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**THE CONCEPT OF LANDSCAPE IN LAND-USE STUDY
FOR ENVIRONMENTAL ASSESSMENT CONCERNING
LAND AND SOIL IN A DEVELOPMENT PROJECT**

by

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INTRODUCTION

This piece of exposition is written to document our concept of landscape in land-use and soil study for environmental assessment with particular emphasis on land and soil — the most important heritage of the people. It is said that human society progresses on two "feet" — namely, communication and transportation. In this brief exposition our intention is to communicate to our fellowmen the little we know in the conservation of natural resources and the overall environment through the application of landscape concept with its land-use patterns and categories.

GEOGRAPHIC FUNDAMENTALS

Percept and Concept. — "These terms percept and concept appear often in articles dealing with geographic education, especially in articles dealing with many kinds of academic disciplines. These two terms can not be distinguished sharply. Percepts seem to fuse with concepts. However, one can identify distinguishing characteristics. Percepts enter the mind through the senses. They are the images which result from seeing, smelling, hearing, tasting, and feeling. Percepts are based on sensation received at anytime, now or in the past. Concepts are constructs of the mind. They are a consequence of reflections, cogitation, and synthesis. Taken together, percepts and concepts are referred to as cognition experiences".¹

To illustrate. — If you look at the Taal Volcano from the edge of Tagaytay Ridge, Cavite Province, Philippines, you see and become aware

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of its grandeur, you have a *percept*. If you reflect on this circumstance, in terms of the transformation of the landscape you are becoming involved with a *concept*.

We may also give a vivid example of a concept that transpired in an incident. Our First Lady and Governor of Metro Manila, Mrs. Imelda Romualdez Marcos went to visit the Tondo Foreshore, Manila and saw the hardship and the very miserable condition of the people, sensed the foul odor of the place, heard the people's voice of agony, and felt deeply in sympathy. In her desire to change the situation, she arrived at the concept of transforming the landscape into a well-organized settlement for the people to live in and enjoy and also progress.

Landscape. — The meaning of landscape may be found in American-published English dictionaries, such as the following:

1. "An extensive view of rural scenery; a picture representing natural inland or coastal scenery"²
2. "A picture representing natural inland scenery; an expanse of natural scenery seen from a single point of view;"³ and
3. "A picture representing a tract of a country with various objects it contains, such as a picture in general, or a painting of such a picture; a natural scene that might form the subject of such picture"⁴

Geographic View of Landscape. — John Emery (1980)⁵ has this to say: "Geography is that field of study which focuses on the environment throughout the use of spatial concepts" (Australian Geography Teachers Association, 1971:2). "Geography, as a discipline, provides valuable environmental perspectives, both for teachers in the organization of their course and for students as they become involved in them. Dr. Don S. Biddle's articles on *Geographic Perspective*, outlines this range of structures, one of which is landscape structure. *The landscape is a structure which emphasizes tangible visible objects, forms, content, and the impact of people in their environment.*"

Landscape (as used in soil geography) is the sum total of the characteristics that distinguish a certain area on the earth's surface from other areas. These characteristics are the result not only of natural forces but of human occupancy and use of the land. Included among them are such features as soil types, vegetation, rock formations, hills, valleys, streams, cultivated fields, roads, and buildings. All of these features together give the area its distinguishing pattern. The term may be used in broad sense to include the complex pattern of an extensive area, such as the rural landscape, the mountain landscape, or it may be restricted more closely by some factors or combination of factors, as the landscape of the Miami-Brookston soil association, the landscape of the Miami silt loam, or the landscape of the forested Plainfield sand.⁶

Environment. — A dictionary meaning gives this: "The aggregate of surrounding things, conditions, or influences"; also, "all the conditions, circumstances, and influences surrounding and affecting the development of an organism."

Thomas Detwyler (1971),⁷ well-known geographer, defines environment as "the aggregate external conditions that influence the life of an individual or population, specifically, the life of man. Environment ultimately determines the quality and survival of life."

Furthermore, environment refers to the complex interactions among natural, material, and social aspects of man's life, such as:

natural — air, water, land, and minerals; animals, birds, and fish; trees, plants and grasses;

material — buildings, machines, other structures and their products; and

social — health, employment, community living and relations, shelter, recreation and privacy.

