HUMAN CHOICE

The Genetic Code for Social Development

Work-in-progress on a general theory of development
presented and discussed at

THE GLOBAL CENTURY

The 1998 Vancouver Assembly of the
World Academy of Art and Science

By

Harlan Cleveland
Garry Jacobs
Robert Macfarlane
Robert van Harten
N. Asokan

The World Academy of Art and Science
University of Minnesota
130 Hubert H. Humphrey Ctr.
301 19th Avenue South
Minneapolis, MN 55455 USA

Table of Contents

Foreword

At the 1994 Assembly of the World Academy of Art and Science in Minneapolis, we released for the first time a report prepared by the International Commission on Peace and Food entitled *Uncommon Opportunities: An Agenda for Peace and Equitable Development.* On that occasion I expressed to the Assembly my view that the report is the best of the genre of international commission reports. Among the many interesting recommendations contained in the report was the need for an international collaborative effort to formulate a comprehensive theory of social development. The Human Choice paper is a product of a collaboration between myself and four colleagues at the International Center for Peace and Development, the successor organization to the Commission, in California, and The Mother's Service Society, a social science research institute in India, to sketch the framework of such a theory.

There are many reasons why I feel an effort of this type is both necessary and possible. Presently we are in the midst of a major global financial crisis that pointedly expresses the limitations in our present understanding of development. The application of current economic theories in Eastern Europe has produced very disappointing results. Despite the remarkable developmental achievements of the past five decades, more than half the world's people remain in poverty by one definition or another. The accelerating pace of technological progress means that, if we are unable to improve our development strategies, the inequalities between rich and poor and the resultant social tensions will only increase. Finally, it is evident to me from my experience working in the field on development issues in North America, Asia and Europe that a fragmented approach to development viewed from the narrow perspective of one social science discipline or one aspect of one discipline dangerously oversimplifies the complex phenomenon that development is. More integrative ways of thinking about 'development' interconnecting every discipline are very much needed.

Social development is the product of the application of the powers of mind to organize the physical materials, social activities and mental ideas of humanity to achieve greater material, social, mental and spiritual experience. The approach outlined in this paper gives central importance to the role of organization in development, organization as defined in the widest sense as the orderly arrangement of human activities to achieve greater productivity, efficiency, innovation and creativity.

The paper identifies five major spheres in which organization promotes social development: The physical organization of human communities around productive centers, beginning 10,000 years ago with the invention of agriculture and the establishment of sedentary communities, towns and cities, which became concentrated centers of economic activity; the organization of technological know-how and inventions into a cumulative body of knowledge regarding the handling and processing of materials to produce goods and services; economically, the organization of social activities and institutions to increase the efficiency, coordination, productivity, quality, reliability, regularity and speed of human actions related to production and distribution of goods and services; the organization of information into understandable, useful and easily accessible forms and systems; and science and education that organize society's accumulated knowledge and provide delivery systems by which it is recorded, validated, preserved, codified and communicated to future generations.

Chapter 1 of this document consists of the paper presented at the 1998 Assembly of the World Academy of Art and Science. Chapter 2 is a summary of discussion of the paper at the Assembly on November 4. Chapter 3 is an essay applying the concepts to the themes discussed during three workshops on economics and development conducted as part of the Assembly. Chapter 4 is material presented at the Assembly on the distinguishing features of the theory. Comments by a number of participants in the Vancouver Assembly are noted in chapters 2 and 3. A listing of all named contributors will be found at the end of the volume

Harlan Cleveland, President
World Academy of Art and Science

1.

Human Choice
The Genetic Code for Social Development

by Harlan Cleveland and Garry Jacobs

Looking back on the prodigious accomplishments of the 20th Century, we can see an enormous "development" of technological inventions, economic activities, political and social organizations, and material riches – accompanied by a whole new range of problems and challenges – emerging from the relatively less complex and accomplished centuries that preceded it. Looking forward to the century just ahead, we are bound to wonder what humanity may yet accomplish, what new challenges are in store, and especially what ultimate limits there may be to the creative processes that drive these changes.

Whether we look backward or forward, we face the same puzzling questions: What is the essential nature of human development? By what process does it occur? What factors speed it up and slow it down? What conditions are essential or detrimental to it? Through what stages or phases does it pass? What are the sources of its problems and its failures? And, probably most important, what is the role of the individual human being in human development?

A Rough Parallel

We have come to believe that there are illuminating parallels between the development of life forms and the development of human societies. Exploring these parallels may put the puzzlement in a useful perspective, and perhaps provide a usable framework on which more satisfying social theory can be constructed.

The process of physical creation has given rise to a hierarchy of material and biological forms – from the infinitesimal atom and molecule to the living cell, differentiated organs and multi-cellular life forms of increasing complexity and capacity for adaptation. The process of social creation gives rise to a similar hierarchy of forms. But society is a field of life, not matter; of activity, not the sum of living organisms but their constantly changing interactions. The social forms it creates are not patterns and arrangements of material substance but patterns and arrangements of human activity – not "architecture" but something more like chemical reactions in a liquid solution.

"Human activity" arises from individual human acts that (like atoms that link into chains to form molecules) combine to form more complex chains of human activity. Combinations of human activities join together to constitute basic social systems capable of performing completed units of work (for example in production, trade, transport, communication, defense, or governance), analogous to the combinations of molecules that form living cells, the smallest complete units of what we call "life."

In society, groups of differentiated systems join to create organizations capable of performing specialized types of work – commercial, scientific, educational, artistic, social, political, etc. This may be seen as roughly parallel to the joining of differentiated cells in biology to form specialized organs that perform specialized functions in the human body. At a higher level of complexity, a wide range of specialized organizations combine to form a society which can perform (never perfectly) the essential functions required to sustain a social order in which human beings can live and work and play together. In a similar way, a wide range of specialized organs in the body combine to form a living organism that can (never perfectly) sustain the interrelated functions essential to biological existence.

There is thus a rough parallel between the development chain in biology that leads from atoms to molecules to cells to organs to the adaptive living organism, and the chain in social development that leads from individual acts to human activities to systems to organizations to the adaptive living society.

Productive social activities generate material wealth and its accompaniments. But the real product of social development is not the organization of material forms out of material substance as in biological processes; it is the organization of social forms out of the substance of human activities. Underlying that social process is brainwork -- the mental development of individuals using their information to create knowledge and ideas, marrying their individual thinking to the individual thoughts of other individuals and thereby creating together a complex, functional, and therefore productive organization of human activities – which is social development.

"Development" is in its essence organization – the organization of material processes through the ideas we call "technology;" the organization of social processes we call systems, procedures, conventions, commerce, law, and governance; and the organization of mental phenomena – the data-with-context we call information, the rational processes called knowledge (sciences, practices, and professions), which combines with nonrational intuition to produce what we call "wisdom."

It is the thoughtful organization of social existence, the essence of "development," that makes possible progressively higher levels of efficiency, quality, productivity, complexity, comprehension, choice, creativity, mastery, enjoyment, and accomplishment.

Usable Human Energy

Energy, in various forms, is the force responsible for these physical and social processes. All creative, synthetic processes require an investment of energy. The physical energy for the development of biological processes is absorbed from the environment in the form of heat, light, and chemical compounds. Vast amounts of energy are stored in molecular and atomic bonds; it can be released and utilized to build larger organic structures.

And this molecular energy pales into insignificance compared to the enormous reservoir of energy pent up in the bonds between subatomic particles.

The energy for social development is only at the margin physical energy derived from material substances in the environment. Most of it is what might be called subjective human energy, physical, vital-emotional and mental energy produced by individual human beings taking thought and interacting with other human beings, producing in turn the collective energy of human aspirations in society.

The generation and accumulation of usable human energy is as necessary to social development as the storing of food energy is to the development of biological organisms. As the molecules of organic material are a storehouse of energy that is released for development of life forms by metabolic processes, so human beings (with their thinking caps on) are a vast storehouse of potential physical, psychological, mental, and spiritual energy that is released for the development of society by thought that leads to action. Society develops when some of the energy thus released is channeled into more complex and potentially productive forms of human activity.

Both material and social forms consist of energy bound into fixed patterns. As the bonds that hold together molecules and atoms contain a reservoir (for practical purposes unlimited) of potential energy formed during the processes of their initial formation, so the learnings, opinions, attitudes, beliefs, convictions, motives, and values that direct individual and collective human activities constitute an immense reservoir of psychological energy.

Much energy has of course gone into the creation of social behavior patterns in the past. The release and utilization of that energy has been heavily constrained by systems of control and hierarchical power. With lighter constraints, it might be released and channeled into new, more productive patterns organized in ways designed to use rather than ration human choice. The enormous magnitude of this potential energy is revealed both by the unyielding resistance to change and the explosive revolutionary forces that are sometimes released at the points where societies break with established traditions.

The human body seems to develop only when it absorbs more energy than is required to support the minimum needs for survival and activity measured by prior experience. This excess energy may spill over in random, even dysfunctional, physical activity; it may be stored as an increase in the physical mass of the body; or it may be channeled for the further healthy development of the body's structure.

So, too, human societies develop when they accumulate more energy than is needed for the maintenance of things as they are. The excess social energy may likewise spill over as unproductive or even destructive human activities; it may be directed at the horizontal expansion of productive activities at the existing level of development (a "more and more of the same" strategy to which the term "growth" has come to be applied); or it may be used to elevate the organization of society to a higher level of complexity, a more expansive release of the power of individual human choice, a larger and healthier productivity – to which we think it's useful to apply the term "development."

* * *

Excess social energy is an essential but not a sufficient condition for development. The onset and speed of physical and biological reaction depends on such factors as seed crystals, catalysts, essential nutrients, the frequency and intensity of interaction between elements, and conducive environmental conditions. In a roughly similar way, the onset and speed of social development depends on the seeding and spread of new ideas in society, the growing awareness of new opportunities, social aspirations and attitudes toward change, the catalytic role of individuals, the presence of essential resources and instruments, the frequency and intensity of social interactions at critical moments in time, and the social preparedness and support for new activities.

In the first half of this century, we saw a huge outpouring of human energy devoted to organized cruelty, mutual homicide, and physical destruction -- brought about by dedication to what were widely regarded as human purposes. In the second half of this century we have seen, on balance, a tremendous outpouring of human energy the world over that has been mostly released in a very different social climate. This climate has produced – on balance -- greater physical security, more widespread political freedom, broader social opportunities for more people, more competition in increasingly global markets, new systems (both physical and intellectual) for rapid computation, communication, and transportation, the rapid global spread of information and education, the encouragement of individual initiative for personal advancement, and more active cooperation for mutual benefit.

As light, heat, pressure, enzymes, and hormones serve as conducive conditions, catalysts, and reactants for biological processes, peace, democracy, education, markets, and freer access to technology and information act as conducive conditions, catalysts, and reactants for the social process.

* * *

The evolution of new biological characteristics in a species is believed to begin with minute favorable mutations in a single cell or organism. Transmitted to offspring of that individual through the reproductive process, these mutations provide a competitive advantage to subsequent generations. As the mutant gene is the instrument of biological evolution, the pioneering human initiative – doing what has not been done before – is the instrument for social development.

Development is induced by pioneering individuals who introduce new or improved forms of organized activity that provide an adaptive advantage over what has gone before. These initiatives are imitated by other individuals and their neighbors and the organizations they influence; they spread by social diffusion, multiplying through society until the most successful lose their novelty and come to be accepted as conventional wisdom – soon to be supplanted by new ideas tested by new individuals but diffusing in similar ways.

The pioneering individual is often credited by society with fresh discoveries, inventions, and initiatives. But the knowledge, intuition, and ultimately wisdom that guides these fresh actions are drawn from the subconscious collective wisdom of the society of which the individual feels a part; it is expressive of the society's will for progress in a particular direction. The individual is the conscious instrument for the expression of a subconscious will; sometimes the individual has to find a new society -- as Albert Einstein and others did earlier in this century – where the collective subconscious will is compatible with his or her individual creative urge.

The generative process is often a product of trial and error experimentation, individual intuition and persistence. But sometimes it's done by conscious implementation of a conceptual understanding. A classic example in U.S. history was the idea that led the U.S. Congress to authorize land grants to States and establish colleges that focused on agricultural science, and also establish an Extension Service as a conduit for scientific innovations to reach farmers in every county of the United States – a string of 19th Century innovation-inducing policies that made American production of food and feed a 20th Century success of global importance.

In similar fashion organizational innovations – from the invention of money to the proliferation of financial services to the current explosion of the Internet – may initially spread by informal imitation, then later gain widespread recognition and be systematically disseminated throughout society.

In analogous ways the discoveries of scientists anywhere, once repeated and validated by an increasingly international scientific community, come to be accepted, taught, and learned as elements of the organized body of scientific knowledge. On the shoulders of these discoverers, practitioners of medicine and engineering and other professions develop ways of using the scientific insights in ways not imagined by the
pioneering individual scientists in their laboratories.

In every field of human endeavor, the actions of individuals (some isolated, some organized in research universities and other think-organizations) are transmuted into organized activity of their societies. After a time, this activity may become so fully accepted as a norm that it no longer requires the active support of government subsidies or sponsorship by private corporations or foundations for its sustenance. It can then mature from formal organizations to informal institutions or social conventions passed along by family or social tradition and eventually integrated in the cultural values of a society as a way of life – as elementary education now has in most national societies, and technological inquisitiveness in many.

