

CONVERSATION-BASED DEVELOPMENT

M O S T A F A K A M A L T O L B A



Dr Mostafa Tolba (Zifta, Cairo, Egypt, 1922) graduated from Cairo University in 1943, and obtained his Ph.D from the Imperial College in 1948. He returned to Cairo to eventually become Professor in the Faculty of Science at Cairo University, where he established his own school in microbiology and is currently Emeritus Professor. He was also Professor in Baghdad University (1954-1959). Dr Tolba joined the Egyptian civil service as Undersecretary of State for Higher Education and Minister of Youth, and on the international scene, as an alternate member of UNESCO Executive Board. He became the first president of the newly established Academy for Scientific Research and Technology in 1971. In 1972, he led Egypt's delegation to the Stockholm conference on the Human Environment, thus starting a lifetime commitment to environmental issues. Immediately after Stockholm he was nominated as Deputy Executive Director of the newly established United Nations Environment Program (UNEP). Within two years, he became the Executive Director - a post he held until retiring at the end of 1992. Pursuing his position during Stockholm, he diligently promoted his philosophy of "Development without Destruction". Its implications are clearly reflected in his speeches, books and in UNEP's programmes, in many fields, and at many levels. Dr Tolba has published over 95 papers on plant diseases and more than 600 statements and articles on the environment. He has received many awards and prizes, honorary doctorates, awards, medals, and high decorations both from academic institutions, governments and NGOs. In 1994 he established in Cairo the International Center for Environment and Development (ICED), a non profit organization, financing environmental projects in less developed countries. He is the president of Centre for Environment and Our Common Past (ECOPAST) dealing with the impact of the air pollution on cultural heritage, and chairman of the Egyptian Consultants for Environment and Development (ECED), and member of many academies, institutes, committees and other organizations.

HUMAN BEINGS, IN THEIR QUEST FOR economic development and enjoyment of the riches of nature, must come to terms with the reality of resource limitation and the carrying capacities of ecosystems, and must take account of the needs of

future generations. This is the message of conversation. For, if the object of development is to provide for social and economic welfare, the object of conversation is to ensure Earth's capacity to sustain development and to support life.

Two features characterize our time: the first, is the almost limitless capacity of human beings for building and creation, matched by equally great powers of destruction and annihilation. The escalating needs of soaring numbers have often driven people to take a short-sighted approach when exploiting natural resources for building and creation as well as for destruction.

The second, is the global inter-relatedness of actions, with its corollary of global responsibility.

This in turn gives rise to the need for global co-operation both for development and for conversation of nature and natural resources.

Earth is the only place in the universe known to sustain life. Yet human activities are progressively reducing the planet's life-supporting capacity at a time when rising human numbers and consumption are making increasingly heavy demands on it. The combined destructive impacts of a poor majority struggling to stay alive and an affluent minority consuming most of the world's resources are undermining the very means by which all people can survive and flourish. The toll of these heavy demands has now become glaringly apparent: a long list of hazards and disasters, including soil erosion, desertification, loss of cropland, pollution, deforestation, ecosystem degradation and destruction, and extinction of species and varieties. This situation underlines the need for conversation, comprising the ecologically sound management of productive systems and the maintenance of their viability and versatility. Humanity's relationship with the biosphere (the thin covering of the planet that contains and sustains life)

→ | OVERVIEW

"Nothing appears more surprising to those who consider human affairs with a philosophical eye, than the easiness with which the many are governed by the few."

DAVID HUME

will continue to deteriorate until a new international economic order is achieved, a new environmental ethic adopted, human populations stabilize, and sustainable modes of development become the rule rather than the exception. Among the prerequisites for sustainable development is the conversation of living resources.

WHAT IS DEVELOPMENT
AND WHAT IS CONVERSATION?

Development is the modification of the biosphere and the application of technical, financial, living and non-living resources to satisfy human needs and improve the quality of human life. For development to be sustainable it must take account of the short term advantages and disadvantages of alternative actions.

Conversation is the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. Thus conversation embraces preservation, maintenance, sustainable utilization, restoration and enhancement of the natural environment. Living resources conversation is especially concerned with plants, animals and microorganisms and with those non-living elements of the environment on which they depend. Living resources have two important properties the combination of which distinguishes them from non-living resources: they are renewable if conserved; and they are destructible if not. Conversation's concern for maintenance and sustainability is a rational response to the nature of living resources (renewability + destructibility) and also an ethical imperative, expressed in the belief that "we have not inherited the earth from our parents, we have borrowed it from our children.

Conversation is a process to be applied cross-sectorally, not an activity sector in its own right. In the case of sectors such as agriculture, fisheries, forestry and wildlife directly responsible for the management of living resources, conversation is that aspect of management which ensures that the fullest sustainable advantage is derived from the living resources base and that activities are so located and conducted that the resource base is maintained.

