

# *Reflections on Technology and Development: A Cultural Perspective*

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**M**Y MOTIVATION in writing this chapter is my feeling that I possess a certain ability to live and to view the universe, the people and the hereafter in a distinctive way. My need to express such an ability gives me a sense of meaningfulness and fulfilment, not only in this life but in the afterlife as well. I also feel that my identity and my culture are now in danger. It is my duty to mobilize all my abilities to proceed on the way of self/cultural realization. To me, this is the aim of life.

## INTRODUCTION

Why does the problem of bias (in terms of worldview, methods of research, and disciplines of knowledge) lie at the heart of our cultural and scientific interests? In spite of their “scientific death,” many terms related to modernization, development, and technology are still commonly used. They are employed equally by Western governments and world institutions as well as by some of the Muslim heads of state, ministers, technocrats, and bureaucrats working in Muslim sovereign bodies, research centers, and universities. It has been demonstrated that such terms cannot be used in different political and cultural contexts without there being a change in their meaning. Attempts at development that are based on Western concepts have failed in Arab and Muslim countries, as well as in Third World countries across Asia, Africa, and Latin America. Insisting on the continued use of such terms is indicative of only one thing: they are intended to replace religion. Muslims are expected to *believe* in modernization and Western technology. It is presumed that this religion endows

Muslims with the hope of achieving welfare and luxury in the “paradise” that Muslims will enjoy if they follow the Western model of development. What is required, then, is to reveal or unveil this “new religion.”

Furthermore, Muslims and their readers (who are assumed to represent the intelligentsia) are part and parcel of the crisis of Muslim societies. Muslims have all been subjected to the Western winds of change to varying degrees in the course of their cultural, scientific, and/or professional formation, whether at home or in Western societies. Assuming that the issue of choice is related more to society than to individuals, then Muslims have admittedly made many wrong choices under the deteriorating cultural, political, social, and economic conditions of our societies. They have opted for themselves rather than our societies. They have surrendered to the Western winds of change. They have turned into mere vessels into which various Western values, customs, attitudes, and disciplines are poured. Thus their minds have become a heterogeneous mixture of the modern/Western and traditional/Arab-Muslim cultures. The idea of mixture in itself is not hazardous; however, randomness and heterogeneity are, since they have obliterated the Muslim character and hindered Muslims from achieving their most sublime aim, which is to rebuild their nation based on an Islamic cultural perspective. Muslims have to change themselves first before they can change the world around them. They have to rebuild themselves before they can think of rebuilding their nation/society. They have to re-examine all the axioms, criteria and values which have governed their cultural, scientific and practical activities and which have been subjected to Western cultural bias.

The issue of bias is closely linked to the urgent matter of cultural independence. Time adds a dramatic dimension to the Muslims’ treatment of both issues. The more time elapses, the higher the price they have to pay. As time passes, Muslims become increasingly subservient to the West, culturally, politically, and economically and are faced with more and more restrictive terms and conditions in their independent cultural enterprise. There will be more lost chances as long as they serve as clients of Western civilization, which further destroys their abilities to realize a cultural enterprise in the future. In short, Muslims are in one of the most serious and critical situations that they have ever encountered.

## BASIC CONCEPTS

In this section we shall discuss some of the basic terms and concepts used in the chapter.

Culture is the totality of meanings, values, and relations that distinguish a given human group and that may be conveyed from one generation to another. In this sense, any culture is based on a certain view of life and the universe, and has its own justification for existence. It stems, in short, from a distinctive existential option. Culture is formed round a core of basic values and a distinct concept of the relations between human beings and the universe (the beliefs dimension), human beings and themselves, human beings and others (the patterns of social relations), humankind and the environment, humankind and time, humankind and knowledge, and so forth.

Though human communities may be similar in many aspects, they generally form distinct cultural structures.<sup>1</sup> The main differences among such structures do not stem from the elements composing them, since it is possible for distinct cultural patterns to have many elements in common. The main difference stems from the relative importance of each element within each culture, the function it performs, and the way it interacts with other elements in the same culture. It is possible for two cultural patterns to share a given element, though it may be dominant in one of them and recessive in the other. For instance, it may be argued that as a behavioral determinant, piety is present in Western culture just as it is in Arab/Muslim culture. However, it is hard to claim that such a feature has had the same pivotal role in determining the behavior of individuals in the West as it has in the Arab/Muslim world. Similarly, two cultures may share a certain element, though it may perform completely different roles in each of these cultures. What is of paramount significance, then, is the core of the culture concerned, i.e. the basic values and principles that govern and define life in that culture.

It is extremely difficult for the individual, group, or society/nation to be totally detached from its original cultural pattern and to adopt a foreign one.<sup>2</sup> (The degree of difficulty, in this context, increases as we move from the level of the individual towards that of the nation.) The process of a cultural shift requires the constant operation of a large number of foreign cultural elements for prolonged periods of time. If cultural

alienation is the process in which a sector of society/nation is impelled to adopt externally imposed behavioral patterns, then it is too complex a process to take place completely. It is difficult to bring about total or basic transformations in all the behavioral characteristics of an individual so that he may adopt the incoming culture. In this context, a number of questions may be posed. How deeply are such behavioral transformations rooted in the individual's psyche? How long can they withstand various circumstances? How long can they endure?

It is usually the case that superficial behavioral changes spread faster than the corresponding changes in the individual's inner world or reality. It may be easy for a person to adopt the material manifestations of the Western way of life, represented, for instance, by styles of dressing, eating, housing, and transportation (the private motorcar). However, it would be difficult – even if one consciously desired it – to adopt the dominant values and principles governing Western life in the same way.

There are two possible explanations for this. First, there is what anthropologists call the “instinctive transferability” of some cultural elements.<sup>3</sup> Elements of culture, in this view, differ as regards their amenability to being transferred to other cultures. The elements that can be publicly expressed and imitated (such as action patterns and, to a lesser degree, production patterns) are the most transferable of cultural elements. These are followed by the dominant concepts at the conscious level in the foreign culture, which are hard to express directly in external behavior (even though they may exist through verbal behavior, such as the values and frameworks that organize relations among individuals and the different classes of society). The most difficult elements to transfer are, in this view, cultural values which are latent in the subconscious and “which the ordinary individual rarely attempts to express verbally, even to himself.”<sup>4</sup> However, it is such values that form the point of departure for behavior in society. This latter category includes the basic philosophical biases which determine the relationships between human beings and the universe, nature, and other human beings, as well as the meaning and the aim of life. Diagram (1) is a simplified illustration of the levels of cultural structure in society/nation (note the direction of change from top to bottom, which is related to the ease of transferability).

Second, there is the method of transferring foreign cultural elements. The basic assumption here is teleology. The foreign culture imposes cer-

tain elements upon the conquered culture with a view to achieving a number of gains. This leads to a situation in which the conquered culture has contact only with selected elements of the incoming culture rather than with the whole set of elements. It is not logical for the incoming culture to give the conquered culture access to all its elements so that it may choose whatever it wishes.

Cultural invasion is the process by which a dominant culture attempts to subordinate another culture and deprive it of its independence. In this way, it can control and exploit that culture for the sake of its own pernicious development. Looked at from the inside, this process is a means of destroying integration and creating gaps in the structure of the conquered culture. Apart from any temporary gains that cannot survive any crisis, this process leads to the elimination of the vital creative potentials and the auto-dynamic abilities of the conquered culture, which increases its subordination to the dominant culture.