Land and Soil. — Land in its physical state is defined as the portion of the earth that has distance, space, length, and width. Witness the fact that when you read and examine the Torrence Title of your land the technical description indicates distance(s) from established point(s) of reference, space, width, and length, and gives the area in hectares or square meters. In reality "land is the total natural and cultural environment within which production must take place. Its attributes include climate, surface configuration, soil, water supply, subsurface conditions, etc., together with its location with respect to center(s) of commerce and population. It should not be used as synonymous with soil or in the sense of the earth's surface only."⁸

The soil on the other hand besides these four dimensions has the fifth dimension which is depth, and is used as medium or foothold for plant and animal growth. The depth dimension of the soil makes it a natural body on the surface of the earth composed of organic and mineral substances utilized by plants for growth and development.

As per the Constitution of the Republic of the Philippines, land and soil as natural resources, belong to the State. The soil, however, is God's gift to man in *fee simple* to be used only for growing plants and animals, for the livelihood and well-being of man. When used otherwise, this soil becomes mineral. A man in the Philippines therefore must get a permit from the Bureau of Mines (now Bureau of Mines and Geo-Sciences), Ministry of Natural Resources, if he sells the soil or uses it for other purposes such as filling material in construction purposes and such other development projects.⁹

Land Use. — The term land use or land-use refers to the occupation and actual utilization of the land for many purposes, such as for residence, crop and livestock production, forestry, recreation, wildlife conservation, mineral extraction, and varied commercial and cultural purposes. For the purpose of environmental assessment and impact studies of an area where development is being programmed or to be implemented, the concept of landscape has been found to be a feasible method for the survey and mapping of the land-use patterns and land-use categories.

Land-Use Patterns and Categories. — Land-use pattern is the areal design or arrangement of land uses, major or minor, and of operation units*

Within the context of landscape, the land-use pattern and land-use categories are units of classification of the land and soil in the area and their relationship to each other. In this way assessment of the elements of the environment can be easily evaluated and their impact on various activities of the people can be established.

The Land-Use and Soil Survey of Great Britain under the leadership of Sir Dudley Stamp have made notable progress before and after World War II. After his death Prof. Alice Coleman of Kings College, University of London, practically inherited the mantle of Sir Stamp's great work which is now the Second Land Utilization Survey of British Land. This survey has classified, established, mapped and measured hundreds of different land-use patterns and categories.*

Land-Use Pattern. — The land-use pattern is the major unit of classification of land and soil study especially adopted for environmental assessment and impact studies of areas that are within the development projects. Coleman⁶ recognized five broad types of land-use pattern, namely, *townscape*, *farmscape*, *wildscape*, *rurban fringe*, and *marginal fringe*. According to the author, townscape, farmscape, and wildscape are patterns or environments which planning had intended to conserve or improve. Rurban fringe and marginal fringe are environments which planning had intended to reduce or eliminate. For further elucidation, the same author stated: "Townscape is dominated by settlement but may sometimes contain very subordinate areas of farmland or vegetative cover. Farmscape is dominated by farmland but may contain subordinate vegetation or settlement patches. Wildscape is dominated by vegetation and it, too, may contain subordinate amounts of the other two super-categories. However, not all patterns consist of one super-category dominant and the others subordinate. There may be two co-

* On June 11, 1980, Prof. Rosell conferred with Dr. A. Coleman at her office at Kings College, London, after his attendance at the 150th Anniversary Celebration of the Royal Geographic Society of London on June 8-9-10, 1980 as representative of the Philippine Geographical Society.

dominant or even all three co-dominant. It is these patterns of co-dominance that generate the most severe land-use conflicts. In the marginal fringe, the conflict is between vegetation and improved farmland. If farm prices are depressed, the farmer cannot afford to protect his fields against infestation, but in better times he can upgrade some of the rough pastures to improved status. This is a zone of struggle and change; it can also expand or contract. The rurban fringe conflict is between town and country. In this example settlement is advancing in a pattern of piecemeal sprawl, producing the fragmentation and abandonment of farmland —."