***

Both biological and social processes depend on the accumulation of knowledge. The knowledge that guides biological development is contained in the genetic codes of the species. Unchanging genetic instructions would mandate a multiplication of sameness, even

if excess energy is available; only changes in the codes, by mutation or otherwise, result in "development," that is in the evolution of new characteristics in the species.

The knowledge that guides social development is contained in society's accumulated store of information, skills, attitudes, opinions, beliefs, and values. It is the acquisition (always in the first instance by individual human beings) of more relevant information, more analytical knowledge, more insightful intuition, and thus more usable wisdom that leads to the development of social organizations that come closer to matching the much greater complexity of the real social world outside our heads.

Absent this "higher" knowledge-intuition-wisdom that generates fresh creative social ideas, excess energy in a society will tend to produce not new dimensions of human activity but at best repetition, copywork, the spreading of already familiar activities rooted in "settled" concepts. It may even generate new excesses, new imbalances, new forms or degrees of unfairness that unsettle settled societies. What it won't produce is innovation, creative new ways of doing old things better, or doing what's never been done before.

Evolution as Organization

Both material and non-material resources are essential for biological and social processes. In biology, the knowledge encoded in DNA molecules, genetic information, is a non-material resource. In social development, reliable information, scientific discoveries and technological innovations, economic theories, social systems, and wide ranges of skills, social attitudes, beliefs, and values are also non-material resources.

In both arenas, the relevance and the productivity of the material resources crucially depend on the quality and availability of the non-material resources. Bacteria and human beings are composed of the same atomic elements; but differences in the knowledge content in their respective genes bring about very different results. The rational use of information, the power of intuitive thinking, and the capacity to stir them together to produce practical wisdom – that is, complex ideas you can *do* something with -- have a profound effect on the productivity of material resources in social development.

This human ability to *think* has already demonstrated that the productivity of basic material resources such as land, water, and fuel can be multiplied exponentially. Various forms of technology, which is organized and replicable thinking, enable us to convert sand into bricks, glass, fiber optic cables, and intelligent microprocessors, and to convert petroleum into lamp oil, plastics, clothing, and life-saving pharmaceuticals. Imparting to physical resources some capacity to replicate human thinking can not only make them more useful but can change their physical characteristics. A Swiss aluminum executive suggested the close connection between materials and information technology in a memorable short aphorism: "The smarter the metal, the less it weighs."

Natural resources are in some sense finite. But their use value and productivity are limited only by the limits to the capacity of human beings to think, to relate thoughts to each

other, to build more useful thoughts on the thinking of others, and to imagine what has never happened yet. The human capacity to learn both from experience and from theorizing, by which people develop attitudes, opinions, and values and other mental resources, determines how creatively and effectively a society responds to challenges and opportunities – such as the environmental effects of human activity or the unprecedented potential of the Internet. In this sense the human mind and spirit appear to be the ultimate resources that determine the usefulness and productivity of all other resources.

* * *

The evolution of larger, more complex material and biological forms depends on the prior formation of lower levels of organization – atomic, molecular, cellular. The evolution of larger, more complex social organizations likewise occurs on the foundation of more limited, less complex kinds of organization, which are indeed the necessary "infrastructure" for their emergence.

There are essentially three kinds of infrastructure, three levels of organized human activity, each heavily depending on the others for its own functionality. One can be illustrated by the physical organization of transportation and communication; another by the social organization of legal, financial, commercial, and educational institutions; yet another by the mental organization of information, technology, scientific knowledge, and spiritual insight. All these are needed for the achievement of progressively more complex forms of economic activity. As the evolution of higher-order species requires the development of increasingly complex and differentiated organs, each further stage of social advancement requires a quantitative expansion and qualitative improvement in the organization of the social infrastructures.

* * *

The evolution of biological forms has progressed from the most primitive physical organisms to vitally animate plants and animals to the emergence of mental and spiritual humans. The more primitive organisms, guided by the instructions in their genetic codes, use up most of their energy and adaptive capacities for physical survival. In more complex organisms, the physically acquired genetic capabilities are supplemented by instinctive and learned reactions to environmental stimuli. They consequently possess a greater range of adaptive and productive responses.

By now, evolution has given rise to highly adaptive organisms capable of systematic ordering of knowledge, conscious self-awareness, and connecting with spiritual forces that cannot be rationalized. Genetics and built-in instincts still play an essential role. But the systematic transfer of knowledge through family and formal education, followed by life experience that includes not only what happens but what is dreamed and imagined, elevates the productive and adaptive and even prophetic responses to levels inconceivable in prior life forms.

A similar evolution from predominantly physical to more vital to increasingly mental and spiritual occurs in societies. The movement across this spectrum should not be seen as linear, nor is it usefully described in well-marked "stages." In "primitive" societies, people are more bound to the land, quite limited in the range of human activities to those essential to self-defense and survival – agriculture, hunting, craft skills. Social structures are typically rigid, leadership is hierarchical, and traditions tend to be rooted in the past and resistant to change, analogous to a genetic code that endlessly reproduces inherited instructions without alteration. Still, there is some margin for the exercise of imagination and intuition, for changing spiritual experience, and for the development of more complex forms of organization; in some degree, change is the law of life in all parts of the human family.

In what we like to think of as more highly-developed societies, there is certainly more room for vital activity, more animation and mobility, and higher productivity in more complex systems. Less of most people's energy is required for survival. More is available for investment in a wider range of activities that result in trying new things, finding new places, meeting new people, inventing what didn't exist before, reading more widely and writing more boldly, developing greater productivity, trying new forms of recreation, learning arts and crafts, searching for unfathomable spirits in nontraditional ways.

In "developed" societies, social structures can become more flexible and adaptive. There can be greater social mobility, competition, and opportunity for individual initiative outside of established patterns. In such societies, some people display an increasing capacity for change, and an increasing speed of response to external opportunities and challenges and to the successes and failures of their own and other people's experience.

It is also typical of the more "developed" societies to grant a higher social value to brainwork, and spread the opportunity for mental development much more widely. Scientific research and technological innovation come to be at a premium; formal education is more widely available, and encouraged for longer periods of time; laws, ideas, and ideals muscle their way into spaces earlier reserved for strong leaders and inherited traditions. Individuality of thought and action are more often accepted and encouraged, even when they contradict conventional habits and beliefs. Competition tends to mature into cooperation. The report by the "Group of Lisbon" called this "the limits to competition." Productivity soars, surpluses abound – partly because information, unlike natural resources, expands as it's used and gives rise not to exchange transactions but to sharing arrangements in a new kind of commons. The excess energy pours into the development of ever newer, more complex forms of organization – technological organization of material processes, social organization of life processes, mental organization of information, knowledge, even intuition and wisdom.

The predominantly mental society thus displays a far wider range of adaptive responses and creative initiative. And yet . . . every society that calls itself "more developed" has lots of people who try to resist mobility and change, discourage creative imagination, suppress deviations from the norm, lead by command and control, cling to tradition, and turn aside from new choices and chances. We are not describing a new reality; we're suggesting a way of thinking about "development" that finds in the biological analogy not only tested patterns but possibilities for which we still lack clarity of doctrine or real-

world role-models. What this way of thinking does suggest, however, is a sense of direction, which in the 1990s is increasingly conspicuous by its absence.

Danger of Imbalance

One troubling aspect of social process is the evident tendency of social development to generate unanticipated and unwanted excesses, side effects, and untoward reactions: environmental damage, overpopulation, destructive applications of technology, economic crises, and social conflicts. Comparable backlash – debilitating mutations, overpopulation and even extinction of species, devastation of natural habitats, cycles of scarcity and plenty – arise in biological systems as well. So we need to consider whether these problems in biology and society have a common source – and whether at least part of the difference is that biological systems have been better than human systems at self-correcting.

We have already mentioned that, in both biology and society, an essential condition for development is the presence of more energy than is required for repetition and survival. The "surplus" creates an imbalance in the existing system that can have one of three results. It can lead to an increase in activity at the present level, it can stimulate development to a higher level, or it can produce overload and breakdown.

Development problems arise when more energy accumulates than the existing level of organization can absorb or support. In biology, the exposure of genes to excessive radiation may result in fatal defects, since the excess energy damages the organization of genetic information. A excessive intake of food energy, beyond what the body needs for its normal activity and development, can overload physiological systems and lead to a wide range of health problems.

The incursion of energy in society that is beyond the carrying capacity of the social organization can have a similar effect.

The East Asian financial crisis resulted from a very rapid expansion of domestic financial activity coupled with a rapid expansion if international financial markets, without the requisite development of effective organizations for monitoring and regulating what is mostly a confidence game at either the national or the global level. The opening up of Russian society following the breakup of the USSR – introduction of democratic institutions, dismantling of centralized planning, liberalization of foreign trade and domestic prices – released enormous energy within the society and subjected the economy to intense competitive pressures. In the absence of essential political, legal, administrative, financial, and commercial organizations needed to guide an uncentralized market, the sudden liberation of energy had devastating results.

The modification of one element in a biological system can generate imbalances in the total organization of the system that lead to breakdown and disintegration. As an example, the excessive or insufficient development of one organ in the body can lead to disease.

Eliminating an animal predator can result in a chain reaction of overpopulation and depletion among lower-level organisms in the food chain and degradation of their natural habitat.

Something like this occurs in social development when progress in one field is not supported by proportionate progress in related fields. In the 1950s the introduction of advanced medical technology led to reduced mortality rates, rapid population growth, and food shortages in many developing countries. This occurred because advances in the organization of public health were not balanced by proportionate advances in general education and rising affluence, which have everywhere led to reduction in the numbers of children per family, or by increases in food production needed to feed a larger population. Environmental degradation has been quite directly caused by rapid development of industrial organization unmatched by a proportionate development of systems for monitoring and restraining pollution. Another near-universal story has been the introduction of powerful chemical pesticides into countries with low levels of general education, resulting in excessive use and unsafe handling.

Both biological and social systems are thus vulnerable to the dangers of imbalance. The real difference between them seems to be in their response to the problems when they arise.

Within modest parameters, biological processes are extremely effective in responding to temporary imbalances – by rapid "early warning" (automatic feedback of information about a growing imbalance) and "self-correction" – and restoring order to the system. But when the imbalance exceeds the adaptive capacity of the existing level of organization, the response tends to be inadequate – because it is self-directed by a body of genetic knowledge that responds and adapts, at best, slowly and incrementally to environmental opportunities and challenges.

In contrast, a human society has at least the potential of taking thought and doing something about a disaster before it gets on what engineers call a runaway to maximum – by acquiring conscious knowledge and starting timely action to minimize or even design ways around the excesses and negative fallout of development plans and projects. The recent reductions in pollution and environmental degradation are examples both current and choice.

This capacity to foresee danger and take adaptive measures seems to increase as societies evolve from largely "physical" toward more "mental" forms of civilization. In societies preoccupied with physical resources and their possible scarcity, the social tendency is to respond to an incursion of "surplus" energy by struggling to preserve its inflexible, tradition-bound organizations, maintain things the way they were. As the mix changes and "vital" and "mental" elements become more prominent, a society is more likely to respond first by adapting existing organizations to do more-of-the-same better, and then to think up new workways and forms of organization that bring into consultation many more people and improve the odds of absorbing all the energy in coping with needed change.

Some social theorists claim that the law of "survival of the fittest" holds true for social as well as biological systems. Thinking about social development as a progression from

predominantly "physical" toward predominantly "mental" – not mutually exclusive categories, rather a changing mix of both – helps clarify the issue.

The Darwinian law does appear to hold true toward the "physical" end of the spectrum, as the collective struggles to ensure its survival but cares little for the individual. The strongest become leaders, the weak are abandoned, exploited, or left to fend for themselves.

But as information is more widely spread and more people are equipped to use it for the common good, the survival of the collective comes to be clearly the best way for the individual to survive and prosper. The collective makes increasing efforts both to meet the basic needs of all its members and to open opportunities for individuals to pursue a variety of ends of their own choosing. In practice, where it has been seriously tried, this emerging way of governance, rather than weakening the viability of a society, has resulted in enhanced social coherence and greater productivity at the same time.

Self-Conscious Choices

One lesson from this analysis has profound meaning for the future of "development" in every society, and in that larger unit, global civilization, which is becoming relevant for more and more purposes.

As physical science has discovered a virtually unlimited reservoir of energy within the molecule and the atom, the phenomenal social creativity of the past century seems to point to a source of energy, for practical purposes unlimited, in human society as well. The source of that energy is the individual human being. Under conducive circumstances, the human individual demonstrates an astonishing capacity for imagination and new creation – of new and improved material inventions, of communication networks, of social organizations and ideas, and of ways to interact with forces beyond reason and knowledge.

As physicists are trying to find appropriate material technologies to harness safely the energy within the atom, the challenge to social science is to invent the appropriate technology of social organization to release and constructively channel the near-infinite potential energy and resourcefulness of the human being, and of human beings cooperating with each other.

The genetic code in DNA molecules governs the release and utilization of energy for biological development. Human choice is the basic mechanism for liberating and productively harnessing the potential energy in society. It is the mind's decisions that release human energy and propel it into action, for purposes and toward ends preselected by the human mind.

As long as social organization is predominantly 'physical' in character, choices about social development can and usually are made by a comparatively few people, acting for the collective through centralized organizations, often at the expense of many individuals outside the narrow circle of "policy-makers."

As development moves along the continuum toward the more vital, mental society, the power of the collective is more than counterbalanced by greater freedom and rights for the individual. Because more and more people are able to be better informed about the needs of the collective and about the complexity of social forces in play, it is natural for them to expect and demand a greater role in decision-making and for the leaders of social organizations to *de*centralize authority in order to delegate more widely more and more of the work – while trying to retain ultimate control in one way or another.