[Diagram 1]

LEVELS OF THE CULTURAL STRUCTURE IN SOCIETY/NATION

**Higher philosophical view**  
(A certain view of life and the universe)



**Justification and motives of existence**  
For society /culture



**Basic principles determining relations between:**

Man-Universe  
Man-Himself  
Man-Other men  
Man-The environment  
Man-Knowledge  
Man-Time



**Basic Ideas**

**Secondary Ideas**

**Organizational Structures:**

Institutions

Means/methods of production

Production/Consumption patterns



As used in this chapter, the term “Western” does not refer to the geographical or geopolitical sense of the word. It is a common practice to describe capitalist European countries as “Western” and socialist countries as “Eastern.”<sup>5</sup> However, the capitalist “West” and socialist “East” have much more in common than what is generally assumed (e.g., the philosophical view at the highly abstract level or the values governing the individual’s life). Perhaps the only difference between them, in fact, lies in the social mechanisms used and the distribution of social roles for realizing the Western model of modernization as well as the mechanism of distributing social resources. (The point can be illustrated by comparing the historical role of the class of capitalist entrepreneurs in Western European countries with that of the state in Eastern European countries in spreading modern technological achievements and “revolutionizing” the methods of production.) In either case, the term “Western” means applying the dominant principles and values as they appeared within the context of Western culture looked at from a historical perspective (in ancient Greece and the Roman Empire) and which were revived in Europe after the Renaissance.<sup>6</sup>

#### WE AND TECHNOLOGY: A CRITIQUE OF SOME COMMON TERMS

##### *The Term “Technology”*

Since the term “technology” is commonly used by scientists, laymen, and politicians alike,<sup>7</sup> its meaning has grown increasingly obscure<sup>8</sup> and its use associated with a kind of “halo,” which makes its discussion difficult. This term appeared in English as early as the 17th Century,<sup>9</sup> when it was used to mean “discussion of applied arts.” The Greek origin of the term *technologia* means “systematic treatment.”<sup>10</sup> However, the term soon came to be used to refer to the applied arts themselves. The term has also been used to denote equipment and machinery, techniques for producing equipment and machinery, different products, and the development of such techniques.

It is necessary to draw a distinction between the technique for producing a commodity or a service and the modification of such a technique in order to arrive at new methods of production. *Technique* determines the method of production performance, whereas the modification of technique and finding new methods are referred to as *technology*. Obviously,

technique in general is a product of technology. It seems that the high speed at which production techniques change in the industrial Western countries has contributed to blurring the distinction between “techniques” and “technology” (which is the activity that produces techniques). This is particularly true with the gradual disappearance of the social/professional barriers between those working in the field of technology (research and development of human resources) and those who prepare work systems according to the new techniques for pilot operation and production of the first prototypes.

It is similarly necessary to distinguish between *technique* and *equipment* (whose definition is sometimes extended to cover all the material elements that are necessary for production, such as previously prepared raw material, machinery, tools, installations, and buildings). In order to be applied, any technique needs material media that are prepared in accordance with the requirements of the technique itself. With the rapidly growing scientific and technological development, an increasing number of the components of technique are being incorporated into equipment/machinery, and even in previously prepared material. Technology, then, is an activity that aims at modifying production techniques or developing new techniques.

#### TECHNOLOGY: A HISTORICAL LOOK

The previous section was intended to show, first, that there is a difference between technique and technology. Technique is strongly linked to the activity of production itself (any production activity is performed through a certain technique). Technology is an activity that takes place in the mind and in the physical reality at a level higher than that of production, with a view to modifying or developing other techniques of production. Second, I wanted to emphasize that the suffix *-ology* in the word *technology* does not necessarily mean that technology is related to the scientific experimental method which has been dominant in the West for the last three centuries. Such a misconception may lead some to think that technology, as a human activity, is foreign in character and in origin. In many popular conceptions, technology has become a foreign “commodity” that can be purchased and imported. This latter point is elaborated below.

Let us begin with what is general to humankind as a species, or as one of God’s creatures. It is known that one of the main differences between

humankind and animals is that animals are controlled by a strict genetic program that determines their actions and activity, while human beings are born with a very flexible genetic program. It can even be said that man, unlike animals, does not have any fixed action patterns. The only role of heredity is to transfer general features representing the raw materials for an individual's abilities, skills, and character. Man's behavior is primarily determined by his interaction with the cultural environment.<sup>11</sup> Here comes the role of awareness (or consciousness) in determining man's actions. While animals lead only an external life, man leads both external and internal lives. Man interacts with the concrete world, apprehends external stimuli through his senses, classifies and stores them in his memory, then deals with them through his mind and imagination, thus developing new concepts that do not exist in the world of reality. Then he turns to reality and reorganizes it according to such new concepts. Here, in particular, lies the technological component in man's mental activity, both at the conscious and the subconscious levels. Technology, in this sense, has always accompanied human development in all its stages.

The above concept may become clearer if one contemplates the relationship between man and his body. For instance, the great developments that accompanied the appearance of different languages and the perfection of the pronunciation system (a process which was completed over several centuries) could not have occurred without the presence of an important technological component. Where there are tools (the tongue and the oral cavity), techniques (mechanisms of pronunciation), and modification of such techniques (development of languages), there is technology. Similarly, we cannot imagine the great development of primitive folk arts, such as dancing, in many cultures without an accompanying technological component (in the broad sense of the word *technology*).

Let us follow the path of technology or technological activity over the ages. We may regard the Industrial Revolution and its ensuing massive technological innovations as the threshold between two distinctive periods of technological development. Before the Industrial Revolution, technology had been an accidental activity mainly governed by mere coincidence. Some techniques had remained without any significant change for long periods of time. Technological development had been based primarily on the experience accumulated over long periods of production

activity and gained by some natural experiments, some of which were planned while most were the product of coincidence. The period of the Industrial Revolution witnessed rapid acceleration in technological development in which science played no role. The economic and political conditions at that time (the colonization of the New and Old World and the availability of unprecedented financial resources, services, and markets) offered great impetus to technological development. At the same time, it was technology that provided impetus to scientific activity. The enormous increase in the production of textiles that resulted from technological innovations in equipment caused a demand for artificial dye, thus using science as an aid to increase productivity. Similarly, the appearance of the steam engine coupled with the development of new important fields for its application provided impetus to scientific research in the areas of gas dynamics (discovering the general law of gases).

Science continued to play the role of a catalyst until around the mid-19th Century, when industries owing their existence to science began to appear (such as the chemical and electrical industries). Such industries established a new pattern for the science-technology relationship. Since then, scientific activity and its products have become important pillars for technology. With accelerated progress, there is more reliance upon science. Technological activity turns into planned activity performed by specialized institutions, which are based mainly on science, as well as accumulated experience (though coincidence may still have a role in this system).

To sum up, just as some projects are delivered to us ready made, so it seems that some concepts are passed on to us in the same way. They are exported to us readily packaged for political and social use rather than for technical use. In any case, we need to learn to distinguish between “technique” and “technology.” Technique is strongly linked to the production activity itself, representing, as it were, its “neurological system.” Technology is a more abstract pattern of human action, which is independent of production activity and of science. For science, in the final analysis, aims at reaching the truth, whereas technology aims at changing reality. This is not to deny that technology underwent a qualitative change in its relation to human activity after the Industrial Revolution, which brought it closer to science. We can clearly distinguish between traditional technologies and modern, Western technology.<sup>12</sup> The former are governed by

the accumulation of acquired experience and are based on an ideology that revolves around considerations of balance, settlement, and survival. The latter is governed by scientific research and is based on a rationality that revolves around profit and capital accumulation. In this way, we can conceive of technology as a basic feature of culture and of human progress (Diagram 2), as involving potential for the individual and the group to interact creatively with the surrounding environment (in the broad sense of the word “environment”), as a method of dealing with reality, and as a special kind of human activity.

Such a conception of technology leads to a number of conclusions. First, there can be science without there being technology; there can be intensive scientific research without any technological outcome relating to changing and interacting with the reality of production. Second, there can be technologies without science (with some reservation), i.e. without a consciousness of the abstract scientific theory or general scientific laws governing the phenomenon concerned. It is hard to believe that those unknown technologists, who innovated many important techniques without which the great achievements of civilizations would not have been realized, were not aware of at least some aspects of scientific theory through the accumulation of observations and experiences in addition to intuition. The trouble may be that the scientific vision of those ingenious “old technologists” was personally associated with them. It was not written separately in the form of laws or theories. Third, the discovery of scientific facts that explain the operation of a given technique (as in the case of the general theory of gases and the steam engine) or the converse situation, where the technique is based on science (as in case of the chemical industry), allows a higher degree of control of the production activity. This in turn allows a qualitative transformation in productivity and in the spread of the technique applied. It also permits us to make full use of the potentials made available by the technique applied.

