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Chairman's Welcome

Dear audience, ladies and gentlemen,

Some years ago, I attended another international conference in the Netherlands. On the third day, one of our guests joined me in the lobby and confessed that he felt disappointed, not to say cheated (spoofed). According to him, the contents of the conference papers and discussions were not consistent with the title of the conference. The title was "integrated survey" or so, and something more, and this word apparently had quite a different meaning for my friend than it had for the conference organizers.

Therefore, I think that it will be good for me, as Chairman of this Conference, not only to say to you welcome on behalf of the whole organizing committee . . . welcome to our conference, welcome to Veldhoven, welcome to Brabant (the happiest province in the Netherlands) . . . welcome indeed--but I also have to explain what we think the title of this conference covers. We have not really started yet and, if it is not what you expected it to be, it is not too late to leave and spend your days more fruitfully, e.g., by walking through the beautiful Brabant landscapes in spring--or something else.

The main topic is "land(scape) ecology." Indeed, I found during the 20 years I have been using the term that it does not cause identical vibrations in the heads of different people. Indeed, there is no common opinion whether the discipline indicated by this word belongs to biological or geosciences. It will be good to clarify the concept as it is used in the title of this conference. This does not mean that I will give a treatise here on what it really means, or what it originally meant. Others will probably do this in the coming hours and days.

At present, it is more important to see how the term is actually used now and especially by the conference organizers. I can tell you that there is no strict narrow definition that fits the concept in such a way that we all have exactly the same vibrations in our heads. We have seven committee members, all Dutchmen and hence with seven different types of vibrations. This difference also comes from different educations. Some of us are biologists, others are geographers, again others are educated at our famous agricultural university.

We floated together because of using the term and being members of the WLO (our "working group on land(scape) ecology") or Netherlands Society for Land(scape) Ecology, the society that also organized this happening since it--three times three years ago--emerged from the Dutch consciousness. The present body of members (approximately 500) consists of biologists, agriculturists, conservationists, physical and social geographers, city planners, urban planners, landscape architects and foresters--working at private research and consulting institutions as well as universities and governmental institutes, for research, planning and decision and policy making and elsewhere. This variety of people--with very different scientific backgrounds and present professions--jointly rallied around the banner: "land(scape) ecology." This, I think, expresses better than any definition what "land(scape) ecology" really means.

Nevertheless, I have half an hour to convince you that you should not run away, despite the nice spring weather--even if you agree with me that the name of our congress is wrong. If you scrutinize the titles of papers, workshops and posters, you may note that the subject is "land(scape) science and its application." Indeed, it would be proper use of language to call the activity of our WLO "land(scape) science." As with many sciences, land(scape) sciences can also be subdivided into a series of aspects: land morphology, land(scape) classification, land chorology, land chronology--dealing with, respectively, the form (description), systematics (taxonomy, classification), distribution and spatial aspects, the time aspect and development in the fourth dimension of land.

Finally, then, the study aspect of the interrelation of all components in time and space could then be called land(scape) ecology. Vegetation science is also subdivided in an analogous way. In that case, someone who is making land(scape) maps would then apply land(scape) chorology in combination with land(scape) classification to describe the legend, but not land(scape) ecology.

In practice, however, the common land(scape) scientist "in the street" is called (and calls himself) a land(scape) ecologist, just as most vegetation scientists (who hardly apply ecological study in the strict sense) are called "ecologists" as long as we speak English--which we do at this congress. Still, I agree that "perspective in land(scape) sciences" would be more correct, although less clear--as I will explain below.

I have asked various land(scape) ecologists what they do and think when they are working. I got approximately 20 answers, varying in length from one to several pages. I restricted myself purposely to Dutch land(scape) scientists (ecologists) because our guests from other countries will have the opportunity to give their opinions during this congress.

The following analysis is largely based on a personal interpretation of what those 20 answers contained and from what I already know from personal discussions in working groups and elsewhere.