But as the mix of people and functions shades over more and more toward the "mental" part of the continuum, and there is a growing premium on the brainwork, imagination, and creativity of individuals, new ways of getting things done come into vogue: *un*centralized organizations to cope with tasks so complex that no sensible individual could even pretend to be in charge, organizations in which authority is institutionalized as impersonal standards and systems that depend on initiative and creative imagination by many different kinds and levels of people who are able to be *different, yet together.* Under these conditions freedom and responsibility necessarily shift from the collective to many individuals, expanding exponentially the range of individual choices.

This process seems to culminate in the development of a new kind of social organization, the nobody-in-charge system where every citizen is in some measure partly in charge, each specialist no longer just responsible for being right about his/her own specialty but responsible also for the general sense of direction, the outcome as a whole. **The greater the value that society accords to the individual human being, the greater the freedom of choice it offers to each individual. As tradition was the technology for development of the physical society, individual human choice is the technology for the development of the mentally self-conscious society.**

In post-modern societies, where information (analyzed as knowledge, integrated as wisdom) is the dominant resource, the individual will enjoy unprecedented freedom of choice. That's no guarantee of wisdom. The quality of multiple individual choices is a complex function of the quality of information, education, knowledge, ideals, opinions, attitudes, and values in the society.

Modern democratic societies rely on the power of education and the media to get the word around about what problems we collectively face, what opportunities are there if we pursue them together; and, since unanimity is not to be expected on anything complicated or important, democratic societies rely also on the free airing of alternative viewpoints to help us collectively to make up our individual minds. Those societies whose citizens are encouraged to engage in the fullest and most enlightened exercise of choice will have the greatest potential for development.

Single Creative Process

The emergence of mental self-consciousness, its wide spread around the world spurred by the development of global information technologies, has for the first time made it possible for a species to influence the speed and direction of its own evolution.

We are already the liveliest and most conscious actors in modifying our physical environment, sometimes inadvertently (the ozone layer, the "greenhouse effect") and sometimes on purpose (weather modification, air conditioning).

Now we human beings, the mental animals, are beginning to acquire the understanding to unravel biological processes, decipher and consciously alter the genetic code of life forms, and thus potentially decide, to some limited degree at least, who we want to be.

In similar fashion we are edging toward acquiring a conscious knowledge of the social processes that could vastly increase the pace and quality of social development, and spread its benefits much more fairly to the majority of humankind who are still disappointed spectators at the drama of development. Certainly a deeper understanding of the process of social development, more widely spread to more educated peoples on every continent, will enable individuals to exercise their human choices with more sense of their meaning for their own futures and for the wider communities – including the widest, the global commons – of which they will be increasingly conscious (and therefore increasingly responsible) citizens.

The parallels between biological and social development are intellectually intriguing and may be analytically useful. But they are something more as well. There is now considerable evidence that these processes are actually various expressions of a single creative process, which applies not only to biological and social forms but also to artistic and other nonrational human creativity. Doesn't this point toward a truly unifying theory of creative processes relevant to all branches of human endeavor, to both science and art, to both practical and spiritual experience?

2.

Human Choice: Afterthoughts

Parallels with Biology

The Human Choice paper draws a parallel between evolution of biological forms and development of social organization. Cleveland explained how the topic arose and why it was presented to Academy Fellows for discussion. "In the course of preparing a paper on social development theory, we were struck by some of the very interesting parallels between the process of social development and the process of biological development and evolution. Although the authors' primary focus is on economic development, we thought that an exploration of these parallels would be a most appropriate and interesting exercise for the Academy's diverse membership. Indeed, it is difficult to imagine a group more qualified to examine a subject that crosses lines drawn not only between scientific disciplines, but between science, the arts and spirituality as well."

The parallel with biology evoked a range of responses from the physical scientists and raised a number of challenging questions for social science research. Indian biologist Pushpa Bhargava said that he was highly skeptical of another attempt by social scientists to draw parallels with biology. "I read the paper with a very critical mind, looking for fallacies, and I must confess that I found the biological facts cited and the analogy both valid and fascinating." He referred to failed efforts by Hubert Spencer and others to draw such parallels in the last century. "Perhaps that has blinded us to the possibilities and too long deterred us from exploring these relationships." He observed that in biology for every law that governs the functioning of simple organic systems there is a counterpart in more complex systems, such as the human being. "The prospect that these laws may hold true for social as well as biological functioning warrants very serious examination."

Extending the parallel still further, Bhargava placed before the Assembly a list of additional questions that need to be explored: Referring to concepts in the paper comparing the role of the genetic code in biology with the role of social values, aspirations and attitudes in development, what are the building blocks of the 'social genetic code' and what determines its composition? How is the code organized? What are the mechanisms for transfer and transmission? Is there such a thing as a sustainable social genetic code? Taking the parallel further, "The genetic code in biology only determines capabilities, not abilities," he explained. It is not deterministic. To what extent is the same true in society? "Finally, I would like to inject a note of caution by pointing out that the genetic code of the cell does not contain all the information needed to make a cell, only that required to make its constituents. We still do not understand the mechanism that determines cell structure."

Jose Furtado of the World Bank found the parallel "absorbing and stimulating, but in need of some clarifications. I liked the comparison between the biological and social fields, but it may be inaccurate to create a contrast by referring to the biological as purely physical or material or lacking in consciousness. As Gautama Buddha so clearly put it: 'Life sleeps in the mineral, moves in the vegetable, walks in the animal and thinks in the human'."

Drawing upon lessons in biology, Furtado suggested that the theory should bring out the stimulative effect on development of the tensions generated by interaction with external influences, in the case of social development by interactions with other individuals, communities and societies. "I found the evolutionary parallel requiring some strengthening of its dynamic framework. In nature, variability occurs in a tension field where adaptation to a particular 'niche' is selected for by mutation, competition, isolation or some external force (e.g. predator-prey) within a 'stable' environmental setting; where stable and unstable conditions co-exist; where each species changes its environment and thereby enables others to emerge, occupy a new 'niche' and co-evolve; where competition and cooperation occur at the same time but perhaps at different planes; where cooperation in some form exists either between different morphs of the same species (e.g. ants), or between different co-evolving species (e.g. symbiotic or predator-prey). When this environmental setting has been saturated and the tension field made full, evolution moves through an unstable transition (chaos) to a different level. In this manner ecosystems have evolved from one level to another, organized or mature systems have 'captured' disorganized or immature systems, and 'stable' environmental settings have also shifted (e.g. anaerobic to aerobic). Human societies are somewhat similar: when tension fields abound, creativity and innovation also abounds. It is not just the question of having accumulated energy, but also a tension field. A zoo where animals are well fed (i.e. possess surplus energy) but without natural tensions/challenges is devoid of much creativity."

Morley Lipsett pointed out apparent differences between biological and human processes. "Human development happens as an internal process in a context and with a history. It takes place in collaboration with other organisms, not in isolation. Biological development is deterministic, whereas human development is not. Social development is highly chaotic. It is not predictable, as the Russian experience since 1985 makes abundantly clear. How are we to deal with the uncertainties of social development that are beyond our control?"

Physicist and philosopher of science Stephen Toulmin cautioned against the application of biological terms with reference to social phenomenon, arguing that there is a danger of being misunderstood. "The carefree transfer into your ideas about human nature and responsibility of terms that have quite precise meanings in their natural science contexts will only embroil you in disputes with the scientific community of kinds you don't intend. For example: you can't use the phrase 'genetic code' in the way you do, without being understood as taking sides in a highly contentious dispute about 'sociobiology' that you have no need to involve yourselves in, above all on the side you will be misunderstood as supporting…"

"Elsewhere in your discussion of 'development' generally, likewise, you will be misunderstood as ignoring some of the central insights of Biology in a post-Darwinian age. Similar problems arise out of your choice of terms used in Physics, in a way that hints at (but does not document) genuine analogies between social or cultural development and physical phenomena: a word like 'energy', for instance, carries implications for a physical scientist quite different from those that are required for your project. You may understandably object that natural scientists cannot be allowed a monopoly over these words, but that is not what I am arguing for. I am just advising you that, as matters stand, your chosen style of exposition

runs the risk of losing you, or even antagonizing, half your potential audience in the Academy."

Several other participants also commented upon the parallel between the physical energy needed to drive chemical reactions and the growth of organisms and the 'social energy' of human beings that fuels the development of society. "I liked the reference in the paper to investment of energy for creativity," Furtado said. "However, all ecosystems from the microcosm to the biosphere function and grow because of an external energy source for continued creativity and growth-----either fossil, nuclear or renewable."

Alluding to the Darwinian law of 'survival of the fittest', the paper argues that as society advances along the continuum from a vital to more mental stage of development, unbridled competition is increasingly complemented by various forms of cooperative behaviors needed to build a modern complex society and there is an increasing tendency to actively support weaker members who could not survive on their own. Furtado pointed out that the role of competition and cooperation in biology may more closely parallel the view in the paper than the authors realized. "When Darwin and Wallace put forward their ideas it included both competition and cooperation. There were many examples of mimicry, symbiosis, co-evolution, etc. In natural populations, the weak are also retained as supernumerary, submissive individuals by the dominant."

General vs. 'Clinical' Theory

The discussion on development theory suggests that the common insufficiencies of theorizing have earned general theories something of a bad name, even among theoreticians and philosophers of science! This may be particularly true in the social sciences, and especially in the field of economic development. Was it not just a few years ago that we were heralding the miracle of the Asian Tigers and searching for theoretical generalizations from their experience that could be practically applied to spur development in other less robust countries? In the midst of the current financial crisis, no one speaks of an East Asian formula today. Nor is the reputation of economic theory much better in Eastern Europe where failures and disappointments have far outnumbered the successes and accomplishments that advocates of the theory promised when these nations eagerly embraced free market models. Some of the recommendations made by these advocates assume that free markets function in ways that are not practiced in their own countries.

Stephen Toulmin argues persuasively both in person and in his writings of the need to reconcile the Platonist drive toward universal theory with an Aristotelean attention to the specificity of times, places, circumstances and events. He calls for a humanizing reconciliation of the exact sciences with the needs of society, a reconciliation of the quest for formal theory with the need for practical relevance. The preoccupation of social sciences such as psychology and economics with formulation of abstract theory, he believes, only serves to remove them further and further from any practical social context in which they may be relevant. "It is better to focus on 'clinical' theories, those which are derived from a specific context. We need to think of processes, not a common process. We have lost the certitudes of the absolute in favor of knowledge in a context." At the same time Toulmin said

he was intrigued by the practical insights the theory generated when applied to a variety of specific clinical contexts.

Can such a reconciliation be achieved only by abandoning the quest for valid theory? The authors maintained that the real problem with social science theory today is not its attempt to generalize but its attempt to divorce social studies from human beings. "Professor Toulmin is right to reject abstract theory as currently put forth," Robert Macfarlane responded. "The economic models and mathematical formulas of econometricians perpetuate Descartes' body-mind dichotomy. They are based on the premise that development is the product of objective external conditions. They take into account every conceivable factor influencing economic activity, except the most important one—human beings. Their formulas need to be humanized by incorporating concepts such as social awareness, preparedness, aspiration, attitude and energy."

A general theory of behavior or development?

The effort to formulate any form of grand synthesis in the social sciences raises eyebrows and invites skepticism for a number of reasons. Are not the more mature physical sciences still searching for just such a unifying synthesis within their own realm? Are not the individual fields of social science lacking even a semblance of integrated theory within their own narrow boundaries? Why then should we even consider such an ambitious enterprise at this juncture? It does not follow from Newton's integration of theories in physics into a logical system, Stephen Toulmin explained, "that the totality of science—comprising the discoveries of physics, biology, and all other sciences—itself forms a similar, but more comprehensive system."

Political philosopher Ruben Nelson enthusiastically supported the quest for a unifying, human-centered theory of development. "I believe that such an integration is possible when we focus on the fundamental process governing social change. It is the change in human consciousness that expresses as the creation of new forms in society."

Political scientist Lincoln Bloomfield was also among those who felt that the broad outline of theory presented in the Human Choice paper did, in fact, qualify as a promising framework for an integrated social theory. "This is the best effort since Aristotle to synthesize disciplines." At the same time, he was quick to claim exemption for his own field. "Political science is an orphan. There is no theory of international relations or foreign policy. It is hard to develop a field theory of political behavior when the field consists of 185 countries. Predictions are almost inevitably wrong. Pathologies in the political field are unique to this field, not applicable to other fields described in this brilliant theory. The concepts will apply to every level up to the international organizations. We have to accept as a given that pathologies exist in the behavior of nation states when it comes to issues of war and peace. No amount of theorizing can change the fact that at the end of the day both peace and war are possibilities."

In response, Robert van Harten sought to clarify that the authors of the paper were not proposing a general theory of human behavior. "Behavior is a very broad field that encompasses all aspects of human activity. Our effort focuses on development, which is only

a subset of behavior. It concerns the process of change in society, the essential conditions for social change, the role of individuals in initiating those changes and, most importantly, the role of social organization as the mechanism for supporting, assimilating and propagating those changes. It is one thing to try to predict the general direction of development in society and the stages and steps it will progress through. It is quite another to try to predict how each person, group, organization or government will behave at the next moment. We may chart with a fair degree of accuracy the course a medical student needs to take to obtain a degree, but that does not mean we can predict what each individual student will do during four years of post graduate study."

Is development a universal or culture-specific process?