Land-Use Category. — This is another unit of classification of land and soil where a certain landscape within the identified pattern is dominated by certain land-use elements in the environment. In the case of land-use pattern Farmscape the land-use categories under this pattern can be identified and established, such as rice farm (upland or lowland, irrigated or rainfed) rice-corn farm, vegetable farm, citrus farm, etc.

Likewise, land-use pattern Townscape can be classified and established as first class town, second or third class town, barrio or sitio, if the scale of the map can accommodate and show these minor categories.

In like manner, categories such as industrial area, manufacturing area, etc., can be indicated if their occurrence in the area is significant.

Landscape and Its Conservation. — Landscape in terms of land-use pattern and categories is natural resource modified by man. This natural resource in this context is composed of land and soil. Their modification from their virgin status may be described as improvement, degradation, or extreme abuse. For example, a farmland used for corn production is a part of land-use category called *corn land* under the land-use pattern Farmscape. This corn land although relatively endowed with high productive capacity can still be improved to produce higher yields by appropriate farm management practices. But a similar land nearby tilled by a farmer bent on following his grandfather's old farming practices sooner or later, produce lesser and lesser yields to the point when subsistence farming becomes very unrewarding due to the degradation of the land and soil. This loss is an economic burden not only on the farmer himself and his family but also to the community, and in the long run to the generations to come. This loss should be avoided. And as stronger pressures keep on demanding for increased farm production to feed our exploding population, one safe but often elusive solution is to practice land and soil conservation. Moreover, since under the land-use patterns we also have the townscape, wildscape, and the two fringes of rurban and marginal, it is also desirable and imperative to conserve the townscape and the wildscape to remain viable and productive for the benefits of the towns people in the development

project area. The urban fringe should be under regulation to minimize encroachment of good farmlands. As to the marginal fringe, conservation principles and practices would go a long way in making such areas produce assets instead of liabilities.

SUMMARY

Key words in this paper are defined and some examples given. The concept of landscape is not new but its application in the study of land-use for the assessment of the environment is emphasized. Land-use patterns and categories are also defined and distinguished as parts and parcel of the landscape, whether they are inside the confines of the limited development project area or in the country at large. Conservation practices applied on land-use patterns, will ensure continuing production benefits to the people.

We believe that in the process of development of the Republic of the Philippines, say in education, commerce, industries, and scientific and technological endeavors, these must go hand in hand with the conservation of our natural resources such as land and soil, water, natural flora and fauna, energy and such other natural resources endowed by His Divine Power to man for him to utilize for generations to generations.

When we say conservation, we mean wise utilization of natural resources where we maximize benefits, avoid waste and keep intact such resources for generations to come.

In our land-use and soil study for the Philippines, it would be advisable to study other countries' models to give us ideas and draw out concepts adaptable to our conditions. It is recommended that the Great Britain Model of Land-Use be studied and find out if it can be adopted for our National Program of Land Use and Soil Survey of the Republic of the Philippines.

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Mr. Lapid earned his bachelors degree in the chemistry at the San Jose State College, now the University of California at San Jose, California, in 1938. Not long after graduation he returned to the Philippines and found employment in 1940 in the Division of Soil Survey (now Bureau of Soils) under the Department of Agriculture and Commerce. During the Japanese occupation, he worked as a distillery analyst at the Pampanga Sugar Mills, Pampanga, his home province. After liberation he was hired as an assayer in a gold mining company in the Baguio mining district. In 1954 he was back at the Bureau of Soils (BS) where he held various positions. Ten years later he was appointed as Head Soil Technologist and Chief, Soil Research Division and held the position until his retirement in 1978. While at the BS, Mr. Lapid continuously sought further improvement on his technical capabilities by attending several seminars, workshops and training grants, notable of which were two one-year stints, a fellowship grant by the International Atomic Energy Agency on radioisotope use in soil fertility studies at the University of Tennessee in 1962-63 and a Colombo Plan Training in Soil Chemistry in Japan 1967-68.

Mr. Lapid has many published articles (as author and co-author) on soils work, mostly in soil analysis — chemical, spectrographic and radioisotopes methods. Late-ly, he has been contributing book reviews covering geographic aspects in the PGJ. As junior author of the "landscape" article, his work experience in soils is made to bear in pointing out the relationship of soils to landscape patterns and categories for environmental conservation.