Living resource conversation has three specific objectives:

- a ~ To maintain essential ecological processes and life-support systems (such as soil regeneration and protection, the recycling of nutrients, and the cleansing of waters), on which human survival and development depend.
- b ~ To preserve genetic diversity (the range of genetic material found in the world's organisms), on which depend the breeding programmes necessary for the protection and improvement of

cultivated plants and domesticated animals, as well as much scientific advance, technical innovation, and the security of the many industries that use living resources.

- c ~ To ensure the sustainable utilization of species and ecosystems (notably fish and other wildlife, forests and grazing lands) which support millions of rural communities.

That conversation and sustainable development are mutually dependent can be illustrated by the plight of the rural poor. The dependence of the rural communities on living resources is direct and immediate. For the 500 million people who are malnourished, or the 1500 million people whose only fuel is wood, dung or crop wastes, or the almost 800 million people with incomes of USD 50 or less a year, for all these people, conversation is the only thing between them and, at best, abject misery, at worst, death. Unhappily, people on the margins of survival are compelled by their poverty – and their consequent vulnerability to destroy the few resources available to them. In widening circles around their villages they strip trees and shrubs for fuel until the plants wither away and the villagers are forced to burn dung and stubble. The 400 million tonnes of dung and crop wastes that rural people burn annually are badly needed to regenerate soils already highly vulnerable to erosion now that the plants that bind them are disappearing.

It would be wrong, however, to conclude that conversation is a sufficient response to such problems. People whose very survival is precarious and whose prospects of even temporary prosperity are bleak can not be expected to respond sympathetically to calls to subordinate their acute short term needs to the possibility of long term returns. Conversation must therefore be combined with measures to meet short term economic needs. The vicious circle by which poverty causes ecological degradation which in turn leads to more poverty can be broken only by development. But if it is not to be self-defeating, it must be development that is sustainable and conversation helps to make it so. The development efforts of many developing countries are being slowed or compromised by lack of conversation. In Southeast Asia, excessive clearing of forests has caused fluctuations in river flow that are lowering rice yields. Throughout the developing world, the lifetimes of hydroelectric power stations and water supply systems are being cut as reservoirs silt up because siltation is accelerated by deforestation, overgrazing and other unwise land uses.

Activities of every organism modify its environment and those of human beings are no exception. Although environmental modification is both natural and a necessary part of development, this does not mean that all modifications lead to development nor does that preservation impedes it. While it is inevitable that most of the planet will be modified by people and that much of it will be transformed, it is

not at all correct to consider that such alterations will achieve the social and economic objectives of development. Unless it is guided by ecological, as well as by other environmental and by social, cultural and ethical considerations, much development will continue to have undesired effects, to provide reduced benefits or even to fail altogether. There is a close relationship between failure to achieve the objectives of conversation and failure to achieve the social and economic objectives of development, or, having achieved them, to sustain those achievements. The integration of conversation and development ensures that modifications to the planet do indeed secure the survival and wellbeing of all people.

The main obstacles to achieving conversation are:

- a - The belief that living resource conversation is a limited sector, rather than a process that cuts across and must be considered by all sectors;
- b - The consequent failure to integrate conversation with development;
- c - A development process that is often inflexible and needlessly destructive, due to inadequacies in environmental planning, a lack of rational use allocation and undue emphasis on narrow short term interest rather than broader longer term ones;
- d - The lack of a capacity to converse, due to inadequate legislation and lack of enforcement; poor organization (notably government agencies with insufficient mandates and a lack of coordination) ; lack of trained personnel; a lack of basic information on the productive and regenerative capacities of living resources, and on the trade-offs between one management option and another;
- e - The lack of support for conversation, due to a lack of awareness (other than at the most superficial level) of the benefits of conversation and of the responsibility to converse among those who use or have an impact on living resources, including in many cases, governments;
- f - The failure to deliver conversation – based development where it is most needed, notably the rural areas of developing countries.

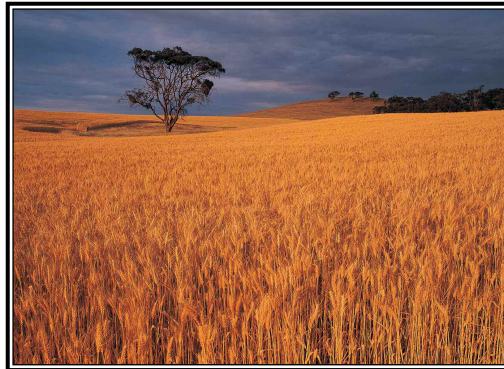
The Priority Requirements For Achieving Conversation -Based Development:

- 1 - Reserve good cropland for crops: in view of the scarcity of high quality arable land and rising demand for food and other agricultural products, land that is most suitable for crops should be reserved for agriculture.
- 2 - Manage cropland to high ecological standards. This requires soil and water conversation, the recycling of nutrients, and retention of the habitants of organisms beneficial to agriculture, and the return of residues and livestock wastes, as far as possible, to the land.
- 3 - Many tropical soils quickly lose their fertility. Traditional systems of shifting cultivation restored

fertility by leaving the land fallow for long periods, but fertilizers are indispensable for continuous cropping. Manufactured fertilizers are beyond the means of many developing country farmers because of their high cost, low prices of farm products, shortage of credit and a lack of fertilizers supplies. The estimated 113 million tonnes of plant nutrients that are potentially available to developing countries from human and livestock wastes and from crop residues should as far as possible be used to fertilize the land.