A hidden current ran through the discussion on development theory and re-emerged at many points during the subsequent discussions on the Global Century without ever being formally put on the table for discussion. Is this concept called 'development', which we so lightly and effortlessly toss about, an objective process that passes through discernable, universally common stages that we can recognize by objective criteria? Or is it rather a purely subjective interpretation of changes being wrought in society that mean different things at different times in different countries and cultures?

This debate seemed to polarize the group into scientific objectivists and cultural subjectivists. The objectivists tended to assume—without feeling the need to discuss—that the process of material and technological development which has reached its most advanced stages in the West is a universal process that all countries are transiting and that the stages of advance for all will be more or less the same. Nelson regretted the pressure for political correctness that prevented this view from being projected strongly for fear it would be denounced as another form of cultural imperialism. "There are very clearly discernable stages of the development process common to all countries," he argued. "We should not hesitate to state the obvious that some countries are further advanced on this path than others, which does not imply any form of superiority. It is a temporal fact that can be ascribed to many circumstances of history."

It is difficult to deny that the transition through three waves of social development which Toffler and others describe progressing from rural agrarian to urban industrial to post-industrial information society has and is taking place around the world, though at varying speeds and to a varying extent. On the other hand, many Fellows from developing countries, supported by a number of environmentalists, artists and student participants, objected to a unitary conception of development valid for all as a cultural imposition.

Andrzej Sicinski forcefully expressed this perspective. "We live in a cultural reality. Our thought processes must take into account differences in culture. The cultural dimension is lacking in the paper on Human Choice paper. It is too individualistic and neglects systems of values, systems of ideas and systems of language that differ from culture to culture." Tony Judge supported this view. "It is arrogant to think that we know how to choose the right model for other societies. We could be making dangerous assumptions not valid in practice." Stanley Kalpage, a chemist from Sri Lanka, sided with the cultural perspective. "Culture is very important. Science is not the ultimate basis on which we should build development

theory." Brian Locke, an English engineer, suggested that we need to "recognize a range of goals and values for development." Physicist Alvin Weinberg felt that the paper "provides a useful language or set of categories in which the subject of development can be examined," but he too stressed the question of values. He wanted clarification about the mechanisms and criteria that are employed by society to decide how scientific resources are utilized.

Macfarlane proposed a third view to reconcile the divergent positions of the scientific objectivists and cultural relativists. "Is it not possible that both views are true? There do appear to be some common stages to the process of development that thus far all societies have chosen to transit. That does not make technology or material prosperity a Western concept or a Western goal. The quest for physical survival and material security and the adaptation of technology to improve the quality of human life are universal. At the same time, it is undeniable that every society must find its own path to attain these goals and that the relative value accorded to individual initiative and concerted group effort varies widely from culture to culture."

He went on to explain that these two opposing views can be reconciled by focusing not on the goals of development, which may vary from place to place, but on the process by which human beings pursue their goals and values, whatever those goals and values may be. In formulating their approach to development theory, the authors of the paper were trying to elucidate a universal process of human action, a process of social creation, not a particular economic or technological strategy. "Social preparedness, surplus energy, pioneering individual initiative, imitation and diffusion, formal organization of new activities by society, propagation of new knowledge and skills through an educational system, transmission of values through the family are basic elements of the development process regardless of the social goals or cultural values the society may pursue or the historical period in which they pursue them. Macfarlane added, "We can reconcile these different views if we accept that development consists of three interrelated aspects: a commonalty of stages, an individuality of cultural values, and an essential identity of the underlying process by which human beings modify the organization of their activities to function more effectively."

What then of the authors' central thesis that social development has a clear direction, that it moves invariably from the survival of the collective to the emergence of the individual? American businessman Walt Stinson concurred that the direction is evident and irreversible, regardless of which society we examine. "Primitive, tradition societies insist on conformity to ensure their survival. Development provides people with choices in their lives and gives them the opportunity to develop their full potential. Modern progressive societies insist on the maximum development of individual potentials, because they recognize that it is only by generating better educated, more informed, inventive, adaptive and creative members that the social collective can realize its own fullest potential."

Physicist Ivo Slaus had the last words on this issue. "There is simply no question. The urge for greater individual freedom is universal and freedom means human choice. Greater freedom of choice is releasing enormous creative energy in societies everywhere, a productive energy we have never before witnessed in history. It has awakened human aspirations. It has set individuals and societies in motion. Never again will people tolerate the subjection of the individual to the arbitrary authority of the collective. The genie is out

and it cannot be put back. If anything, humanity is still just in the process of awakening and has yet to come into its own full power and status."

"Our view is not that the value of individualism should or would eradicate the interests of the social collective, only that a society which actively fosters the development of individuality is beginning to emerge," N. Asokan, a co-author of the paper clarified. "Martin Luther paved the wave for the emergence of individuality in spiritual matters. It took a few centuries for political individuality to emerge with the development of democracy. Today the social pressure to conform in thought and behavior is still so great in all societies, even among intellectuals, that true social individuality is hard to find. Culture specific values may alter the precise relationship between the individual and the collective in different societies in ways that will enable them to retain a stamp of cultural uniqueness in the midst of an emerging universal culture. But the progressive emergence of individuality in society is an historical imperative for humankind."

Environment

Some participants pressed for an explicit inclusion of the biosphere in the theoretical framework. Susantha Goonitilake concurred: "The theory needs to take into account the interaction between biological and human systems." Mohammed Kassas conceives of sustainable development as the interaction of three interdependent systems: the biosphere or physical environment, a technosphere of human-made capital that includes the technology and physical infrastructure for development, and a sociosphere consisting of social, political, economic, cultural, religious elements. "Your excellent paper is an advanced step in understanding the sociophere. We need a theory that incorporates all three systems and their complex interactions," he said. "We must view human beings as biological entities, sociological entities, political entities, economic entities and technological fixers." Heitor Gurgulino De Souza of UNESCO said "the theory needs to take into account the carrying capacity of the environment." Carl-Göran Hedén stressed the importance of the technosphere: "Technology is rushing away at a pace which human society cannot keep up with. How does the theory address the gap between the availability and applicability of technology?" he asked.

Furtado sees the need for increasing linkages between socio-economic, bio-physical and cultural factors. "The future for environmentally sustainable development will lie in adaptive management strategies and co-evolution between the bio-physical systems and the socio-economic systems at all levels from local to global. This will demand some changes not only in institutions such as decentralization, but also changes in values to frugality, in enhancing local capabilities and in capturing global benefits at the local level. There will be an adaptive accommodation of cultures and values through the media network, between mass and local/specialised movements and cultures, which will both strengthen and popularize local cultures very much like the impact of the circum-polar network based on Canadian satellite communications on reviving Inuit and Inuvalit cultures while taking them into the modern age."

In response to concerns that environmental factors may have been omitted, Garry Jacobs clarified that in formulating the theoretical framework the authors where trying to

avoid the type of compartmentalization of development that arises from viewing it as a composite of several independent or interdependent fields. "Of course, environmental factors are a critical aspect of development, as are technological and cultural ones. Our objective was to find the common denominator and integrative center from which all can be viewed as aspects of a unified whole. The subject of the theory is *human* development, not development of technology or the biosphere for their own sake. Therefore, we have tried to identify the process that human beings utilize to make changes in their way of life. Obviously, their awareness of the environment, their attitudes and values regarding it are important determinants of the types and quality of the development decisions they make. We are trying to arrive at a perspective that places human beings at the center and sees their relationship to each other, to the biosphere and to developments in every field of social life as expressions of their consciousness. Some may argue that humanity is not the ultimate center at all, that some spiritual reality rightfully should occupy that place. Still human development will have to be defined in terms of how human beings perceive that spiritual reality, value it, and seek to discover or relate to it."

Relationship between theory and practice

Several participants wanted to turn the discussion to applications of the theory so that its relevance could be judged in practical terms. The Academy's American President, Walter Anderson, queried, "The paper is abstract. What are the implications of the theory for development policy and strategy?"

Stinson explored some of those implications: "As a businessman I can immediately see the relevance of the theory to practice. What intrigues me is to what extent the theory of social development seems to fit the development of business organizations as well. The importance of releasing social energy is fully confirmed by my experience as an entrepreneur and manager. Without generating surplus energy, no new idea even gets a listening, no change initiative gets off the ground. The higher the energy level, the greater our capacity to create, innovate and implement. It is also apparent that energy by itself is not sufficient. There has to be an aspiration for something more. As ironic as it may sound, there are many people in business who are quite satisfied with where they are and what they have achieved and feel no real urge to strive for more, if that requires changing the way they do things. So it is clear that preparedness in terms of energy and aspiration are critical for development, both of companies and societies.

"Other concepts from the paper also strike me as extremely practical. It refers to the need for a genetic code to set the direction for development. In a company that code is determined by the ideas, attitudes and mindset of the owner or people at the top, either informally or as the result of a formal strategic planning process. It is a matter of human awareness and human choice. Without that sense of direction, surplus energy has nowhere to go but into the existing channels of activity. It may generate expansion at the present level, but it cannot elevate the company to a higher level. Pioneers play the same role in companies and industries as they do in society. All new initiatives originate with individuals and spread by imitation and acceptance.

"I see great relevance in the emphasis of the theory on the essential role of organization in channeling the surplus energies in more productive ways. Too often in business we try to generate new initiatives based on enthusiasm that are not supported by development of new or improved structures and systems. The results, if any, are usually short lived, unless the organization is elevated to institutionalize activity at a higher level.

"Finally, the role of values in business directly parallels the role described in society. Values represent the quintessence of what we have learned about success. Our ability to pass on and inculcate those values in our people is a critical determinant of our success. Personally I believe that the highest and most powerful value is a commitment to maximum freedom for the full development of every person in the company. The more I am able to liberate human energy and increase the options for people to exercise their own discretion and ability, the more successful my company becomes."

Jacobs summarized some of the implications of the theory for formulation of effective development strategy. First, the theory suggests that development initiatives will only succeed in areas where the society is fully prepared for change, i.e. where the society has accumulated surplus energy, is aware of opportunities, and feels the urge, but does not know how to effectively express it. Where the awareness is lacking, then the focus should be on education or demonstration and encouraging pioneering individual initiatives. As long as awareness is lacking or attitudes are not conducive to change, patience is the best strategy. Premature initiatives foisted on an unripe society are likely to backfire, making further advances much more difficult. In fields where pioneers are already successful, strategies should focus on encouraging imitation and diffusion of the new ways until a critical mass builds up to release a multiplier effect in society. Where all these conditions have been met, then the emphasis should shift to the building of organizational mechanisms to support and spread the new activity. But the form of organization must be suited to the social context and should be a natural extension of it, not an artificial transplant of foreign institutions. When organizational supports are in place to support individual initiative, strategies that impart the necessary knowledge, information and skills to the population will be most effective.

3.

Engines for Development

by Robert Macfarlane and Robert van Harten

Context for a new millennium

As our predecessors did 100 years ago, we stand on the verge of a new century trying to gaze into the future with little to base ourselves on but our past experience, highest hopes and deepest fears. Extrapolating from the past has always been a risky enterprise, especially considering the quantum shift type of changes at the global level that we have experienced during the past decade—the sudden end of the Cold War and the nuclear confrontation between the superpowers, the breakup of the Soviet Union, economic liberalization of China, explosive growth of the Internet, the East Asian financial crisis and launching of the Euro—most of which were not only unanticipated but almost inconceivable a few years before they became realities. But it would be equally hazardous to ignore the broader historical trends in favor of current perceptions and immediate preoccupations. Many of these trends represent the maturation or culmination of movements that can be traced back to early in the current century or even to the century before.

How then can we approach this task of assessing the prospects of the next century with some modicum of order and some hope of adding to the sum of our knowledge and understanding rather than merely stirring the already murky pot of divergent views on the future? This was the challenge that confronted Fellows of the World Academy of Art and Science at the 1998 Vancouver Assembly during a series of workshops on Development and Economics in the Global Century organized on three themes: the forces shaping global development at the turn of the 21st Century, the emergence of global economic organizations, and strategies for balanced development in the next century.

20th Century Accomplishments

Our speculations about the next century began by seeking a clearer perspective on the accomplishments of the century now drawing to a close. The 20th Century has generated such an astonishing range and depth of human accomplishments that it seems presumptuous to even hazard assertions about the future of development. In the past two hundred years social productivity has increased to such an extent that the global community now sustains a population 12 times larger than in 1800. From a rural-based, agrarian society in which less than three percent of the people lived in cities and towns, the human community has evolved into an urban-centered, industrial society in which the population of the world's cities and towns now exceeds 40 percent of the total. Throughout history urbanization has been a great instrument for development, because it brings together at one place all the ingredients of social productivity--people, ideas, organization, technology, resources, capital--and magnifies the number and speed of interactions between them. The growth of urban communities during the last century has brought with it a host of problems—overcrowding, pollution, crime,

etc.—but it has also brought political freedom, economic security, education and modern conveniences to billions of people.

At the turn of the 20th Century, most of the world still remained in the rural, agrarian phase of development—what Alvin Toffler terms the First Wave—that characterized human society for the previous 10,000 years. America was mostly frontier spotted with family farms. Horse drawn carts and hitching posts were familiar sights in American towns. There were only 10 miles of concrete road in the entire country. Sixty percent of the population lived in rural areas, most of which were not even formed communities, in simple, poorly constructed single storied homes. Large bands of unattached men roamed the country in search of employment. The most important products of the US economy were horse-drawn buggies, hairpins, bicycles, and horseshoes. The average life span was 49 years, less than two-thirds of what it is today. In 1870 only one doctoral degree was conferred in the entire country compared to 36,000 in 1990. Lanterns, candles, gas and oil lamps were the prevalent forms of lighting. The USA had only one power plant producing 5000 horsepower compared with more than 10,000 power plants producing three trillion kilowatt hours today. Less than 2% of the population had telephones. There were only 8000 automobiles in the entire country. Silk stockings were the most popular consumer product. Women did not yet have the right to vote.