As a society and as a nation, the Arabo-Islamic world has not yet been socially or culturally prepared for the scientific and technological changes required for entering the 21st Century. Therefore, it needs to prepare itself for the hard task of undertaking changes, beginning with its members changing themselves until they change the reality around them. It follows that the Arabo-Islamic world ought to form its own concept of technology as an axis of social and cultural change that operates syner-

gistically with other axes, rather than a ready-made “ticket” which it buys to catch the train of Western modernization, leaving behind the luggage of the past. Does it not sometimes perceive modernization in such a simplistic way?

#### TECHNOLOGY TRANSFER

The term “technology transfer” has been one of the most commonly used terms in the field of development and in discussing the relationship between the North and the South, the former being technologically advanced and the latter technologically backward. (The “South” refers mainly to Asian and African countries, though admittedly the position in Africa is interim. Asian countries have made considerable progress, which began with Japan and China. Now we have what are called the “newly industrializing countries” or “the four little dragons,” i.e., South Korea, Taiwan, Hong Kong, and Singapore.) As used today, the term is associated with two serious fallacies:

(1) The term assumes a one-way transfer relation between two parties, one active (the giver) and the other passive (the recipient). It also assumes that the process of transfer is similar to filling up an empty vessel whose shape is unchanging throughout the process. The most serious implication of such an assumption is that the recipient does not possess any technology. The common understanding of technology transfer does not take into account the idea of interaction with given local technological capabilities. Rather, it assumes that there is a technological “vacuum” that has to be filled.

(2) The term assumes that technology is an “object” that can be transferred from one social-cultural context to another. This is totally untrue. Many experiments in several Third World countries confirm that technology is non-transferable. According to an important piece of research,<sup>13</sup> technological ability is divided into four stages:

1. Acquisition (looking for and evaluating available alternatives, negotiating purchase, designing the factory, manufacturing equipment, installing, and pilot running).
2. Operation (operating the factory, maintenance, product quality control, stock control, and human resources training).
3. Adaptation (assimilating technology or having the ability to

[Diagram 2]

VIEW OF LIFE AND THE STRUCTURE OF VALUES ASSOCIATED  
WITH A PATTERN OF WESTERN MODERNIZATION

Man as the center of the universe

There is no life except the one we are living (Secularism)

Existential refusal of death; evading death as a truth, a process, and a natural end to the individual's life

Symbol as a quantity only – as a measure of productivity, self-accomplishment, and mobility. Time as a commodity that can be consumed or exchanged.

Desire to evade the pain associated with realizing the truth of death (the death of an individual or the ones he/she loves). Hence the loss of desire and ability to identify with others, which may cause pain. Falling in love with oneself: self-worship

The worship of life as an idol, and hence the worship of youth, strength, and vitality.

Tendency to compensate as a mechanism for adapting to the above situation. Speed as virtue. Tendency to overestimate pragmatism: power, material profit, material luxury, sensual pleasure, and intense consumption.

A way of life that ignores death and acts for distracting humankind from its truth by all possible means; its priority is to achieve the highest degree of material luxury. Resources, however, are limited by nature.

Competition and conflict as basic values; Strength (violence) as a basic means to settling conflicts; Aggression as a favourable moral feature and value.

*Collapse of relations of dialog, co-operation, social solidarity, and mercy.*

imitate products and make minor modifications in the process of operation).

4. Innovation (performing research and development, making substantial modifications in products or creating new ones, making substantial changes in processes, innovating new processes, inventions).

The above research affirms that it is possible to transfer elements of technological ability only at the stages of acquisition and operation. Unless great effort is exerted by the Arabo-Islamic world to build its own technological abilities, it will never be possible for it to reach the stages of adaptation and innovation, which are decisive for technological independence. It seems that the confusion between technique and technology is one of the causes of the fallacy of technology transferability.<sup>14</sup>

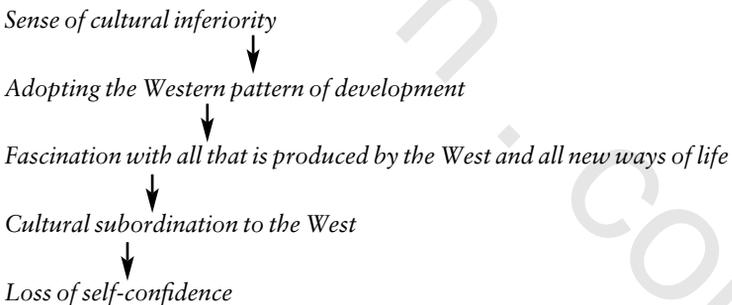
Before the Industrial Revolution, the dominant trend in Europe had been the transfer of techniques (which are indeed transferable with varying degrees of precision) from one culture or society to another. They had been transferred through acquired knowledge, through tools and machines, through the products themselves sometimes, and through the semi-manufactured raw materials. In most cases, the transfer of such elements did not have any detrimental effect on the recipient cultures. The local socio-cultural fabric usually assimilated the external elements so that they ultimately became integral parts of it. It seems that the development, transfer, and assimilation of techniques occurred so slowly that the homogeneity of the recipient cultures was not affected. In this way, many technical innovations were transferred among different societies and cultural arenas. Examples of such innovations are the military carriage (from the Hyksos), the mandolin (from the Greeks), and the water wheel (from the Romans). There are also different techniques of production in different fields, such as construction and agriculture.

Sometimes, however, the technological abilities themselves were transferred through the movement of individuals and groups from one society to another. But the recipient socio-cultural fabric was generally able to absorb the incoming elements so that they worked according to its own laws and in harmony with its cultural structure.

The new variable that accompanied the Industrial Revolution, which became more effective with the scientific technological revolution, was

the enormous acceleration in technological development. New techniques appeared, then were quickly replaced with even newer ones. The process occurs so dynamically that the assumed age of any technique (its appearance, spread, and moral obsolescence)<sup>15</sup> is continuously decreasing. In this context, the dominant attitude in Third World countries (especially Arab and Muslim ones) is to formulate and implement development plans that are based on the transfer of techniques from the industrial Western societies or from Japan. This attitude leads to a two-fold dilemma:

- The social and cultural effects of transferring huge production structures, such as agricultural, industrial, and service production systems which have not been adapted to fit the socio-cultural fabric of the recipient society.
- The “nihilistic” attitude, which adopts the Western pattern of development and considers it possible to realize Western goals in our societies by imitating the industrial Western societies. This attitude establishes cultural, political, and economic subordination to the West. It can be illustrated diagrammatically as follows:



As for the technical aspect of this attitude, the fast-changing rhythm of production techniques in different fields turns what is generally called “technology transfer” into a sort of addiction. This is exactly the relationship between Third World countries, particularly the Arab and Muslim ones,<sup>16</sup> and the industrial Western countries as well as the world capitalist market in general.

There is another important conclusion yielded by the above treatment

of the terms technology and technology transfer. If the Arabo-Islamic world considered the failure of its development plans, it would stop asking itself questions such as: Have we succeeded in transferring Western technology to our societies? Or rather, have we succeeded in transferring sufficient Western technology to our societies? How do we improve terms of negotiation regarding technology transfer? How do we secure the financial resources necessary for transfer? Questions would then take a different direction. The Arabo-Islamic world would ask itself: If technology in the final analysis is a human ability that aims at changing the world, then where are our technological abilities? Why have such abilities abated in our case and flourished in the case of other nations? Why do we not feel endangered by the widening chasm between the technological and scientific abilities of the world's dominant cultural powers and our own abilities? What does this signify to us? Why do we not sense this imminent danger?

