development of new towns, if such are required.

Town Planning - A Controversy

Town planning or town and country planning or physical planning or spatial planning whatever we may call, it has the limitations of calling it a science. It depends largely on other well established sciences such as engineering, architecture, geology, geography, sociology, economics, hydrology, ecology, law etc. It cannot claim to have devised its own planning techniques and principles. Neither has it evolved any strategy for devising its own norms of planning nor the standards of development. It still continues to borrow knowledge from other sciences hence it depends on other sciences for plan formulation and implementation thereof. It lacks a comprehensive definition that is why its scope remains confusing. Notwithstanding the fact that the town planning has emerged on the factual metrics as a kind of super specialty in the present day context of cyber age, being the core of edifice on which all the development activities rest. This warrants a serious deliberation and contemplation on its identity as a science.

The Institute of Town Planners, India established in 1951 defines "Town planning means the planning of scientific, aesthetic and orderly disposal of land, buildings and amenities in use and development with view to securing physical, economic and social efficiency, health and well-being of urban and rural communities and shall include village, town, city, regional and national planning"

If planning is a deliberate effort to articulate plan for foreseeable future the above definition then requires a close scrutiny. Because planning essentially aims at deliberately encouraging those trends which are accounted to be conducive or countering those believed not to be conducive. Land use planning is one such articulation of putting

the land under the appropriate present use and earmarking the land for the future needs of man with an objective of maintaining the ecological balance by offering built environment in the natural settings. Such articulation cannot be imagined without effective and efficient use of reliable geographical information.

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