Some parts of Western Europe were more developed than North America in the late 19th century, but the level of urbanization was about the same and rural life everywhere had much the same complexion. In 1870 there were only eight cities in all of Germany. In many parts of the world, only 10 to 20% of the people lived in urban communities. Large portions of the world population, including the entire Indian subcontinent and most of Africa, remained under foreign colonial rule. Democratic forms of government were a rare exception and no democratic country had yet extended voting rights to woman. Large-scale famines were still common in the world's two most populous nations, China and India. Life expectancy in most countries was less than one-half current levels. The ideal of secular, compulsory education had gained acceptance in the most progressive countries of Europe: Britain and Japan both introduced national systems of secular elementary education in the 1870s. But in other parts of the world, the vast majority of people still could not read or write. Banks began to proliferate in Europe only toward the end of the 19th Century. Coal, iron, steel and textiles were the world's major industrial exports.

The 1997 UNDP Human Development Report observed that over the past 50 years the world has made greater progress in eradicating poverty than during the previous 500. Around the globe, life expectancy is climbing, infant mortality is declining, epidemic diseases are receding, famine is becoming extinct and education is becoming more widespread. The world's average life expectancy is more than 66 years, about twice the average in 1900. Even among the least developed countries, it is now six years longer than it was in the USA in 1900. More than half the world's adult population is now literate. Universal primary education has become a global standard. Most of these gains have been achieved since 1950. Since mid-century, average per capita income has tripled and average real per capita consumption in developing countries has doubled, despite a more than doubling of world population.

There is substantial evidence to suggest that today's least developed countries could match and perhaps even exceed the accomplishments of the most advanced industrial nations within a much shorter time than it took for the original achievements. Beginning in 1780, it took the United Kingdom 58 years to double output per capita. The United States did it in 47 years, beginning in 1839. Japan accomplished the feat in only 24 years, beginning in the 1880s. But after the Second World War, Indonesia did it in 17 years, South Korea in 11 and China in 10. From 1960 to 1990 real per capita standards of living based on purchasing power parity multiplied twelve-fold in South Korea, seven-fold in Japan, more than six-fold in Egypt and Portugal, and well above five-fold in Indonesia and Thailand. Some of these gains have been wiped out by the recent international financial crisis, but if we can draw appropriate lessons from that experience, comparable accomplishments should be possible for every country.

These global achievements mask considerable differences in the levels of development within and between countries. More than one and a quarter billion people still live in absolute poverty. Disparities between haves and have nots are widening. They also mask significant problems, such as environmental pollution, urban congestion and crime, that have been either a result or concomitant aspects of rapid global development. Nevertheless, viewed globally in a historical perspective, the accomplishments of the last 100 years are without precedent.

Catalysts of Development

The purpose our inquiry was not to assess the actual achievements of the 20th Century, but rather to ponder the potential achievements of the 21st. Nevertheless, the discussion began by looking backwards to identify the forces responsible for the achievements of the last century and to determine whether the same forces will be more or less prevalent, as well as more or less relevant, to the process of human development in future. How then are we to account for the phenomenal achievements of the past 50 to 100 years? Many factors have been identified that have contributed to these accomplishments, but underlying them all is one central thread and compelling force. They all reflect a fundamental change in attitude. Humanity is no longer satisfied with a low level or slow pace of development. Society the world over has decided that its wants to live more comfortably, more intelligently and more progressively now. The force of that decision, which we have described elsewhere as the power of conscious human choice for unfailing success, began as a subconscious movement of the collective late in the last century and has now matured into an unrelenting insistent seeking by the society-at-large. This fundamental changes has its expressions in all fields of social life and gives rise to a cluster of interrelated factors that in combination are essential conditions and powerful catalysts of the development process.

Peace

Any evaluation of development potentials needs to take into account the influence of internal and external social stability on social progress. War is a destroyer of development. It physically demolishes what society has accomplished. Although countless wars have been fought within countries and within regions in the past half century leading to enormous loss of life and waste of resources, the world as a whole has avoided the catastrophic consequences

of large scale, international conflicts that devastate the productive capabilities of people across entire continents and paralyze international commercial and economic activity.

The Cold War involved a horrendous expenditure of precious human and financial resources to produce weapons of mass destruction, but it did somehow manage to avoid the even more unimaginable destructive impacts of nuclear warfare. The end of the Cold War has dramatically reduced the threat of armed international conflicts and the catastrophic consequences of nuclear war, providing a far more stable and secure climate for worldwide economic expansion. Since 1988, world military expenditure has fallen by about a third, i.e. $400 billion. If the current peaceful status is sustained, it could free up even more capital for development.

The long feared negative impact of reduced military expenditure on economic growth has been much less than anticipated. Falling defense spending has been followed by a surprisingly rapid recovery in defense-dependent economies such as California and a long period of economic expansion in the USA. Robert van Harten pointed out that the end of the Cold War has already resulted in substantial economic benefits. “I find it amazing that almost no one draws attention to the fact that America’s unexpectedly prolonged economic expansion has occurred precisely during the period of declining military expenditure. The energies of the country have been turned away from military and political confrontation into creative channels for commercial development, just as the demilitarization of Germany and Japan supported their economic miracles after the Second World War. If properly nurtured and supported, the next few decades could bring an unprecedented period of peace and an unparalleled climate for global economic development. A truly global organization capable of safeguarding the security for all nations, a world army committed to enforcing non-aggression and global peace, would vastly reduce the military expenditure of individual nations and serve as an essential foundation for the full development of the world’s economic potential.”

Freedom

The extension of democratic freedoms raises human aspirations. It encourages individuals to take active initiative for their own advancement. It facilitates freer and wider social interactions. It releases greater social energy. It vastly increases the dissemination of information and the multiplication of new organizations. N. Jayashree traced the historical relationship between freedom and economic development in Europe. “The decline of feudalism, the Renaissance, Reformation, Enlightenment, commercial and democratic revolutions that transformed Western Europe between the 15th and 17th Centuries are rightly viewed as various expressions of a single social movement that liberated the individual citizen intellectually, religiously, politically and economically from blind submission to the social collective. These movements resulted in a tremendous outburst of human energy and creativity that have culminated in the great technological and economic accomplishments of the past two hundred years. The common seed of all these movements is the rising value of the individual human being.”

As the transition from monarchy to democracy was a catalyst for rapid economic advancement of Western countries over the past three centuries, the spread of democratic institutions in recent decades opens up greater possibilities for global expansion. Following World War II a democratic revolution swept the world breaking down colonial empires and liberating more than one billion people from foreign domination. It gained further momentum after 1980, spreading through Latin America, Eastern Europe and, most recently, Africa, freeing another half billion people from repressive, authoritarian regimes. As peace provides a secure external environment for international development, democracy provides a stable and conducive environment within countries for more rapid social progress.

The American experience has amply demonstrated that the establishment of nominally democratic political and legal institutions is not necessarily synonymous with widespread human freedom for all citizens. It has taken more than two hundred years to extend full and effective rights to some sections of the US population and that task is still underway. In many countries democratic institutions remain in an early stage of development. As they mature, the growth of political freedom will make possible the emergence of political individuals who exercise freedom of choice with regard to issues of governance. That freedom encourages the free movement of ideas, social experimentation, and pioneering individual initiatives that are driving forces for development. The progressive extension of full and effective rights to people around the globe is an irresistible movement that promises to accelerate in coming years and usher in a much more truly democratic revolution than that which has released and stirred so much change in the recent past.

Education

In his opening remarks, World Academy President Harlan Cleveland placed greatest emphasis on education and information as the catalysts for all the factors that have spurred development during the last five decades and are fueling the globalization process. “The globalization trend is more than any other factor a product of the spread of knowledge.” He cited the example of South Korea, which initiated an intensive program of primary and secondary education in the early 1950s. “They did this without resources in the usual sense of that word. A whole generation got educated and the result has been spectacular.” In less than 50 years South Korea joined the exclusive club of wealthy OECD nations.” Such remarkable accomplishments are driven by human aspirations, rather than external factors; by the inner choice of society, rather than external circumstances.

Worldwide, a change in social attitudes has compelled the birth of democracy. Democracy thrives on education. Education elevates the importance of information. Globalization is the result of a collective urge to expand the identity of the collective beyond national borders.

Levels of education have risen dramatically during this century and continue to rise in countries at all levels of economic development. The impact of primary, secondary, technical and higher education on development has been documented by a number of studies. N. Asokan summed up the impact of education this way: “The spread of education is making people more aware of opportunities. It is increasing their productive skills and thereby increasing their earning capacity. It is stimulating scientific research and technological

innovation, while weakening religious superstitions. Wherever education spreads we see that there is a corresponding decline in fertility, which is improving the prosperity of the national economies. And wherever education spreads we also see that democratic aspirations get stronger and, correspondingly, there is a weakening of autocratic regimes. When education spreads in rural and agriculture countries, there is a consequent rise in productivity that helps transform agrarian economies into industrial ones and, at the next level, helps turn industrial economies into the post-industrial and information economies. The trend toward rising productive skills and earning capacity and declining fertility and superstition will only intensify as education spreads further. What Harlan described in South Korea has been a force, a powerful force, behind many of the changes that have occurred worldwide."

The very notion that everyone should be educated would have seemed preposterous, if not outrageous, to 18th Century Europeans, who regarded learning as the exclusive privilege of the upper classes and clergy, or to the Brahmins of India, who believed that knowledge should be the exclusive endowment of the priestly caste. And even if they had embraced and endorsed such a fantastic notion, the common people would have spurned it as a superfluous adornment. We have now progressed to the point where virtually every society on earth has accepted in principle the need to educate all its citizens and the vast majority of people in every country have come to value education as a precious and essential endowment. But for all the commendable progress in extending the scope and benefits of education, the task of equipping all the world's people with the knowledge and technical skills needed to prosper in increasingly technologically advanced societies is still at a very early stage, both in terms of the number of years of education and, even more so, in terms of the quality of education that people receive. The 21st Century could well become the century in which everyone has access to quality lifelong education.

Technological Application

When people are asked to identify the driving force for social development in the 21st Century, technology most often comes first to mind. But it should be evident from the previous discussion that the enormous productive contribution of technology is built upon an essential political and social foundation. Peace, freedom, education and social interchange are needed to release the creative powers of human inventiveness and to harness the products of that inventiveness for productive purposes.

We are now at the close of a century that has witnessed mind-boggling technological transformations—from the horse and buggy and the steamboat to the automobile, airplane and space shuttle; from Pony Express and the telegraph to Federal Express and the Internet; from abacus to personal computer; from horse-drawn ploughs and threshers to hybrid seeds and hydroponics; from oil lamp to laser; from amputations to organ and limb transplants; from locomotive engineers driving trains to bioengineers guiding biological evolution.

Carl-Göran Hedén pointed out that in recent years the rate of technological innovation has far outpaced the rate of technology dissemination and utilization. "Technology is rushing ahead at a pace with which humanity is unable to keep up." The time required both to develop and disseminate new technologies is becoming shorter, but technological development far outpaces technological applications and accomplishments in even the most advanced

societies. Even if there were no significant new technological discoveries over the next five decades, there is probably enough potential for applying proven technologies to elevate every citizen on the planet to middle class western standards of living. Adoption and full utilization of already proven technologies can dramatically elevate performance in every country and in every field.

Robert van Harten cited a single dramatic example of this potential. “The average yield of tomatoes in India is 8 tons per acre, yet more advanced farmers achieve yields as high as 20 tons. The average yield of tomato in California is 35 tons in California, but one of California’s leading tomato farmers with 1200 acres under cultivation routinely obtains average yields of 55 tons or more by applying advanced systems for micro-nutrient management applicable to all crops and climates. Applying more sophisticated and capital intensive technology, Israeli farmers achieve yields of 250 tons of tomato per acre.” This wide variation in the application of technology within and between countries is nothing new. But it is a significant determinant of development and a factor that is responsive to social policies.

Furthermore, the rate of technological innovation is still increasing. In fact, we now understand that invention is not a finite process of discovering a limited number of possibly useful things. It is a process that multiplies in potential as it grows. The more we invent and discover, the greater the possibilities for further innovation. This suggests that the contribution of technology to development could be even greater in future, provided we learn how to more rapidly and fully convert scientific discoveries into social innovations that benefit broad sections of humanity.

Technology has released its productive power because society has fully awakened to the powers of technology and chosen to endorse the development and utilization of this power for its collective progress. This awakening and choice have resulted in a breathtaking speed of progress, A time will come when society becomes fully conscious of the productive power of human choice and action. Then human development will blaze ahead at unimagined speed.