If, on the level of institutions, groups, and individuals, technology depends on examining the conditions of production and modifying the techniques used, then questions such as the following arise: Why do we not innovate technology? Does the problem lie in disloyalty (failure, or rather unwillingness, to identify psychologically or mentally with the conditions of production, whether in the factory, the field, the service institution, or the governmental department)? What are the reasons? Does the problem lie in the fact that we do not possess the motivation necessary to develop the conditions of production and which are simultaneously compatible with the cultural structure of society? Is it that the individual's behavioral motives are contradictory?

However, these questions could assume a more positive orientation, represented by the following: How can we assimilate technology as a potential and a feature of our cultural structure? How can we revive such motives and values as "love of work," "perfection," "learning," "diligence," "innovation," and "creativity," which are essential to technological vitality? How can they be incorporated into our cultural structure? What are the policies that the state should adopt in order to build up the technological abilities of our society/nation? What are the necessary resources (e.g., capital, knowledge, information, equipment, abilities, and skills)? What is the role of factory, farm, school, university, mosque, and family in this context?

THE "ARABO-ISLAMIC WORLD" AND THE WESTERN  
MODEL OF DEVELOPMENT

The 20th Century witnessed the spread of the notion of development as a prerequisite to the progress and welfare of peoples. In the 1950s, following World War II, this idea gained much ground in industrial Western societies.<sup>17</sup> There arose a concept of development which made economic growth, in the quantitative sense, the highest goal of society.<sup>18</sup> In that same decade, many Third World countries gained independence and embarked on development. The common feeling at that time was that "all roads lead to Rome" and that there was only one model of development for all countries irrespective of where to begin or how fast to proceed. The following decades (since the 1960s) have witnessed intensive endeavors by many Third World countries to achieve development according to the Western model. The term "developing countries" has been commonly used to refer to those Third World countries which adopt the Western model of development. Compared with the term "developed," which refers to the industrial Western countries, the term "developing" reflects the view underlying it. It is one way and one goal; the Third World's present is the Western countries' past. All the Third World has to do is to follow the ready Western model.

Such attempts have obviously not achieved their goals.<sup>19</sup> Most Third World countries are now suffering from large debts, not to mention the enormous socio-cultural and environmental problems resulting from such development attempts. Therefore, many countries that tried the Western model of development have decided to take the opposite approach and return to their indigenous cultural norms. Some countries have already taken such a stance. It is also being adopted by an increasing number of intellectuals as well as members of many Arab Muslim societies.

There are important responses on the part of some international organizations concerned with development (such as UNESCO and other UN agencies).<sup>20</sup> Such responses come under the label of "taking into consideration the cultural dimension of development." However, the attitude toward "others" (i.e., toward societies not belonging to the Western culture) is not clear. There are justifiable fears that the increasing concern with the cultural dimension may be confined to areas such as the following:

- Employing the mechanisms and specific features of the other cultures to articulate social models of modernization according to the Western model.
- Supplying Western cultural powers with information about other cultures, assimilating such information to support Western models and thus enabling them to further destroy such cultures.

As for the view that rejects Eurocentrism, it admits other cultures' right to live, flourish, coexist and positively interact with other cultures, recognizing that this is the true path to human progress, peace, and civilization. However, this orientation has not yet crystallized into a clear stance.

*Factors and mechanisms associated with adopting the Western model of development*

If one considers the Arab/Muslim societies over the last four decades, one will observe that they have undergone enormous changes. New social, economic, and political institutions have appeared. Lifestyles and consumption patterns have changed dramatically. These changes, however, have not occurred within the framework of a modernization process that is endogenously initiated, but rather within the framework of adopting the Western model of development and subordination to the West (be it socialist or capitalist). This poses the following questions: *What factors have facilitated the adoption of this model? What are the mechanisms through which this model with its various dimensions has spread in Arab/Muslim societies?*

(1) Loss of self-confidence in the cultural sense. Such a loss of self-confidence leads to indiscriminate fascination with Western civilization and all its symbols. It may even result from Arab/Muslim societies having a sense of inferiority towards the West and in having passive feelings towards themselves. It may also lead to a desire to deny all that is traditional or inherited<sup>21</sup> while flocking toward all that is "fashionable," provided that it is a "Western" product.

It does not matter what the nature of the product is; it could be a consumer good, a production tool, or even a computer. What matters is to purchase Western goods, not because of their original function, whether as production or consumer goods, but because they function as "Western

makeup” or Western cultural symbols associated with concepts such as modernization, modernity, and progress.

(2) The presence of certain cultural elements or tendencies in Arab/Muslim societies<sup>22</sup> that represent a propitious cultural background for the predominance of the above stance toward Western culture. This stance, in its turn, fosters such elements or tendencies. It can thus be argued that the spread of such products supports some values and behavioral patterns that reinforce their dissemination. This need not be beneficial to the society/nation’s development. On the contrary, it usually acts against such development, if its historical dimension is taken into account. For instance, the Western consumption patterns may result in supporting the values of individualism in a society that urgently needs the values of collectivism to effect drastic changes in it. They may support the values of pragmatism, earthly pleasure, and welfare while the society in fact needs the value of self-sacrifice. They may support the values of power centralization at a time when decentralization is needed. They may create acute social differences at a time when social rapprochement is needed. It is not hard, then, to see how this can be detrimental to society. There are many examples that illustrate this point:

- The way in which Arabs/Muslims receive many Western technological products in their society can be regarded as a revival of the traditions of magic in their heritage. Many words and expressions, such as *the latest achievements in science and technology*, *electronic*, *automatic*, and *by computer*, are used in mass media, by many officials, and by lay people, in a way that suggests that there is a magical power that can very easily serve humankind. All that one has to do is to press a button to launch that giant magical power. Such a “magical” reception of the products of Western technology, accompanied by a lack of understanding of their design and performance, is indeed a revival of the tale of *Aladdin and the Magical Lamp*. Contrary to what many people think, the current stance towards Western technology supports irrationality in the Arabs/Muslims’ views of life and their economic choices.
- The rapid growth of industrialization in Egypt in the 1960s, and particularly during the first (indeed, the “only”) five-year plan (1959–1964), which was associated with establishing the indus-

trial public sector on a modern basis and accomplishing giant projects using Western technological products, can be regarded as a revival of ancient Egyptian traditions. The concentration of hundreds of industrial installations with their Westernized organizational patterns in the suburb of Helwan represented a powerful move towards centralization of power in the political and social sense. Furthermore, the shift in the socio-cultural structure of Egypt, which was associated with the domination and support of technocrats, led in its turn to accepting more Western technological products in the fields of production, infrastructure projects, and services that suited the process of centralization in management and administration. From this perspective, the industrialization plan of Egypt in the 1960s can be viewed as a revival of the tradition of centralization at a historical moment when society was looking forward to effecting more changes in its structure. Therefore, it was in need of decentralization and democracy rather than centralization and technocracy.

- The spread of many Western technological products in the areas of consumption, communication, and transport is associated with assigning new forms to some of the dominant values of the socio-cultural fabric of the local society. Such values are thus expressed differently in order to cope with the spread of new Western technological products. For instance, one of the values that are dominant in the community of Arish in North Sinai is vainglory. Before the Israeli occupation of Sinai in 1967, when the community of Arish consisted of a number of large families bound together by strong ties, this value was commonly expressed through generosity, which was translated socially into redistribution of wealth and social solidarity.<sup>23</sup>

During the Israeli occupation, the value of vainglory took different forms. It was expressed through intensive, individualized consumption of products such as private cars, consumer durables, and clothes. These new forms of expressing the same value were more compatible with the Israeli technological products in the field of consumer goods. Looked at from the inside, however, these new forms of expressing vainglory were not well-

suiting to the socio-cultural structure of Arish; in fact, they led, together with other factors, to the disintegration of that very structure.