It seems that the majority of our WLO members are biologists. The term ecology is considered by many of them as their own disciplinary property that may not be misused, which is opposite to certain German ideas (cf. Tienemann). Hence, according to them, land(scape) ecology is a special kind of ecology; hence it is biology only on a bit larger scale. We could say land(scape) ecology is ecology (hence biology) on land(scape) scale. This may be true for the zoologist and the botanist; it is also true for the phytocoenologist or vegetation scientist, who--in the Anglo-Saxon jargon--is often called "ecologist."

For many of them, land(scape) ecology is an "aspect science" rather than an "object science." The object of these scientists is either the individual plant or animal or the vegetation but not the land(scape). They study the interrelations in the land(scape) between their beloved objects and their environment. The "environment" is the action from these plants and animals as well as from the abiotic part of the land. The bond with land(scape) scientists is that they are aware that all actions in the land(scape) together form a system of relations--an "ecosystem"--in which no individual action can occur without influencing--directly or indirectly--the others to a certain or even large extent.

The opposite of the "aspect ecologists" are the pure "land(scape) holists." They consider land(scape) of a certain size as a whole. Their objects of study are not the components (elements, attributes) of the land, but the land units (ecotopes, land systems, etc.) as a whole. They are real land(scape) scientists in the sense that they will describe the land(scape) morphology and then use the forms to be used as characteristics for a classification. They will map land(scape) units and study their change in time. Finally, they will also study the interrelations inside their object of study on various scales, the real land(scape) ecology in the strict sense. For them, land(scape) science is an object science, even if the term land(scape) ecology is used for the whole.

I doubt whether pure holistic ecologists exist in the Netherlands; that is, people who consider land(scapes) almost as individual entities--as organisms, rather than organizations. A much larger group, however, uses the holistic concept in a more liberal and practical and less fundamental way in the same manner soil scientists consider and classify their soil bodies and pedons. Although the latter know that soil taxa are unique locally formed products (of rock, water, climate, vegetation, fauna, relief) that in any other place may be formed in different ways and have not links of heredity whatsoever, they nevertheless classify them as "wholes," analogous to living organisms, which are real holistic wholes. Vegetation scientists usually treat their object in the same way as soil scientists do theirs. On the contrary, soil chemists and certain plant sociologists and most other botanists will consider each soil type or vegetation type as different combinations of individual components; only the latter are of real interest to them.

Vegetation and soil surveyors, especially those from the "Edelman school of physiographic soil surveyors," are close to--and very often are--the practical holistic land(scape) scientists. They study *correlative complexes or ecosystems above a certain scale* which are considered identical with land(scape). In fact, it was the soil scientist Edelman who re-introduced the land(scape) concept in the post-war Dutch scientific world. Geographers, like my brother Jan, had to fight an anti-land(scape) paradigm in the physical geographic world in the 1950s when only geomorphology was important and landscape was a dirty word. Now most biologists and geographers agree on the statement that landscapes are more or less complex ecosystems. Ecosystems are not always land(scapes), since they may be too small or do not have enough "land" (e.g., ocean ecosystems).

The practical holistic land(scape) scientists and ecologists will use the hypothesis of homeostasis, learning that land(scapes), like all organisms, have a certain self-maintaining power. The land(scape) ecosystem is supposed to have a system of positive and negative feedbacks built in the relation network that keeps it constant for a considerable time. Certain land(scapes) may easily remain constant because they are stable: that is, they have a certain resistance or resilience against external (especially human) factors. Others are much less stable; they are "labile" and can be constant only if the external environment does not change.

These are important subjects in applied land(scape) ecology. They also provide one reason why we have only one language at this conference. I once attended a congress with multilingual translation. Most interpreters mixed up both concepts--constancy and stability--in those speeches where the first was used to indicate an actual situation and the latter for a property in relation to an external attack. The other valid reason for not having multilingual translation is because we do not want to spend money for it, and our Belgian friends will agree that we are like that.

Still, everyone knows that each ecosystem changes--quicker or slower, that each individual ecosystem is a unique compilation of locally working factors that may be explained from its attributes, elements and their interaction, and that one ecosystem in time as well as in space may merge into another, and so is far from being an organism.