Social Velocity

Development is a function of the velocity of social transactions. The speed of movement of information, ideas, decisions, technology, people, goods and money has significant impact on the productivity of the society and its further advancement. For Canadian businessman John Banks, greater speed means greater commercial opportunities. “The ‘shrinking of the world’ through better transportation, communication, information and technology flows opens up commercial opportunities inconceivable just a few years ago.” During the past two decades the volume of international travelers, freight, telephone and other forms of electronic communication have increased enormously. Between 1980 and 1994, overseas telephone traffic to and from the USA increased from 200 million to 3.4 billion calls. New technologies such as satellite-based wireless phones are reducing the cost of expanding the communications infrastructure. Electronic mail has drastically reduced the cost and increased the speed of written communications. The meteoric growth of the Internet provides instantaneous low cost access to global information sources and commercial markets. The speed of technology diffusion is also accelerating. The Xerox machine was not introduced into India until the late 1970s, more than 15 years after its use became widespread in the

USA. Four years ago, Windows 95 was launched in New Delhi just weeks after its release in the USA. Two years ago Intel announced its latest microprocessor simultaneously in USA, India and Beijing. Our perspective on the next century needs to take into account the impact of the increasing velocity of social transactions on the speed and course of future development.

Organization

The 20th Century has been one of unprecedented advances in the technology of organization, the human know-how to design and operate larger, more efficient and effective economic and social systems and institutions. Hand in hand with the multiplication of technological innovations designed to expand the range and increase the productivity of human activities has come an amazing proliferation of innovative social organizations that are essential for effective utilization of these technologies. But while most people are quite aware of the advances in technology and their potential contribution to human development, there is far less appreciation of the essential and invaluable role of new and improved types of social organizations in the development process and their vast unutilized potential to accelerate global social and economic progress. Organization is the social mechanism for supporting and promoting new activities in society. Never before in history has humanity created and disseminated such a dazzling array of new organizational innovations in virtually every field of human activity.

Asokan identified the proliferation of organizations as a powerful driving force for globalization. “The phenomenal progress that we see all over the world is the result and creation of new organizations at the local, national and international organizations. At the physical level these organizations include the development of essential infrastructure such as roads, telecommunications, railroads, power grids. At the social level it includes the development of a wide range of systems and institutions such as banking and leasing, stock exchanges, commodity markets, credit reporting, and collection agencies. At the mental level, it includes the development of organizations for information, education and scientific research, such as research labs, libraries, think tanks, the Internet and the World Wide Web. In addition to the formal institutions directly related to economic activity, there are also a large number of non-institutional organizations that formulate international technical and commercial standards governing such activities as inter-bank transactions, international air transport, telecommunications, and product quality. Without these standards international trade would grind to a halt. Each advance in organization has led to advances in the speed, quality, efficiency and productivity of economic activities resulting in material improvements in living standards.”

The recent financial crisis in East Asia powerfully demonstrates the importance of improving our understanding and mastery of the technology of economic organization. As Ivan Head pointed out, “The pace of globalization is so rapid that even the most sophisticated economic institutions seem unable to keep up with the demands for organizational innovation. The issue of global economic organization demands much more attention on the part of policy advisors than is now the case.”

Jingjiai Hanchanlash stressed the growing importance of international economic institutions at the global and regional level and the parallel organization of private financial institutions that operate along side the public sector apparatus, but not always in close coordination with it. “Internationally, we have the organizations created fifty years ago, the World Bank and some regional organizations, that have met certain needs and continue to meet to serve an important purpose. But in addition we need many new types of organizations to make the opportunities of globalization accessible at the local level in countries around the world.” Iridium, the first truly global telecommunications corporation established by a combination of public and private stockholders in sixteen industrialized and developing nations, is one example of a new type that is emerging.

When we look at the future of economic development, we need to understand which organizations are essential to drive social growth, how these organizations emerge in society and become effective, and what we can do to promote the creation of new organizations fast enough to deliver ideas, products and information to meet social needs. Organization grows and thrives on information—not just the quality but the quantity of it. As information is dramatically expanding in the world, we need to better understand the impact of that on the quality and complexity of our organizations. The growing complexity of globalization does not fit the old paradigm of centralized or decentralized organizations. The pattern that is emerging is much more what Cleveland terms uncentralized, consisting of many different functions being initiated from independent but interrelated centers, rather than everything being controlled from one point. We need to understand much better which functions can best be performed by centralized, decentralized or uncentralized structures.

To overcome the dichotomies that so often enter into debates about the role of organization in development, Mircea Malitza proposed a new intellectual paradigm. He depicted the evolving organization of global society as an orange with multiple, interrelated layers of nets around it. The inference is that we cannot arbitrarily divide the world into private sector and public sector, or into scientific, economic, social and religious parts. Society is a single complex web of organization. Walt Stinson emphasized the need for an appropriate balance and blend of public and private organizations. “Public organizations cannot do many things that private organizations do, but perhaps even this type of contrast or polarization is really part of the problem. The reality we seek to describe is the organization of human society. There is a regulatory function that government can best carry out. There is a need for individual creativity and initiative, which is the natural role of the private sector. Society needs to discover the right functional relationship and proper balance between each strand of this very complex fabric of organization, which is increasing in complexity so rapidly that we do not even have a computer model that can track its evolution. This is the knowledge we need about organization.” As Ivan Head put it, “We are engaged in a knowledge process. We need to discover what best we can do to design more successful knowledge organizations.”

In the quest for global knowledge, we also need to understand much better the organic relationship between our organizations and the society. Building organizations is not a question of finding a right magical formula for some external super-structure. Organizations have arisen in the world at the local level, at the national level and internationally as an outgrowth, a flowering of seeds in each society. We need to better understand that process and

the link between the structures we have created and the societies that give them birth, especially when we want to transfer those structures to other societies where they have not arisen by themselves.

Concerns about Globalization

The approach of a new millennium raises fresh hopes and new fears, wildly optimistic dreams of unimagined accomplishment and paranoid visions of conspiracy threatening to destroy all that has already been achieved. In spite of phenomenal material, political and social achievements over the past 100 years, the process of globalization that is gaining momentum around the world raises powerful anxiety, uncertainty and resentment among those who feel they are being left out or short-changed by forces beyond their control. There is, as Jack Fobes described, "a growing sense of resentment against inequalities, disparities, gaps, against the globalization of power in money, markets and media."

Resentment of Inequities

Many people despair that they are worse off than before and actually losing ground in the race for progress. How can we reconcile statistics that indicate unprecedented accomplishments for most human beings with the widespread perception that many people are less satisfied than before? The answer may lie in what Cleveland termed the revolution of rising expectations while he was working in Asia back in the early fifties. He observed that newfound political and social freedoms, access to education and information, and the opening up of opportunities for individual advancement had released an enormous outburst of social energy and activity. Now this same force has spread through Eastern Europe and most countries of the developing world, even to outlying villages in Asia and Africa. The spread of information, education and social opportunity is unleashing a powerful force for social transformation. People everywhere dare to aspire for more than their ancestors ever thought possible. They have learned not only to aspire for more, but in the growing atmosphere of freedom to also demand more, sometimes vehemently and even violently. If there is any hope of a better future for the world, it is because this aspiration has been ignited.

Rising aspirations have had two demonstrable consequences. First, they have contributed to a tremendous release of social energy, an outpouring of social innovation and individual initiative unparalleled in history. Even in many of what were until recently traditional, conservative societies, change has come to be accepted as the only constant. People everywhere are breaking out of the patterns of the past, venturing into new activities, experimenting with new ideas, new technologies and new ways of life. Second, almost everywhere the growth of aspirations and expectations has outpaced actual human achievements, leading to the paradoxical situation of increasing standards of living and growing dissatisfaction with what has been achieved. If we look back in history—there was a time not too long ago when the whole country lived for the sake of one man whom people called a monarch. What we find today is an increasing *intolerance for inequity*. At the same time we find everybody aspiring to have what previously was possible only for very few.

This explains the apparent paradox of increasing prosperity accompanied by increasing discontent. As development advances, people tend more and more to judge their

present status not in terms of what they enjoyed in the past but in terms of what other people have achieved, of which they are increasingly aware due to the information revolution. Rising aspirations, when not immediately satisfied, can fuel increasing resentment.

Threats to Cultural Diversity

One of the most serious concerns regarding globalization is the fear that it will eradicate the world's rich cultural diversity. Cleveland rejected the view that globalization is synonymous with uniformalization, that it will result in a single, homogeneous global culture. "Globalization certainly does spread uniform technologies, but I am increasingly impressed with the fact that the most important product of all this globalization is diversity. The process is making people aware of differences and making them deal with differences in ways that they did not have to do before, because they never mixed with those other people, or because they dominated them, or were dominated by them. I am coming to believe that on balance the net affect of globalization is probably to increase variety rather than to propagate more uniformity."

Rejecting fears of cultural uniformity, Ivo Slaus believes that the impact of globalization is to increase the possibilities. "Globalization increases the number of options—the total number of options and also the number of options for each individual. This offers a chance for every individual and every social group to essentially catch up at any time. That chance is not a guarantee. It is a global opportunity. The whole aim is to increase these opportunities. Therefore, I would suggest that development involves an increase in the number of options and this is what globalization is bringing. The force behind this movement is the human being with her or his free choices. The challenge is to make choices that increase the freedom for others to choose, rather than to limit their possibilities. We need diversity in cultures as much as we need biological diversity in order to survive and keep increasing our options."

Certainties and Uncertainties

Discussion of the globalization process uncovered a host of certainties and uncertainties. Among the certainties, it is evident that the next century will see even greater recognition of and insistence upon the value and central importance of the human being in the society. Human aspirations for freedom and opportunities for free choice will grow ever more powerful and insistent and the options available for the exercise of that choice will become ever more varied. Average levels of educational levels will far exceed what is common today. Technologies will continue to multiply. Access to information will become truly universal. Everything will move many times faster than it does today. Organizations will provide greater opportunities for creative expression of individuality and thereby themselves become more creative. Also certain, that global society possesses the means, if it possesses the determination, to guarantee every citizen opportunities for gainful employment and reasonable levels of prosperity.

Among the uncertainties, it is not at all clear whether society will succeed in closing the gulf between expectations and outcomes. Nor do we know whether social tensions resulting from this gap will rise further or decline. Presently it is uncertain what type of global

organizations we need to fully support universal peace and prosperity nor whether the nations of the world will cede sufficient sovereignty quickly enough to avert greater divisiveness in international affairs.

In spite of recent achievements, some were pessimistic that the prospects for developing countries would substantially improve in coming decades. Others shared the confidence expressed by Bob Berg when he described the world emerging in the coming century as one of enormous opportunities for social progress. "We have already started a whole bunch of processes that will accumulate to make the decades ahead over the next century a kind of golden age of social development."

Need for a new paradigm

The discussion on the likely future impact of globalization seemed to polarize participants into groups representing widely divergent views of the process. Some believed that the benefits far outweighed the costs and considered most of the problems associated with the process as temporary obstacles that would inevitably be overcome for the overall benefit of humanity. Others viewed the process as an inexorable movement of domination by the rich and powerful over the poor and vulnerable people and countries of the world.

Francisco Sagasti suggested that this dichotomy of positions is the result of a too linear view of development and argued that we need a different kind of thinking and new theoretical concepts to understand the implications of globalization. "What we have is a contradictory process—some trends point in one direction, trends that are going in a different direction *at the same time.* About 20 percent of the world's population still live at a subsistence level. They remain within the local circles of accumulation and have nothing to do with the globalization process. What we are seeing could be called a fractured global order—an order that is pulling all of us together and, at the same time, maintains deep divisions and some of those divisions and separations are broadening—an order that makes us aware of everybody else but at the same makes us very much aware that not even in a hundred years we may reach somewhat the levels of consumption or well-being that are available for other people. We have to start changing the way we think about it. Instead of thinking in linear terms, we must learn to think in paradoxical terms, to be able to confront these new situations—chaotic, paradoxical, and uncertain—without being overwhelmed by them. We must have the intellectual capacity to apprehend contradictory facts and the ability to transform those perceptions into more or less sensible actions, which is not very easy to do. Over the next several years in this paradoxical messy complicated uncertain situation that has no immediate scope for neat dialectical or logical resolution, we are going to have to open up the very concept and idea of development in a much more radical way and evolve new conceptions of culture and development."

What then should be the role of our leaders in an age of unparalleled opportunity and uncertainty? Slaus described it this way: "Let us live with the uncertainties and let us realize that in the concept of leadership, rather than a leader being somebody who should take us on a very well predictable course, the primary role of the leader is basically to increase the number of options for individual human beings. The goal should be to increase the freedom that each one of us has and the best process of doing that is, of course, education." A more profound

change in our conception of leadership may even be warranted. Perhaps in future it will not be personal leaders at all, but rather thoughts and ideas that play the determining role in directing the energies of society.

Walt Stinson went even further in stating that increasing human choice is the one essential goal of the development process. "Development means different things to people, so we will never be able to arrive at an objective set of measures to satisfactorily measure it. Therefore, I suggest a subjective measure. Development is a measure of the capacity of people to make choices. If individuals are free to think what they want, live where they want, choose the occupations they prefer, obtain the type and quality of education they aspire for, and meet their consumption needs as they define them, then they are more developed than those who do not have this freedom. If the individual has all the choices, a cornucopia of choices, unlimited choices, that is development. When individual choices are limited, when individuals have few choices and are locked into situations they would choose not to be locked into, that is underdevelopment."

Inexhaustible Resources

The science of economics was founded during a period when human development depended to a very large extent on land and other limited material resources. In an age of scarcity and famine it was not surprising that early thinkers conceived of production and consumption in terms of severe limits. The foregoing discussion suggests that in very great measure the accomplishments of the 20th Century are the result of forces that are neither material nor limited. Peace, freedom, information, human aspiration, social energy, individual initiative, technological innovation and organization are human resources, products of human development, which are not subject to any inherent or ultimate limits. These resources, in turn, vastly increase the productivity of even limited material resources and multiply incalculably the potential for development.