- 4 - Ensure that the principle management goal for watershed forests is protection of the watershed. This is particularly important in the upper catchment areas where rivers originate and where often rainfall is greatest. Especially fragile or critical areas, notably steep slopes with erodible soils, and the source areas of major rivers should never be cleared.
- 5 - Ensure that the principle management goal for estuaries, mangrove swamps and other coastal wetlands and shallows critical for fisheries is the maintenance of the elements on which the fisheries depend.
- 6 - Control the discharge of pollutants. The discharge of pollutants and use of pesticides and other toxic substances should be controlled. Since the effects on ecosystems and species of the thousands of chemicals that enter the environment are largely unknown, contentious monitoring of the ecosystems should be undertaken.
- 7 - Prevent the extinction of species. Priority should be given to species that are endangered throughout their range and to species that are the sole representatives of their family or genus. Prevention of extinction requires sound planning, allocation and management of land and water uses, supported by on site(in situ) preservation in protected areas and off site (ex situ) protection such as in zoos and botanical gardens.
- 8 - Preserve as many varieties as possible of crop plants, forage plants, timber trees, livestock, animals for aquaculture, microbes and other domesticated organisms and their wild relatives. Priority should be given to those varieties that are most threatened and are most needed for national and international breeding programmes. This requires both off site and on site preservation and may be assisted by participation in international programmes for the preservation of genetic resources.
- 9 - Ensure that site preservation programmes protect: the wild relatives of economically valuable and other useful plants and animals and their habitants; the habitants of threatened and unique species; unique ecosystems; and representative samples of ecosystem types.
- 10 - Determine the size, distribution and management of protected areas on the basis of the

- needs of the ecosystems and the plant and animal communities they are intended to protect.
- 11 ~ Adopt conservative management objectives for the utilization of species and ecosystems.
 - 12 ~ Determine the productive capacities of exploited resources and ensure that access to a resource does not exceed the resource's capacity to sustain exploitation. Measures to regulate utilization can include: restricting the total take, the number of persons, vessels or other units allowed to participate in exploitation; and prohibiting or restricting the use of certain methods and equipment. A combination of quotas and restrictions on access to the resource is usually essential.
 - 13 ~ Reduce excessive yields to sustainable levels. Industries, communities and countries that are overexploiting living resources on which they depend would be better off in the medium and long term if they voluntarily reduce their exploitation to levels that are sustainable. In this way they could adjust to realistic levels of consumption and trade and avoid unexpected drops in yield, instead of being surprised by them when they occurred.
 - 14 ~ Equip subsistence communities to utilize resources sustainably. Where a community depending for subsistence wholly or partly on living resources regulates utilization so that it is sustainable, its regulatory measures should be supported.
 - 15 ~ Maintain the habitats of resource species. Where agriculture can supply more food, more economically and on a sustainable basis than can the utilization of wildlife, the conversion of wildlife habitat to farmland is rational. Often, however, the habitats of wildlife are destroyed for short-lived agriculture and other developments with a net loss in welfare for the local communities.
 - 16 ~ Regulate international trade in wild plants and animals.
 - 17 ~ Allocate timber concessions with care and manage them to high standards.
 - 18 ~ Limit firewood consumption to sustainable levels.



Regulate the stocking of grazing lands so that the long term productivity of plants and animals can be maintained. The carrying capacity of grazing lands is determined by the annual production of plant growth in excess of what is required by the plants for their metabolism, health and vigour. Much of this excess production can be cropped by wild animals or livestock without damage to the vegetation, Careless or excessive use, however, impairs the plants' capacity to grow and reproduce. This in turn leads to, sometimes, permanent destruction of the vegetation or to a decline in the proportion of plants palatable to livestock or both. In arid regions, where rainfall and plant growth are erratic, stocking densities must be more conservative than where annual productivity is more consistent. In such regions nomadism and transhumance (the seasonal movement of livestock) are often the most sustainable strategies and, if still practised should not be abandoned without good reasons.

All these priorities are doable, if there is enough knowledge of the nature of what is around us, enough trained personnel, public awareness to support these activities and a strong political will to achieve a conversation – based development. ■