(3) The fallacy that imported capitalist products and equipment represent the main path to progress and enhancement of production has led to a lack of compatibility between human beings and machines, whether at the stage of selecting equipment or at the stage of training in operation and maintenance. This situation has resulted in the absence of a positive relationship between the technicians and their tools of production. Such a relationship, if present, would make them more careful about using and maintaining their tools. As a result, many scientific and technological achievements incorporated in the imported equipment have not been truly assimilated by our society. Similarly, the potentials of the techniques used in production are normally not exhausted before moving to more modern techniques,<sup>24</sup> a fact which has reduced the technological revenue – or surplus value – of the process of importation, which in turn has reinforced the Arabs/Muslims' position as “consumers” of Western technological products.

There are a number of factors that have contributed to the spread of Western technological consumer products and the Western consumption pattern as a whole. Among these is the adoption of this pattern by the higher social classes, as a result of which it has become a symbol of social distinction that can be easily purchased by the lower classes. Let us assume, for instance, that some Western commodities (say, clothes) have started to spread in some of the Egyptian poorer areas, such as Boulak al-Dakrou, Imbaba, and Matariya. Would the adoption of such commodities by the lower social classes help in their spread among other classes of society? Another example is the spread of the popular “galabias” made in the village of Kirdasa among the higher social classes in Egypt after they became popular among the foreign tourists visiting Egypt, which seems to have been a “certificate” of the validity of such products. History is replete with examples like this, the clearest of which is perhaps the spread of the European style of furniture in Egypt.<sup>25</sup>

There are two factors that led to the domination of the Western pattern of consumption in the societies of the area. The first of these was the call to reduce differences among the classes in a non-revolutionary

atmosphere, yet without originality and creativity on the part of those who adopted this slogan. An important example here is the 23rd July Revolution in Egypt, whose view of social freedom was rather superficial. According to this view, the poor should obtain the same commodities as the rich, however low their quality may be. The Revolution coined slogans such as the “popular dwelling,” the “popular suit,” the “popular refrigerator,” and the “popular car,” which on the whole flirted with the consumption aspirations of large classes of the populace and ultimately led to tying the people to the Western lifestyle and consumption pattern in general. In fact, it helped achieve this goal with greater efficiency than any Western propaganda could have hoped to. The distribution of popular flats on a large scale entailed putting an end to the “large house” that had contained an extended family and which represented an authentic cultural formula characterized by several advantages.<sup>26</sup> Moreover, it accustomed people to the Western housing pattern and the lifestyle of the isolated nuclear family with all its psycho-social disadvantages and consumption patterns that are nationally inappropriate. It also stimulated people’s ambition to have a similar home but of a better quality. The same applies to the clothes, the refrigerator, and the car, which led to the spread of the Western consumption pattern among all classes of society.<sup>27</sup> This may be one of the main disadvantages of that phase.<sup>28</sup> The second of these factors is the income increases that accompanied the oil price rises beginning in 1974, and which had a strong impact upon all the societies of the region through temporary and permanent emigration of labor. This in turn led to the spread of the Western pattern of consumption in the whole area.

#### SOME EFFECTS OF ADOPTING THE WESTERN DEVELOPMENT MODEL

The adoption of the Western development model in Arab/Muslim society created unbalanced exchange relations that turned its members into customers of all the consumer goods, durables, tools of production, techniques, and services produced by Western culture. It is interesting to observe not the change itself, but the way in which it was effected. Change did not take place through people’s self-development, awareness, and participation. Rather, it was a kind of replacement of the established native-cultural structure, which led to the disintegration of the socio-cultural fabric of the nation. Here are some examples:

The fast spread of Western consumption patterns, particularly since the 1970s (represented, for example, by the modern flat, the private car, and European furniture), has led to the disintegration of the socio-cultural fabric in very large sectors of the countryside and local communities in small towns. This, accordingly, has destroyed the rich production potentials of that fabric. The materialistic components of the Western consumption patterns could not be competed with by the local consumption pattern that was provided by the local production structures. Furthermore, the process of replacing the local component of the consumption pattern with the foreign component was in fact a replacement of a multi-functional component with a mono-functional one. A ready example is the traditional home that had been dominant in Arish, North Sinai, before the Israeli occupation. That type of house, which was inhabited by an extended family consisting of many nuclear families, featured abundant craft activities that included weaving, pottery, and the making of palm-leaf products. It also provided a rich socio-cultural life. However, when the Arishi house was replaced with a house of the Israeli type (during occupation) or a modern flat in a flat block (after the return of Egyptian administration), it lost its rich productive and socio-cultural functions for a mono-functional component (only for non-productive nuclear family living). Since the process of replacement is in one way or another exogenously imposed (i.e., from outside the local community) rather than stemming from the local society within the framework of a comprehensive process of transformation, there was no attempt to find new forms to perform the vacant functions resulting from the above replacement process. The result was many voids in the socio-cultural structure of the local society, ultimately leading to its disintegration and the destruction of its productive potentials.

Nature is among the victims of this replacement of the local consumption pattern with the Western one. As a result of rushing towards Western alternatives, dozens of elements of the flora of the local communities, which used to play a major role in the production of locally manufactured commodities, are ignored. The result is the total destruction of flora in the area (the palm beach of Arish, North Sinai, for example, is on the verge of disappearance). It is not simply a matter of losing important economic resources. What is more serious is that the natives of the area are alienated from their cultural identity, for the psychological

association with nature is one of the most important dimensions of cultural affiliation.

A similar situation holds when foreign production systems replace local ones. This kind of replacement is usually associated with a process of socio-cultural disintegration of the local community. For example, land in the areas adjacent to Mersa Matrouh (north of Egypt) is not only a factor of production, but also a source of socio-cultural equilibrium for the local community. The whole of the Western Desert can in fact be viewed as a chessboard of tribal formations. Land there is distributed with precision among different tribes according to established rules that have been applied for many generations. Land is thus not considered the private property of the individual or even of the tribe; rather, it has a socio-economic function. The rules governing the distribution of land there are very important for the preservation of the environment.<sup>29</sup> Water in the Farafra Oasis in the Western Desert of Egypt is not merely an economic resource; for the socio-cultural fabric of the community of the oasis is strongly tied to the water springs there. The distribution of water is one of the most important functions of the socio-economic fabric in Farafra. Thus, the introduction of Western systems of production, which have a narrow, strictly functional view of the resources of the local community, deprives the socio-cultural fabric of some of its vital roles without offering alternative forms to perform such roles.

Mass media, particularly TV, have destructive effects on the socio-cultural fabric of the local community. The problem lies not in the scientific principle used,<sup>30</sup> but in the socio-cultural model represented by TV as it is currently used, i.e., as a means of transmitting information, and hence of forming human beings' awareness. Human beings in this case are viewed as individuals or rather as objects that are completely manageable by the socio-political system controlling TV. The relationship here is a vertical, mono-directional one, where information is conveyed as ready-made packages to individuals in the form of monolog. When family members sit in front of the TV, the live dialogs between them turn into monolog relations between the TV and each one of them in isolation. At the same time, the disintegration of the social fabric leads to the spread of an isolationist pattern of social life, which in turn creates a new need, namely, the need for the TV set. Individuals who spend a great deal of their time in isolation, be they mothers, fathers, or children, establish strong relations with the TV

(or the video, the radio, etc.), which gradually turns into an alternative to live communication with other people.<sup>31</sup>

Western means of transportation usually have a detrimental effect on the socio-cultural fabric of local communities, especially in the countryside. Place in such communities, be it the house, the road, etc., is an expression of a particular socio-cultural logic. Such logic is extremely sensitive to considerations of privacy and therefore it allows a gradual movement from private to public space. When wide asphalt roads are extended through any village, this logic is mercilessly destroyed. In addition, asphalt roads lead to the presence of private cars, which are associated with a strict division of the road between those who possess private cars and those who don't. Moreover, the function of the road changes as well. Instead of being a place of work, learning, fun, social gathering, and interaction with nature (as in many rural or desert areas, e.g. the Farafra Oasis in the Western Desert of Egypt), it turns into a mono-functional place. Thus the asphalt road eventually represents a place where individuals compete by force (expressed by speed, headlights, and horn sounds).