Not only vegetation and soil scientists but also geographers belong to our land(scape) ecologists. Some of them just continue their pure geographic activity--which they consider to be the study of the land(scape) as a relation system at the earth surface, including *all* features (including man). Others specialize on certain relations with emphasis on pattern and process in abiotic aspects as a counterbalance and supplement to the one-sided biological interest of biologists using the term land(scape) ecology for their work. I do not need to mention that geographers often claim land(scape) ecology as an *aspect* of geography. Is land not the object of geographers? Certainly not all geographers, however, are holists. Especially social geographers have a tendency to sneer at those "simple minded generalists" who too easily see wholes where in reality very complex unpredictable factors are acting.

When we look at the approach of the various scientists, we may observe that most biologists start to talk about land(scape) ecology only when they study the horizontal (better chorological) relations between land(scape) units (between individual ecosystems). The study of vertical (local, topological) relations does not, in their opinion, belong to land(scape) ecology but to biology, even if mesologic ecology (the study of abiotic environment of factors) is included. For others, certainly many geographers, both topological and chorological studies belong to land(scape) ecology.

In these concepts, the more pure and detailed studies of ecosystems--even the genesis of soil, vegetation and landform--separably belong to land(scape) ecology although no one will object to *also* calling these activities soil science, vegetation science or geomorphology. The more detailed the scale, the less land(scape) ecology is an appropriate term; the more global the study, the more certain soil, vegetation and geomorphology studies may be proper land(scape) science.

Another group of users of the term land(scape) ecology have a different descent. For them, ecology has to do with application, especially in the fight against deterioration of the environment. In non-scientific jargon, ecology became almost identical with conservation.

Land(scape) ecology would then be "considering the land(scape) from a conservation point of view." The key concept here is application on behalf of the society.

Finally, there is still another very important group of land(scape) ecologists--those who often do not call themselves by this name: various kinds of agronomists, foresters and rangers dealing with the study of the land with a main aim of increasing production or achieving a sustained yield by manipulation of the land(scape) factors--water (by drainage and irrigation), vegetation (by sowing, selection or managing), climate (by shelter belts and others), soil (by fertilizing, levelling or other "improvements"). If they do it well, they are applied land(scape) scientists. In a country like Holland, however, they may be considered by some biological-conservation ecologists--and by themselves--as an opposite category of scientists counteracting "ecology" and refuse the name "land(scape) ecologist."

I, myself, have no problems with the content and name of what we do. Perhaps this is because I did not study at a biological or geographic faculty and hence was not brainwashed by narrow scientific chauvinism. I received my ecological education from famous soil scientists, vegetation scientists and foresters, and in the practice of agriculture as well as conservation.

This conference is held to promote contacts between scientists and appliers of all these types of concepts and activities. For me, the banner--the name--does not matter. Land (scape) science, as such, can exist only if geologists, geomorphologists, social and physical and historical geographers, plant geographers, vegetation scientists and other biologists, pedologists and hydrologists, climatologists, agriculturists, foresters and landscape architects and many more disciplines work together. None of these will tackle the land(scape) completely. Each discipline has its own contribution, never mind whether the approach is holistic or more forward one disciplinary.

Each attribute may be the contact point for wide ecological study: geology as well as vegetation science, soils as well as climatology, the visual land(scape) aspect as well as hydrological cycles. There is nothing against calling activities land(scape) ecology if they are carried out in one of the disciplines focused on each of the separate attributes--as long as the study is done for, or at least as long as the mono-disciplinary scientist is aware of, contributing to the understanding of the land(scape) as a system of relations that cannot be understood fully from one discipline alone.

For those who claim that in this case "ecology" may be used only if real relations are studied, it may be noted that someone who carries out pure classification or chorology (mapping) uses ecological guidelines, and has at least ecological intentions; that is, he

does not classify or map as a game in itself but for the purpose of collecting and arranging data for the study of relations (ecology) or prediction (evaluation).