As Cleveland observed, "I've been struck by the use of the term 'limits to growth' by several people, which I thought had justifiably gone out of fashion because it really applies only to limits of physical development. In the information arena, in which most economic phenomenon now are controlled by what you might call the information environment, the only limits, the really alarming limits, are the limits to imagination and creativity which comes back to the individual. So it seems to me that one of the great certainties about the next century is the absence of knowable limits to what the human brain and the human spirit can make possible. We make a mistake if we get so caught up in current issues of physical limitation that we miss this 'insurmountable' opportunity."

A change of attitude is compelling humanity's progress, a growing urge that no longer accepts any ultimate limits to what can be accomplished. A mental urge in humanity for greater knowledge has stimulated the development of education, technology and information. A vital urge for peace, security and prosperity insistently strives to create the conditions needed for their fulfillment. With each advance, humanity becomes less dependent on external compulsions and more aware of its inner capacity to choose its own destiny. So we are discovering that human beings are the real source, the ultimate resource, for social progress. And **if we succeed in pushing back the limits far enough, it is quite possible that the**

greatest discovery of the next century, which will be remembered far into the future, will be the practical discovery of the infinite potential of the human being.

4.

Toward a Comprehensive Theory

By Garry Jacobs and N. Asokan

Perspective of the Whole

The award of the 1998 Nobel Prize in Economics to Professor Amartya Sen represents a significant departure from the past. In his work on the origin and nature of famine in developing countries, he observed that non-economic factors played the dominant role in determining economic outcomes. By pointing out that no country with a representative government, independent judiciary and free press has succumbed to famine in the past half century, his work placed economic phenomenon within a wider social and political context.

Taking their cue from the 'hard' physical sciences, social science has long sought for abstract general formulas that accurately describe and predict social outcomes in a manner similar to the way chemists construct formulas for chemical reactions specifying the result of mixing specific molecules of a certain concentration together at a specific temperature and pressure. Economic theories commonly focus on the relationship between two or more economic factors such as supply and demand, inflation and unemployment and attempt to specify the constant conditions under which they will lead to a predetermined outcome.

Sen's work highlights the fact that these economic factors always operate within a wider economic and non-economic context. Changes in the context, either spatial or temporal, may radically alter the nature of the observed relationships. In the early 1990s the well documented correlation between economic growth and employment generation gave way to a period of 'jobless growth' in North America that sent economics scrambling to devise new theories about future economies, until a new period of rapid job creation reaffirmed the old relationship. Stagflation in the 1980s posed a similar challenge to the law defining an inverse relationship between inflation and unemployment rates. Explanations for both these aberrations invariably focus on the impact of 'external factors' such as labor saving technologies, social welfare policies, consumer attitudes, speed of information flows, expectations of more educated populations and similar changes in the context for economic activity.

The limitations of narrowly defined economic theory are even more apparent when they are applied to explain the development, rather than mere growth, of economies. Development always involves major, sometimes radical, changes in technology, social attitudes, political structures, administrative systems, public policies, educational content, in addition to substantial changes in the social organization of economic and commercial activities. Theory that regards these factors as external or incidental to the development process misses the point. They are central expressions and determinants of the process.

What is needed are not more adequate economic theories of development but theories based on a wider perspective of the whole in which economies function and develop. That

whole must necessarily include political, administrative, scientific, technological, educational, social and cultural factors. The very meager and disappointing results of West Germany's extraordinary $1.1 trillion investment in East Germany since reunification—a sum roughly 10 times in real terms the entire Marshall Plan outlay for all of Europe—points to an obvious, but oft forgotten truth of development. Money is only one aspect of economy, as economy is only a part of the larger social whole.

Our view of development has to encompass a wider whole that includes the potential impact of war or the perceived threat of war, civil unrest, political instability, rapid improvements in health, induction of advanced technology, rising standards of education, rising expectations of the electorate, a sense of social competition with other societies, increasing individual freedom, and greater access to information.

Theories focusing on the contribution of isolated factors have a legitimate place in economics, for the exclusive concentration on the parts helps reveal the degree of complexity needed to adequately qualify simple equations to give them a semblance of validity. For example, each of a half dozen institutional theories of development seem adequate to explain development in a particular group of countries over a particular period of time. But none suffices alone or in combination with the others to serve as a generally applicable theory of the development process.

Focusing on isolated factors gives rise to partial, unidimensional and unbalanced strategies that become the source of development problems. Pollution and environmental degradation arose from the unidimensional application of industrial technology without considering the wider environmental context in which industrial activity occurs. The application of modern medical technology to improve public health in developing countries without proportionate emphasis on public education and raising income levels spurred the population explosion of the 1950s and 1960s.

We may well question whether the construction of such a comprehensive theory could ever be possible or, if possible, fruitful of predictive knowledge. On the surface neither appears likely, because the possible combinations of factors would be nearly infinite. However, if we change the plane of focus of our microscope from the surface to the social depth, from superficial external conditions to the more fundamental human social process that expresses variously in each field of activity—political, economic and social—we may come to a different conclusion. The only conceivable basis for a unifying theory of social development is a common process underlying the advancement of society in different fields of activity.

Development theory needs to examine economic, social, political, technological, and psychological development processes as aspects of a single, common process of human development, a process of social creation.

Human Centered and Human Determined Approach

The need to refocus development thinking on people has gained wide acceptance over the past decade. UNDP has spearheaded the challenge to growth-oriented economic measures

of development such as per capita GDP and constructed alternative indices to assess the direct impact of social change on the welfare of human beings as measured in terms of life expectancy, infant mortality, literacy and a growing host of other non-economic factors. This alteration in the way we measure development is the first step toward a human-centered conception of what development is, but it is only a step. Thus far, the effort has been focused primarily on measuring the results of development more in terms of their impact on human welfare, but they have not yet attempted to elucidate the nature of development as a human process.

The human being is not one more vital or extraneous factor in the impersonal equation of social development. People are the foundation, the heart and the driving force of the process. Societies are not impersonal systems. They consist of people. The development of political and legal institutions, advances of science and applications of technology, acquisition of productive and organizational capabilities, and evolution of commercial systems depend fundamentally on human awareness, aspirations, energy, attitudes and skills.

The World Wide Web is a marvel of modern information technology that is rapidly tearing down barriers to human understanding, individual initiative, scientific discovery, technology dissemination, spread of education, free communication, and emergence of a global culture. We may well wonder how far or in what form this system would have advanced if its birthplace had been the USSR during the depths of the Cold War rather than the USA after the fall of the Berlin Wall. More than a mere impersonal technology, the web is the product of individual human aspirations and collective human values.

Development is the development of human beings, individually and as organized functional social groups. To understand it, we must shift the focus from preoccupation with external ingredients to the human elements of the process—the preparedness of society for change, the catalytic contribution of pioneering individuals, the organized response of the collective, the impact of changing social values, the function of education and the role of family.

Development theory needs to be human centered in several other respects as well. Science seeks for the fundamental, indivisible building blocks of reality—the subatomic particles, atoms, molecules, and genetic sequences of physics, chemistry and biology. What then is the basic building block of social science? To answer this we have to move beyond our fascination with money, markets, and silicon chips to view social reality at a more fundamental level common to all fields of social activity—the individual act. The master word of human life is ‘act’. Human acts expressing human awareness, understanding, aspirations, energy, skill and organization are common to all fields. Enhancing the information, knowledge, attitudes, motivation, energy, skill and organization of these acts, by whatever means, enhances social productivity resulting in development.

Human acts span all levels of social organization—individual, family, corporation, nation and global community. Our thesis is that the same fundamental process governs development at all levels. Development is an upward directional movement of society from lesser to greater levels of energy, efficiency, quality, productivity, complexity, comprehension, creativity, enjoyment and accomplishment. The progressive organization of

individual actions that constitute the collective social existence is the essential character of development and makes possible these progressively higher levels of accomplishment.

Determinants of Development

Development is the process by which humanity creates new or improved instruments (money, institution, technology, resources, etc.) and applies them to achieve greater results. But all too often social theory has assumed that the instruments determine humanity rather than vice versa. We are told that money, technology, institutions and resources impose essential conditions that cannot be abrogated. The importance and power of these instruments is not arguable, *but the source and extent of their leverage is*. All these instruments are human creations--money and resources as much as technology and institutions.

Development theory needs to explain the process by which humanity creates and utilizes all these instruments for its development and how it becomes dependent on and dominated by them. Every social institution and instrument that society creates tries to dominate its whole life. This was true of army, church, money and government. Today it is true of science and technology. Each claims precedence and its right to dominate over the whole. Presently society feels dominated by and dependent on instruments and institutions such as money and markets that it has created, as if these instruments have an independent life and power of their own to which people must be subservient.

Money is a social system and convention based on social trust, confidence in government, political institutions for stability, law and order, and administrative policy. Resources are the product of human imagination applied to discover new applications for naturally occurring and human-made materials. None of these instruments is inherently limited. The productivity and generation of money is enhanced by increasing the speed of transactions and the efficiency of productive systems. The productivity of resources is enhanced by increasing technology and organizational efficiency. Social institutions such as markets are human inventions and conventions capable of potentially unlimited improvement and refinement.

We create rules and allow ourselves to be bound and dominated by them. In the words of Rousseau**,** "Man was born free, and everywhere he is in chains." We have lost sight of that fact that it is the knowledge, attitudes and actions of people that determine the behavior of these instruments. The monetary theorist speaks of external, mechanical laws of economic nature to which people must submit. We docilely accept when we are told that a certain number or percentage of people must be unemployed, because the market has 'created' only so many jobs—as if markets really create anything. We reconcile ourselves to tight monetary policies because inflation must be 'kept under control'. We eagerly study the performance of markets to decide what our attitudes should be toward the future, not realizing that it is our attitudes that are determining the performance of the market and our own future. We are dominated and passively carried away by democratic political processes that we have created. There is a sense of helplessness that prevents effective action.

Our thesis is that the laws of development are not of this type. They are inwardly determined by human attitudes and values. Humanity is the chief determinant of

development, not the instruments it creates. Human ideas, values, attitudes, aspirations, energy, skill, knowledge and initiative determine the direction, speed, and course of social development as surely as the concentration of chemicals, temperature and pressure determine the direction, speed and extent of reactions in a test tube.

Society is approaching the level of self-consciousness at which it can recognize itself as the creator and master of its own institutions and more consciously determine its own environment. Willy Brandt expressed this perspective when he stated in the Brandt Commission Report that the problems created by humanity can be solved by humanity. This self-conscious recognition of our role in the process will dramatically change the equations that govern our lives, shifting the balance of power from our instruments to ourselves.

Relationship between Individual and Social Development

Valid social theory needs also to explain the relationship between the development of the individual and the development of the social collective. Are the principles governing these two similar or different? Do they follow the same or parallel processes? To what extent are they interdependent? It needs also to clarify the role of social organizations or institutions, which appear to be the bridge between individual initiative and collective action.

Our premise is that the process governing development of the individual and the collective is the same process and that the two are intricately intertwined. The preparedness, aspirations and awareness of the collective form the backdrop and launching pad for the emergence of new development initiatives. When the society has achieved sufficient stability and productivity at one level of development, it accumulates surplus energy and spawns initiatives by pioneering individuals who throw up new forms of adaptive behavior. The individual is always the vanguard of future collective action. The pioneers' successes—whether the result of private initiative or public programs—serve as demonstrations that educate and motivate others to act. The imitation of successful pioneers leads to gradual acceptance by the collective. Often this acceptance leads to organized efforts by society to disseminate, promote and support diffusion of successful adaptive behaviors through legal, organization or educational mechanisms. For example, the introduction of new commercial practices such as consumer credit, overnight parcel delivery, and franchising in the USA was supported by emergence of new laws, credit systems and organizational mechanisms to support their multiplication. The rapid adoption of new agricultural practices during India's Green Revolution was supported by the establishment of a host of organizational mechanism for production and procurement of essential inputs, pricing, purchasing, storage, distribution, marketing, research and extension services.

Gradually the new activity becomes integrated with other activities in the society. When it no longer requires the conscious support of the collective to propagate and sustain it, it matures into a social institution. It is carried forward to future generations by the educational system through the transmission of knowledge and by the family through the transmission of values. Thus, the process completes a cycle that began as an individual initiative to influence the society and leads the collective to influence subsequent generations of its individual members.

The establishment of formal social institutions to support a new activity is a critical stage in this process. There is a tendency in current economic theory to regard these institutions as objective elements external to the society that can be created or imposed on it, rather than as organic formations of an indigenous social process. Economic institutions, like political and cultural institutions, evolve out of the social consciousness of a society and reflect its knowledge, its aspirations, and its values. The recent attempt to transplant Western institutions in a socially unprepared and culturally distinct Russian society illustrates the disastrous consequences of regarding institutions as impersonal objects rather than as natural formations expressive of the society's energy, aspirations, and capacity for organization. New types of organization can be and frequently are borrowed from other societies. But in most cases they undergo a subtle or significant modification in the process of being assimilated.

There is yet another way in which the individual and social processes are related. It is often implicitly assumed that individual human beings represent a theoretical constant in social development, i.e. societies change but individuals remain more or less the same. In describing the transition of society through three major waves from agrarian to industrial to post-industrial forms, Alvin Toffler traces the changes that occur in every field of human activity, but never follows the trail of those changes back to the main actor in the drama, the individual human being. Are we to conclude that the individual human being in post-modern America is largely the same as the feudal serf of the Middle Ages, other than the fact that he or she is better fed, dressed, housed and educated?