The ability of a society to defend itself against any form of cultural invasion (one of which being the spread of Western technological products) depends on the strength of the social solidarity that allows society to control its individuals' behavior. On the other hand, the control functions performed by the socio-cultural fabric are balanced by other functions – those of satisfying the basic material and spiritual needs. However, the replacement of local means of satisfying material needs with foreign ones (e.g., consumer products of Western technology) deprives the socio-cultural fabric of the local community of its means of satisfying both material and spiritual needs. According to the holistic approach of the local community and traditional technologies, the satisfaction of material needs is strongly linked to that of spiritual needs; there aren't clear boundaries between them. Thus the equilibrium between the control and the satisfaction functions of the socio-cultural fabric collapses. This in turn leads to the collapse of the legitimacy of the control functions of that fabric, which weakens the society's solidarity and its ability to resist the further spread of Western technological products.

Official education is one of the main factors that lead to the disintegration of local communities, the loss of their cultural distinction, and

the destruction of much of their traditional knowledge and technological experience. For instance, the organizational structures of the official university education in Egypt are mostly distorted copies of those of Western societies. Similarly, courses and methods of teaching are literally copied from their Western counterparts. Perhaps the main difference between them is merely due to a time lag; the current courses are old compared with the Western ones. It is not strange, then, that our official university education institutions do not benefit from the rich heritage of education in our culture (e.g., al-Azhar, the first university in the world). Therefore, it is not surprising that there is no reference to the nation's heritage in the fields of science and technology in an educational atmosphere that glorifies Western achievements and abilities in such areas. Furthermore, scientific research in its current form in educational institutions is mostly isolated from the problems of society and imitates Western institutions in the selection and conduct of scientific research. This pattern of education has produced a kind of educated people who are unable to interact with their socio-cultural environment. For the language of science, which is often one of the signs of social distinction in Egypt, is the wall that isolates our educated people from the reality of their nation and society. The educated people's failure to communicate with the ordinary people in a comprehensible language is not simply a formal issue. Rather, it is the issue of the legitimacy of science in Egypt. The chasm between the educated and the uneducated in our society will remain unbridgeable as long as the educated people carry out their scientific activity within organizational and cultural frameworks that are alien to their local counterparts.

Official education, with its extreme centralization (at the school and university levels), is also unable to sense the cultural differences between different provinces and areas. The ideal that such education establishes is the bureaucratic or technocratic personality rather than that of the social reformer, which is probably more suitable for our socio-cultural fabric. Thus, from the local perspective, official education (at the school and university levels) represents a centrifugal force that alienates the educated youths from their cultural environment and pushes them to large cities, where the Western lifestyle, which is more compatible with the official education structure, is dominant. The rich scientific and technological cultural heritage of local communities is never examined, modified, or

revived over different generations. This increases the gap between the stagnant traditional technology and modern Western technology, making the former inferior to the latter. This in turn creates an increasing need for Western technological products.

In this way, life according to the Western model of development represents continuous training in alienation due to:

1. Working with individuals who have one-dimensional work relations with each other in a market-oriented production activity;
2. Living in isolated nuclear (and birth-controlled, of course) families, in identical small flats in high buildings;
3. Hectic rushes on consumer goods and durable, which vary more with each passing day;
4. Diminution of the time allocated for maintaining social relations and learning;
5. Gradual captivation by mass information media, which continuously feed citizens with news and events without giving them any real opportunity to participate in such events;
6. Walking in crowded streets full of strangers and cars, which intensifies one's sense of helplessness and reinforces one's condition as an indifferent viewer of life.

All the above leads to the ongoing disintegration of the local communities in the area under the influence of Western technological patterns.

The disintegration of the socio-cultural fabric of society under the influence of modernization in the Western sense, together with the loss (or dissolution) of cultural identity, simply means that the moral and spiritual foundation of life, as known in that society, has been demolished. This creates a profound lack of self-confidence and loss of inner security, which leads to a hectic search for external means of self-assertion. In the absence of a real sense of identity (which is necessarily cultural), and given the disintegration of character, individuals are inclined toward compensatory rather than integrated action patterns. In such a case, individuals do not seek harmony and coordination in all areas of life, but rather seek compensation for what they have lost in one area with what they can gain in another. This behavioral pattern, which is an expression of "cultural schizophrenia," lies behind the spread of some extravagant and illogical

Western consumption patterns and new patterns of delinquency (e.g., drug addiction and the spread of crime) in many societies in the area.

#### DEVELOPMENT OR CULTURAL RESURRECTION?

It is obvious from the above that adopting the Western model of development means, first, accepting the formula of Western modernization as it is, including Western political, social, economic, and cultural institutions and the dominant division of labor and lifestyles regardless of the resulting social, cultural, and environmental cost. Second, it means taking the industrial Western countries as the only model to follow, and thus turning Arabs/Muslims into followers, rather than students, of Western culture. There is a major difference between the two positions. The student's position is a temporary one (some students even surpass their teachers). The follower's position, on the other hand, is assumed to be permanent.

What does this signify at a higher level of abstraction? It is known that one of the main functions of cultures is to produce and reproduce values (i.e., to revive old values and give them new content which is in harmony with new spatio-temporal contexts). In addition, one of the main criteria for judging the originality and vitality of social and cultural changes and revolutions is their ability to produce values. Given the above, what does the follower's position (that of following the Western model of development and imitating the West) mean? It simply means deprivation of one of the main functions of culture, i.e. production of values. Such deprivation not only leads to the loss of cultural distinction and originality, but also entails the loss of the vital energy that is necessary for great achievements. Values are the keys to great social and cultural potentials. Deprivation of the opportunity or ability to produce values will have a direct impact on material and intellectual production in various fields. This will ultimately turn us into a mere spatial extension or suburb of Western culture.

#### NEED TO ABANDON THE WESTERN MODEL OF DEVELOPMENT

There is an urgent need to abandon attempts to adopt the Western model of development. Such a model is undesirable because it is closely associated with the Western formula of modernization, which stems from a secularist view of life that puts humankind at the center of the universe and denies the afterlife.

The existentialist motives behind the Western model of development aim at achieving maximum luxury for humankind as the highest goal of life. According to such motives, the inevitable conflict between the above goal and scarcity of resources is not settled through self-control or reconciliation, but through employing science and technology to further control nature, and also through competition at the social and international levels without regard for environmental or socio-cultural problems which arise as a result. Perhaps this view is reflected in the terrifying polarity between countries that possess enormous scientific and technological abilities, in addition to nuclear arsenals that could destroy the world several times over, and other countries whose populations are threatened with starvation. Indeed, income levels in developed countries are a hundred times more than those in developing countries.<sup>32</sup>

In addition, the Western development model represents an unrepeatable phenomenon. The success of this model depended on unrepeatable historical conditions: the spread of European imperialism, the colonization of the old and the new worlds, the unprecedented accumulation of material wealth,<sup>33</sup> the availability of labor and raw materials at cheap prices, and the presence of large markets for European products with almost no competition. At the same time, it entailed a high social and cultural cost which has been paid by some social strata of Western society itself as well as many Third World societies.