When we recapitulate the preceding statements, a sound reason emerges for preferring the term land(scape) ecology instead of land(scape) science for our congress. Those biologists studying land(scape) ecology as an aspect science (biology on landscape scale) may refuse to be called land(scape) scientists which would suggest that they are geographers and they would stay away from our congress. Still, their contribution via ecology (and also classification of vegetation and study of population and distribution of organisms) is vital for land(scape) science in all its aspects. On the contrary, most land(scape) scientists will agree that the integrating aspect of their object of study is the core of it and will not be too angry when they are called land(scape) ecologists. Similarly, most vegetation surveyors are getting used to being called ecologists. Finally, the outside world--the users and the interested laymen, the decision-makers and money-suppliers---will be less confused by the name land(scape) ecology than by land(scape) science. The first appeal to the integration and conservation aspect, more than just "science" or land or landscape. The latter word is already difficult enough. Our recent experience confirms this---when we discovered that a ministry which we approached for some funds at first refused because "landscape" is "some esthetic luxury that for developing countries should have no priority;" money should instead be spent on production or conservation of food and mineral resources. The government can hardly be blamed. Landscape is too wide---another word that must be explained every time it is used. My habit of putting "scape" between parentheses comes from this "traumatic" experience.

If we agree at this point, we should consider the consequences. These are that land (scape) ecology is a term indicating study of land(scape) as a (complex) ecosystem which ranges through an object to an aspect discipline, that belongs to bio- as well as geosciences, even including human sciences as well. Depending on the scientist, the institute he belongs to and the detailed studies done, geographers as well as biologists, soil scientists as well as any geoscientist, may claim it as their own discipline.

It is the integrated character of our earth as a complex ecosystem that leads to this non-analytical indication. There is only one serious danger. Research costs money and manpower. Traditional science of the last century was analytical. Practical boundaries to create some order in the scientific circus became separating walls so high that many scientists cannot look over them anymore. What is worse, the policy-makers have started to believe that these walls are not artificial tools for bringing some order, but are real existing items with their own value. Universities are still called universities. The universal character of sciences and their mutual gradual transitions, however, are often forgotten---or, even worse, denied.

Because of those artificial boundaries, proper allotment of manpower and material means is too often hampered. For somewhat too narrow minded people, it seems impossible that one is biologist and geographer at the same time. They think that money is spent along geographical *or* biological *or* any other subdivision and cannot be multipurpose. I am sure that in the near future, science historians will laugh about this futility, and when they read this will not understand why so much fuss is made about a name. Is it not clear that biology, geomorphology, soil science and all earth sciences and anthropological sciences should support land(scape) science and land(scape) ecology as a source of knowledge and method of study, as a means of knowledge, as a means of application of science for society?

Let us therefore look at this application. The human society "develops" in developing countries as well as in already rich countries. At one hand, man cries for changes and at the same time he longs for constancy (stability). Planning bureaus do their work, politicians and policy-makers try to steer it. Engineers try to implement the wanted change in cooperation with the common man on the land and in the street.

In land(scape) ecological terms, this means that Man (individual, society) considers himself as not occupying the proper place in the earth ecosystem--or the ecosystem does not optimally fit man. The basis for development, then, is:

- (1) Research about where man does stand in the ecosystem.
- (2) Research about where he would prefer to stand.
- (3) Study of where he could stand (because what he likes may not be possible).
- (4) Search for the means to get him there--by changing the environment and changing himself (schooling and also, e.g., its superfluous reproduction).
- (5) Finally, follow (monitor) the process of development or unforeseen degradation in order to see that well-meant activities do not result in the opposite--and which also provide knowledge about the fourth dimension (time).

All these steps require land(scape) ecology in one way or another. The crucial need is for an inventory of land attributes and elements as a basis for land evaluation in order to determine potentialities and carrying capacities for man, his animals, his poison-emitting factories and living quarters.

Agriculture is, for a large part, applied land(scape) ecology as an aspect science of biology. The land evaluation, treating land units as wholes with a carrying capacity or production potential, merges to application of land(scape) ecology (science) as an object science.

As mentioned above, strangely enough, many agronomists do not call themselves land (scape) ecologists or scientists. They are, however, although--as any other land(scape) ecologist--sometimes one-sided. Within land(scape) ecology, they sometimes need to be counterbalanced by more conservation-minded land ecologists (the majority of our WLO), partly merging into human-ecologist and plant and animal-ecologist. This is even more necessary the more modern mighty technology is applied in changing the land(scape) by purpose or as a side effect of reclamation, urbanization, industrialization or any other human impact on the land.