Our view is that parallel to the clearly discernable stages of social progression that Toffler and others have described is an equally significant and discernable progression of society's individual members along a continuum from physical to vital to mental consciousness. An inner evolution of human consciousness underpins the external revolution of society. The consciousness of the people and the character of the times progress together.

The feudal stage is one in which both individual and society are physically preoccupied with the quest for survival and physical security. Social energies focus on preservation of what has been achieved rather than expansion or experimentation. Social power is derived from a physical base of land and heredity. The most important resources are physical. The predominant contribution of the human resource is manual labor. The collective asserts complete authority over the individual and suppresses development of individual thought, beliefs and skills, other than those needed for the preservation of the collective.

At a later stage the society acquires greater vital energy and dynamism. Feudalism gives way to a renaissance, reformation, enlightenment, commercial and political revolutions. Traditional beliefs and institutions give way to new sources of power. Society looks for ways to expand its activities through exploration, trade and conquest. New ideas and social institutions emerge. Individual initiative is encouraged and recognized. Traditional barriers to individual advancement break down. Enterprise, commercial skills, money, economic systems and organizational capabilities become more important productive resources than land. Individuals in the vital stage undergo a parallel change. Greater individual energy and initiative is released. They acquire new skills, become receptive to new ideas, enhance their

capabilities, more freely formulate and express their own opinions. They may even begin to acquire their own individual values as distinct from those of the society.

At a still later stage mind plays an increasingly noticeable role in the development of both the individual and the social collective. Government actively fosters education and the spread of new ideas. Freedom of choice increases. Science, technology, knowledge and information become more productive and important resources. There is a further shift in balance between the individual and society, still greater freedom for individual thought, beliefs and actions. Society seeks a more healthy balance between individual rights and responsibilities. Social organizations devise new ways to tap the ingenuity and productive potential of human creativity. Societies discover that the ultimate determinant of their achievements is their ability to develop and enhance the capacities of each of their individual members.

It is not only the individual and the collective that undergo a transmutation through this process. The character of the organizations they generate undergoes a parallel change based on and reflective of this changing relationship between the individual and the collective. Autocratic highly centralized organizations directed by a few dominant leaders during the earlier phase gradually give way to more decentralized and distributed forms of organization. As scientific technology and organizational technology develop and as more individuals acquire higher levels of knowledge and skill, some organizations even acquire the character of uncentralized systems based on the 'authority' of impersonal standards rather than personal power.

Every society arrives at some balance between the value of the individual and value of the collective. Historically, the balance has heavily favored the collective at the expense of the individual. In the early stages of development, the collective imposes its will on the individual and its undeveloped members accept this imposition. As society develops, the individual demands and wins greater freedom for variation and initiative in thought and action. The greater the value that society places on the development of each individual member, the greater the overall productivity of the individual and the greater the progress of the society.

This shift in emphasis from development of the collective to development of each individual results in an enormous increase in the speed and extent of social progress. *The exercise of individual human choice is, thus, the ultimate determinant of social development.* The society that fully educates, releases and constructively harnesses the choice of its members will develop the fastest and the furthest.

We seem to have progressed very far from the days when an individual could be socially outcast or even physically condemned for harboring a different set of religious, political or intellectual opinions and beliefs from that the collective. But the emancipation and development of the individual which Martin Luther initiated in the realm of spirituality has yet to run its full course. The pressure for conformity in thought and action still maintains strong bastions against the full emergence of individuality. Citizens in modern society, including its intellectual and political leaders, still look obediently to the collective for the cue as to what they can and should say and do, especially in public.

From Subconscious to Conscious Development

Any human-centered theory must account for the central role that mind plays in organizing human activities to fulfill people's emotional drives. The human being is differentiated from other animals by a greater predominance of the mental element in human behavior—by a capacity for self-conscious and consciously organized activities. But this capacity emerges only very gradually with the accumulation of life experience.

Historically, society has progressed from physical experience to knowledge. It acts first and mentally understands the sources of its success decades or even centuries later. Experience first, knowledge afterwards. We term this process 'subconscious' development because the actions that lead to it do not originate from a fully conscious knowledge of the process for achieving the intended results. Often the results themselves are not clearly anticipated. The knowledge thus acquired is partial, because it is derived from a specific and, therefore, limited context, but it is a knowledge that has power because it is derived from actual accomplishment.

The extraction of the essence of knowledge from accumulated practical experience can ultimately lead to a complete and conscious conceptual or essential knowledge that can then be applied in any context to achieve results. The primary requirement for this knowledge to be effective is that it must consist of a complete knowledge of the whole, not just of parts or factors. In order to acquire power, it must also be embued by values or sentiments that give the emotional force of experience to the concepts.

We refer to the conscious application of complete, conceptual knowledge as 'conscious' development. Mentally self-conscious development can be a much more rapid, efficient and stable process. Because it knows the wider whole in which specific instances occur, it can derive knowledge from a single experience rather than depending on countless repetitions of error to fill in gaps in its understanding. It can avoid the excesses and imbalances commonly resulting from partial knowledge, because it takes cognizance of the wider context and circumstances in which developmental initiatives are carried out.

The rich and varied experience of the past half century coupled with radical improvements in education and access to information provide invaluable material for making the development process more conscious. Society has come to the point where it should be possible to synthesize and consciously apply accumulated knowledge for the systematic development of all its productive activities. The search for better development theory is an effort to acquire an essential knowledge of the whole process of development that can be consciously applied to accelerate social progress and eliminate the errors of subconscious action.

The study of the external factors, strategies and circumstances associated with past development achievements may generate useful insights for future strategy, but it can never give us mastery. For that we need an essential knowledge of the development process, rather than merely knowledge of its ever-changing external forms. Moving from subconscious to conscious knowledge involves a shift from knowledge as experience to knowledge as the essence of experience.

What often passes for knowledge today is mainly the accumulation of facts about past experience. Theoretical knowledge is an extraction of the essential truths that are expressed through those facts. Knowledge based on experience results in *skill* that gives limited results. Knowledge of the essence reveals the *process* that gives mastery. In development, the knowledge we need is of the creative social process and the energy that drives it.

The essential knowledge of that process is embodied in social and cultural values. Values represent the essential knowledge of experience condensed into ultimate principles of successful functioning. Values such as discipline, courage, punctuality, cleanliness, honesty, systematic functioning are rooted in a pragmatic understanding of the elements needed to make any activity effective. Presently society transmits these values without being fully conscious knowledge of why they are so essential for success. The same knowledge when made fully conscious and consciously transmitted will be far more effective. A theoretical framework is needed that provides this perspective.

Development as a Creative Process

The underlying premises of economics are still determined today by the circumstances in which the 'dismal science' emerged centuries ago. The Newtonian conception of a closed universe of finite energy and mass seemed a fitting description of the economic universe as well, where limited land of limited productivity was accepted as general law. The fact that land is far less limited than envisioned at the time, that the productivity of land and labor have multiplied many times and are capable of still greater enhancement, that in some cases land itself is no longer an essential input for food production, that by some estimates the world's agricultural resources could support at least four times the peak population it will reach by the middle of the next century, or that living conditions for billions of people already exceed the comforts of great monarchs in the past—none of these discoveries has led to a fundamental reassessment of the basic premises on which economic science was founded.

Historical evidence overwhelming indicates that development is a creative process which is not inherently limited by past experience, present levels of accomplishment or any fixed forms of expression. Yet so long as our knowledge about development is colored by premises that were long ago rejected in physics, we vastly underestimate the opportunities and satisfy ourselves with minimal achievements.

UNDP estimates that the world has made greater progress in eradicating poverty during the past 50 years than it did during the previous 500. Today we are able to identify many of the factors responsible for the phenomenal developmental achievements of the past half century—the spread of democracy, absence of major international wars, rising levels of education, rapid development of science, application of technology to increase the availability and multiply the productivity of resources, dramatic improvements in access to information, spread of productive skills, greater capacity to build and manage complex organizations, increasing emphasis on development of individual abilities and decentralization of decision-making, greater awareness and openness to cooperation and learning from other societies, and the increasing speed of all types of physical and social transactions.

The most interesting thing about this list of factors is that none of them are subject to any inherent limits that place constraints on further development in the coming century. Democracy is still spreading around the world and may eventually become the norm, but the scope for increasing human freedom has only begun to be tapped. Education is spreading, but there is an enormous gap in the quality and quantity of education available in different parts of the world and in no country has the potential for improvement near exhaustion. The same is true of science, technology, information, productive skills, organizational know-how and the efficiency of social transactions. All admit of virtually unlimited improvement.

This suggests that the process of social creation may not be subject to any ultimate limits, that the notion of infinity which is a mathematical concept in the physical sciences may need to be recast as a practical concept in the social sciences.

This observation may be to some a rather disconcerting conclusion, disconcerting because it is so different from the premises upon which we have operated until now and the natural pessimism that is a vestige of thousands of years of human experience confronting obstacles, generating problems and facing disappointments. But, at least, as a scientific postulate it is worry of serious investigation.

The primary obstacle to a rational investigation of this premise is the inordinate value which we place on past physical experience. The physical body represents the sum total of past physical accomplishment—experience, tradition, status quo. The human mind represents all the possibilities that have not yet been realized. Knowledge derived from the physical data of past experience does not reveal the essential nature of the process that has lead to past accomplishments, because that process has been largely an unconscious seeking and finding. Nor does it reveal the greater unrealized potential that remains to be tapped. The practical effectiveness of knowledge derived from past experience is also limited by the narrow circumstances in which the actual events occurred, which may to a large degree be incidental to the basic process. Such knowledge tends to focus on the external conditions in which results were achieved rather than the internal process that led to those results.

Knowledge limited to the data of experience tends to perpetuate past beliefs and behaviors long after they are no longer adaptive. Development experience is replete with examples. The nightmare of hyperinflation in Weimar Germany following World War I has so strongly influenced financial policy that even seven decades later the Bundesbank finds it difficult to entertain measures to stimulate the economy that may generate even inconsequential increases in the rate of inflation. The faith in gold jewelry as the most reliable form of savings persists in some Asian countries long after more productive, stable and lucrative options are available. This had led to the ironic situation of a country like India, which has upwards of $250 billion in the form of gold savings, striving energetically to attract $10 or 20 billion in foreign investment to finance the development of critical infrastructure. The Japanese propensity to save rather than consume, which was so highly lauded in earlier decades as the solid foundation for future prosperity and has resulted in the accumulation of more than $800 trillion in savings, now looms as a major impediment to further economic growth of the country and the region. All three of these antiquated behaviors reflect a Newtonian view of our economic universe in which mechanical laws operate within a closed system.

Development theory needs to recognize that the inherent tendency to repeat past behaviors, to give mental credence only to what has occurred or been accomplished in the past, severely limits present behavior and our perception of future possibilities. A more conscious knowledge of the underlying process of development can help free us from the limitations imposed by past experience and release greater creative energy and initiative in society for accomplishment without limit.

About the Contributors

Authors

Harlan Cleveland is President of the World Academy of Art and Science. He was formerly US Ambassador to NATO and Assistant Secretary of State for International Organizations, President of the University of Hawaii and founding dean of the University of Minnesota's Hubert Humphrey Institute of Public Affairs.

Garry Jacobs is a Director of the International Center for Peace and Development and partner in a California management consulting firm. He was formerly Member Secretary of the International Commission on Peace and Food.

Robert Macfarlane is a management and economic development consultant and a director of the International Center for Peace and Development. He was a founding member of the International Commission on Peace and Food.

Robert van Harten is President of Mira International, a wholesale distribution business based in the Netherlands, and a former member of the International Commission on Peace and Food.

N. Asokan is a research fellow at The Mother's Service Society, a social science research institute in Pondicherry, India.

Other Contributors

Comments by the following participants in the Vancouver Assembly are noted in chapters 2 and 3.

Walter Anderson
John Banks
Pushpa Bhargava
Lincoln Bloomfield
Carl-Göran Hedén
Heitor Gurgulino De Souza
Susantha Goonitilake
Jingjiai Hanchanlash
Stanley Kalpage
Brian Locke
Mohammed Kassas
Morley Lipsett
Ruben Nelson
Francisco Sagasti
Andrzej Sicinski
Ivo Slaus
Alvin Weinberg
Walter Stinson

Comments by the following persons were made in writing or separate conversations.
Jose Furtado
Stephen Toulmin

Addresses and Contact Numbers

Harlan Cleveland, President
The World Academy of Art and Science
Falcons Landing, 46891 Grissom St
Sterling, VA 20165, USA
e-mail: hcleveland@compuserve.com
Tel: (1)(703) 450-0428 Fax: (703) 450-0429

Garry Jacobs
International Center for Peace & Development
2352 Stonehouse Drive
Napa, CA. 94558 USA
e-mail: garryjacobs@worldnet.att.net
Tel: (1)(707) 252-4697 Fax: (707) 252-8169

Robert Macfarlane
International Center for Peace & Development
2352 Stonehouse Drive
Napa, CA. 94558 USA
e-mail: garryjacobs@worldnet.att.net
Tel: (1)(707) 252-4697 Fax: (707) 252-8169

N. Asokan
The Mother's Service Society
4 Venkata Nagar Extension
Pondicherry, India 605011
e-mail: motherss@vsnl.com
Tel: (91) (413) 333759 Fax: (91) (413) 338338

Robert van Harten
Mira International
Achterwert 311-312
Almere Haven, 1357 DG, Netherlands
e-mail: miraint@worldonline.nl
Tel: (31) (36) 5348610 Fax: (31)(36) 5400181