Furthermore, this model, as scientific research increasingly affirms, is incompatible with the biosphere. Western technology, with which the model is associated, uses natural cycles only marginally. At the same time, it unjustifiably exhausts many non-renewable resources.<sup>34</sup> On the other hand, the employment of such technology results in waste that is incompatible with the biosphere.<sup>35</sup> As such, they threaten some natural cycles that are necessary for preserving and reproducing the conditions needed by vegetable, animal, and human life.<sup>36</sup> Scientific evidence increasingly affirms that the Western model and technology are not compatible with the biosphere, whether as regards the use of natural resources or environmental pollution. Therefore, the Western model lacks the conditions that are necessary for its survival and reproduction.<sup>37</sup>

## CONDITIONS OF CULTURAL RESURRECTION

When we consider the problem of backwardness in Arab/Muslim societies, whose cultural contribution has been absent for a long time, we realize that it cannot be attributed simply to the absence of one or more of the factors necessary for development in the Western sense (capital, human resources in the field of research and development, information systems, etc.). It is rather an existential crisis, if I am allowed to use this term here, embodied in the decay of the socio-cultural values in these societies and the collapse of their cultural cohesion. This leads as a consequence to the loss of their motives for existence and for achieving growth and prosperity. This is due not only to external factors (different forms of Western imperialism), but also to the deterioration and decay of such societies. This raises new questions: *How can the Arabo-Islamic world restore its cultural unity and efficacy? How can it rebuild itself in the cultural sense?* The following is a discussion of the necessary conditions for such cultural resurrection:

The essence of modernization consists in self-realization in the cultural sense, i.e., bringing about the cultural and social changes necessary to fulfill scientific and technological imperatives. In other words, it consists of the ability to meet “the necessary preconditions for survival in the international economic and military spheres.”<sup>38</sup> It is important to benefit from the fulfillment of such imperatives and, at the same time, to transcend them culturally. This cultural realization requires the employment of the power of faith, nurturing a sense of cultural affiliation, and the awakening of the unifying forces in the socio-cultural fabric of society. Moreover, the above view of modernization implies that we ought to begin with human beings, in whom we must put our trust, and on whom we must rely for the fulfillment of these socio-cultural changes.

Those who view their lives as a sacred mission to be fulfilled, as a mere drop in a current of cultural revival which transcends their individuality, extends across different ages and generations, and transcends even our worldly time, who are self-confident, inspired by a deep sense of meaningfulness, and satisfied that they belong to their mother culture – only these people have the ability to participate consciously in the attempt to awaken their societies and nations. Here the strength of faith represents a way to resist one’s greed, to sacrifice one’s own interest for the sake of col-

lective goals, and to resist all forms of allurements related to the Western cultural invasion, which aims at the gradual subordination of others by persuading them to adopt foreign habits and behavioral patterns.

Cultural integration and coherence (i.e., consistency and continuity of cultural identity and its capacity for self-rejuvenation over the ages) depends not only on productive abilities, but also on the efficacy of the different cultural systems and symbols and their capability to express and impart cultural contents within and across generations. The role played by such symbolic patterns<sup>39</sup> may be summed up as follows:

*First:* During the span of one generation, these symbolic patterns help bring up individuals as cultural actors. This task can only be achieved by making them fully understand the significance of their own culture and the meaning of its different aspects and features. In this way, they can participate in building and renewing their culture, relying on its own potentials and inherent capabilities.

*Second:* They help transfer cultural heritage – which is the sum total of the experiences of successive generations' interactions with nature, with themselves, and with other cultures – to the forthcoming generations. Without such transfer, cultural continuity would be violated and hence the ability for self-development and regeneration would decline.

What is required then is a cultural revival rather than development in the usual sense. Such a revival would be essentially different from the revival which occurred in the West. For the Western model, from the Renaissance and the Industrial Revolution up to the technological and scientific revolution, is quite undesirable for Arab/Muslim societies, since it is inconsistent with the governing principles and basic values of their culture. It is also impracticable, since it is disharmonious with their environment. The cultural revival we are talking about is different from that of the West not only in its ends, but also in the means to achieving these ends, such as the role to be played by science and technology, teaching methods, and socio-cultural transformations.

In Arab/Muslim culture the dream of achieving paradise on earth, the dream of attaining material welfare as a supreme goal has never been a genuine one. Arab/Muslim culture does not place humankind at the center of the universe nor does it view worldly life as separate from the other, eternal life. Even its material needs and wants are not regarded as separate from its spiritual needs. Furthermore, Arab/Muslim culture stresses the need for

restraint and moderation with regard to the pleasures of life. This concept of cultural revival consists of the liberation of humankind from thralldom to the various false idols, be they political, social, economic or even intellectual. Let us go back to Diagram (2), which illustrates the view of development from a Western perspective, and consider what characterizes the Islamically based cultural vision.

Muslims view the universe only through their faith in God. According to the teachings of Islam, God is manifest in everything in the universe – in the distant galaxies, in humankind, and in the minute particles constituting everything on our planet. By virtue of their faith in God, Muslims have a sense of belonging to the whole universe. Faith is their great homeland, their ultimate haven which contains whatever other lesser affiliations or homelands they may belong to. Islam teaches that the Muslims' sense of belonging should not be confined to those lesser circles of belongings. Human beings tend through our human instincts to be tied to earth and shut out from the larger realm of their existence – that realm of time and space which religion refers to as “the world of the unknown.” It is the realm of time in its eternity. Compared with that eternal light, our life on earth is but a fleeting glimmer, a tiny speck of light which will soon fade away and die out. It is life and death. It is this life and the afterlife. It is God Almighty and all His creatures. It is true that human beings prefer to be shut inside this shell of their earthly material world, which they can perceive and bring to some extent under their control. We give in to the allure of this limited, concrete existence. The quest for faith is a journey from darkness to light in which Muslims renounce this confined, spiritually arid world. It is a quest for the greater realm of the spirit, which is the realm of truth. Seeking faith implies a quest for spiritual maturity that takes place through actual experience of this broader realm, just as one experiences the secular world. One should witness God, feel His eternal presence, recognize Satan and the angels, witness death, the life-hereafter and the Day of Judgment as one witnesses the various manifestations of the restricted secular world. Only through such experience can the soul be changed. This leads human beings to reconsider their relations with their environment and the people around them, and their attitude to the spatio-temporal world of the unknown. Consequently, such an experience will define human motives and goals in this world, as well as the amount of dedication needed for their fulfillment. In this way one can simultaneously

experience the two worlds: the secular world, the world of the “here and now,” and the world to come, the world of “there and then.”

#### THE CONCEPT OF TIME IN THE ISLAMIC VIEW

- Secular worldly time as human beings perceive it is closely related to the human concept of time in its eternity. In fact, there is an organic relation between these two concepts of time, a relation established by the indisputable fact of judgment on the Day of Judgment in the Hereafter, namely, “that no bearer of burdens can bear the burden of another; That man can have nothing but what he strives for; That [the fruit of] his striving will soon come in sight: Then will he be rewarded with a reward complete” (53:38–41).
- Time, as conceived by Islam, assumes a certain open pattern; it is not viewed as a mere quantity, measured in hours and minutes, to be bought or sold or consumed.<sup>40</sup> Islam views time as full of meaning and significance: “I have only created Jinns and men, that they may worship Me” (51:56). Time is quality rather than quantity. It is collective rather than individualized.<sup>41</sup> The Qur’an here addresses the whole nation, though each individual will be judged separately on the Day of Judgment.
- The concept of the individual in Islam is distinct from that of the Western view. For only within the context of judgment in the afterlife are there verses addressed to the individual. This means that what distinguishes individuals relates to their social function. Individuals in Islam are not viewed as separate beings with distinctive skills, abilities, and desires. They are the vicegerents of God on earth, entrusted with the proper use of all God’s endowments in the form of abilities, skills, material potentialities, emotional faculties, senses, and time. The “self” in Islam can never be one’s sole frame of reference as is the case in Western culture. Human beings are asked to enter into a heated debate with the self as long as they are relying on their relation to God. This argument is dictated by their belief in God. The self, according to Islam, has good and evil motives. Human beings are enjoined to make the good in themselves prevail over the evil. Thus the Western saying “to be myself” has no meaning in Islam.

- The human act in Islam, the act of a believer, must never be viewed as being separate from the act of God. Mysticism in Islam, in its profoundest sense, consists in the attainment of such a degree of harmony between human beings and their Creator that human beings become an instrument for the fulfillment of God's will, thus effecting a unity between their limited power and God's supreme power.