In the application of land(scape) ecology, one can distinguish four fields:

- (1) Promotion of production and quality of biomass (agronomy, animal production, horticulture, forestry).
- (2) Promotion of welfare (living environment in city and rural areas).
- (3) Conservation (wise use of resources, prevention of loss of resources) in the sense of (a) production and (b) natural and cultural values, national heredity (nature protection).
- (4) Environmental hygiene--prevention of pollution immediately attacking man (water, air, soil).

This conference will deal with all these applications after we have dwelled some time today with the basic theory.

I cannot end before mentioning another aspect of ecology. The oldest science is theology. Theology partly supports religion. That is, the belief of the deepest truth, the source of all that is and the way it is. Some theologians are believers, others are non-believers. Nevertheless, they use theology to study aspects of religion and so contribute to it. Among the faithful, there are the more strict ones (the purists) and there are the more flexible ones.

So it is with ecology. In addition to the science, there is faith--a faith in a natural equilibrium, which is good. We can speak about Ecologism in which land(scape) ecology

is the "theology." Among ecologists, there are believers and non-believers. Among the faithful are the more strict ones (the purists) and the more flexible ones.

The unbelievers also contribute to what the believers consider the base of their faith. For the believers, land(scape) ecology is the science that will show the way for a better life on earth for man, in harmony with all other elements and attributes--biotic and abiotic. They look for not only superficial applications, but especially for a basic theory that must supply a fundament of a new society.

Ecologism maintains the postulate that the present human society structure based on "economism," in east as well as in west, is the source of all evil. The waste economy, the technocracy, the faith in the problem solving capacity of more energy, the belief in unlimited energy, the "bigger the better" economy, the private as well as state-capitalism (as some sociologists call it), should be turned over because these sociological systems would be the main barriers to achieving optimal harmony on our planet.

One does not need to be a strict believer of such statements to agree, at least, that man and his structures and artifacts (the noösphere) is an essential part of the ecosystem--hence a subject of study of land(scape) ecologists.

Through the achievements of modern science, philosophy and science history, we know that science is not so objective and pure as 19th century scientists dreamed of. Scientific paradigm is just another word for the element of "faith" that blurs the pure "ratio." This knowledge shows that it is again impossible to draw sharp lines, in this case between ecology and ecologism. The human mind is like that.

It does not matter as long as any ecological scientist does his utmost to be as objective as possible in trying to prove his thesis about the relations in land(scape), and any ecological planner or engineer tries to implement--being conscious of what is known, what is believed and what is hoped, and aware of the fact that implementation is experimenting scale 1:1. It is a wide field that belongs to ecology and almost no scientist or scholar can be excluded from potential contributions. If geographers continuously fight about the delineation of their science against other disciplines, how shall land(scape) ecologists then be able to find a sharp boundary? And is it necessary? We as we are here know perfectly what we have to do. Or not....?

Let us include the ideas of one non-Dutchman in my speech--no one less than the man who invented the term land(scape) ecology: Carl Troll. When I asked him at our ITC symposium in Holland in 1966 about the delineation of landscape ecology, he said: It is not really something new. It is just an "attitude," an approach, a state of mind.

I think that is about the real answer. Any geographer, geomorphologist, geologist, soil scientist, vegetation scientist, hydrologist, climatologist, sociologist, anthropologist, economist, landscape architect, agriculturist, regional planner, civil engineer--even general, cardinal or minister president, if you like--who has the "attitude" to approach our environment--including all biotic and abiotic values--as a coherent system, as a kind of whole that cannot really be understood from its separate components only, is a land (scape) ecologist. This attitude provides a base for cooperation, national and international, even for initiating an official international association or possibly a journal as we will discuss this week.

That means, dear audience, that all of you who have responded to our invitation to come here have no reason anymore to leave. So I wish you a fruitful discussion and refreshment of your mind for your own benefit and through that for the benefit of our world--which with its present exploding population is in such a critical situation. Moreover, for those who still want to leave, the weather at the moment seems to be rather chilly.

I thank you for your attention.