Human beings are enjoined not to perform any act or adopt any attitude which might alienate them from God: "Nay, but man does transgress all bounds, in that he looks upon himself as self-sufficient. Verily, to your Lord is the return [of all]" (96:6-8). Hence, the motives behind Arab/Muslim activity in the field of scientific research and technology are different from those in the West. Scientific research, like technology, is a cultural component, and scientific knowledge is, in its turn, a cultural product. Science in this sense is neither neutral nor universal.<sup>42</sup> The issue is not whether these structures of knowledge are universally correct, but whether they are legitimate, i.e., it is a question of the legitimacy of each discipline within its socio-cultural context.<sup>43</sup> The reason why Western science cannot touch the soul of the ordinary person in Arab/Muslim societies is that it lacks legitimacy within the Arab/Muslim distinctive cultural context.<sup>44</sup> Science has derived its legitimacy in the West through its role in effecting those technological changes which fulfill the human inclination to control and dominate nature as well as other cultures. Its motive is to achieve the greatest degree of material welfare and prosperity as well as to curb the power of the church and prevent it and religion in general from interfering in the affairs of life and society.

This kind of scientific legitimacy is alien to a culture like that of the Arabo-Islamic world, which views science as a means of attaining truth and as a point of departure for the recognition of Divine power. Arab/Muslim culture sees no contradiction between the role of science in that sense and belief in God. There thus arises an urgent need for an alternative approach to science. Arabs/Muslims need to formulate their own model of rationality that defines their course of action and their motives for the use of scientific research and technology. The intellectual Western attitude to science and technology has acquired certain features due to the particular relation existing between it and Western culture with its

specific features and traits. These are exemplified by exaggerating the importance of profit as an incentive, glorifying the value of conquering nature, dominating it at the expense of achieving harmony with it, and the assumption that nature is a means, a mere object to be exploited. Nature is seen as mere scattered elements rather than well-knit systems connected by a network of complex relations. The natural resources are seen as elements with no intrinsic value, which acquire value only through their service to human beings. Therefore, a need arises for a Arab/Muslim pattern of rationality which defines the Arabo-Islamic view of scientific research and technology.

Arabs/Muslims have to restore their self-confidence and the staunch belief in their ability as a nation to be creative and build their own technological capabilities. They have to free themselves from enthrallment with Western technological and scientific achievements. They should always be aware of the fact that the supremacy of the West in the field of science and technology is a relatively new phenomenon when measured against the long span of human history. Human history has witnessed a long series of great technological and scientific feats which testified to the great debt that human culture owes to Arab/Muslim societies.<sup>45</sup> Moreover, the scientific approach which prevailed in Europe during the 16th and 17th Centuries was well known to the peoples of Islamic countries (from the beginning of the 9th Century to the 15th Century AC).<sup>46</sup>

The dominant pattern nowadays of the importation of the achievements of technology from industrial Western countries is quite a new phenomenon.<sup>47</sup> Until the emergence of the Industrial Revolution in Europe during the 18th Century, the world had witnessed the transfer of technological inventions from one civilization to another. They were then assimilated to fit in with the spirit of the recipient culture. There were dozens of cases<sup>48</sup> where such a spontaneous and successful transfer of cultural components took place. Moreover, it is an indisputable fact that the borrowing and consequent adaptation of cultural components constitute one of the most important conditions for the development and prosperity of different cultures.<sup>49</sup>

The subjection of the Arabo-Islamic world to Western technology has two aspects which may be considered as two sides of the same coin. The first is its dependence on Western technology for the fulfillment of many tasks in Arab/Muslim society, e.g. extractive industries, manufacturing,

consumption, transportation, communications, defense, etc. The other side reflects the dependence of the West on Arab/Muslim societies as markets for their technological products in various fields.<sup>50</sup> This means that the West does not have the upper hand; for the Arabo-Islamic world has the ability to influence the West and international affairs by rationalizing and limiting its needs for Western products in all fields.

If Arabs/Muslims are to regard themselves as the natives of a distinguished culture which reflects its character in all fields of human activity, they should consider their societies in the same light. For any society is in fact a mosaic of socio-cultural structures, each having its distinctive features and traits. This distinctiveness arises from a difference in the bio-sphere of each community and the diversity of historical experience over thousands of years. Such diversity – whether at the national or local levels – must be considered as the rule rather than the exception. In fact, it is standardization that represents the exception. By standardization, I mean the elimination of any differences between the various socio-cultural structures as a step towards integrating them into one universal culture. This, in turn, means stripping these cultural entities of their potential for development. Here in Egypt, for example, we have various environmental conditions and environments ranging from the oases in the Western desert and small communities of Bedouins in the Eastern desert (on the northern coast of the Sinai Peninsula), to the two parts constituting the Nile Valley, namely, Lower and Upper Egypt. As for their inhabitants, they vary amongst themselves as concerning temperament, habits, religion and historical experience. Thus we can say that there are distinctive traits even on the level of cities. Damietta, for example, is distinguished by its historical experiences and the habits and customs of its inhabitants. And national identity is the outcome of these local features and traits. This kind of cultural diversity enriches cultures. In fact, there is no contradiction, as it is sometimes claimed, between unity and diversity. The realization of diversity within unity means that unity was attained voluntarily and not by force. Let us consider an example of this diversity-within-unity and how it is related to the use of technology. The types of dwellings dominant in the different geographical areas in Egypt vary. Such variation is determined by: (1) environmental differences: differences in the climate and the kinds of natural resources available, and (2) differences in the socio-cultural structures of local communities. In the north of Sinai, for instance,

the inhabitants of Arish use the mud found in Arish Valley to make adobe (unburned bricks) after mixing it with hay and sand. The ceilings of their dwellings, which house extended families consisting of several nuclear families, are constructed of boards of tamarisk wood and palm-leaf fronds. Such houses are fit for habitation for a period of time ranging from 150–200 years. On the other hand, the Bedouins in the east of Arish use the naturally growing *al-ader* plant in building their extremely beautiful dwellings and huts for their animals, using tamarisk wood as pillars.

In the southern Sinai, the Bedouins build their dwellings using igneous rocks which they obtain from the surrounding mountains as well as the clay deposited by the freshets. The inhabitants of the northern coast west of Alexandria follow the Islamic Arab model in the construction of their houses, using limestone found in abundance in the nearby quarries. For mortar, they use the local clay. The people of Siwa construct their houses using rock salt called *korshif*, which is available in abundance there, and so on. Thus, a recognition of diversity would lead to the exploitation of the human and natural resources available in every local community so as to fulfill the needs which may differ from one community to another. Moreover, the means of fulfilling the same needs might vary from one local community to another as environmental conditions as well as historical experiences might vary.

Half of wisdom is to have the right dreams; the other half lies in the use of suitable means to realize these dreams. This saying is most true when applied to the techniques used. A technique is not only an answer to a *how*-question (how to make or produce something or perform a certain service), but it is also and most often an indirect answer to a *what*-question (what to make, produce or perform). The techniques of construction dominant in the West imply a definite choice of dwelling, the techniques of the soda-water industry imply social acceptance of soda water, and so on. Technology in general is not impartial in its application, whether socially, politically or culturally. In fact, any technological choice has cultural, political and social implications. Western technology, for example, has evolved and developed simultaneously with the emergence and development of the Western way of life.

The problem facing Arab societies as well as most Third World ones is the erosion of the natural link between their social needs and the suitable means for their fulfillment. It is natural for new social needs to arise and

for society to decide on the best means for their fulfillment and the right techniques for their production leading to the emergence of new social needs, and so on. But in the Arab world things happen differently. What is dominant now is that certain means of satisfying certain needs are imported (e.g., all consumer and durable goods). Such means are often imposed in one way or another from the outside (or from within, if they are apt to fulfill the interests of certain social strata). With the prevalence of such means, corresponding needs evolve and gradually prevail. This means that in such societies, needs no longer define the means. On the contrary, it is the means which define the needs. There is a sacred duty which is as yet unfulfilled. This is the duty of deciding on a way of life and patterns of consumption which are in keeping with the priorities set by the prevalent values and principles governing our culture. Such a way of life and such patterns of consumption will thus be quite different in their quality from those adopted in the West.

However, such a choice does not take place in a vacuum. It is an indisputable fact that in the field of technology we are but satellites revolving in the orbit of industrial Western countries. They are the acknowledged masters in this field, over which they have full control. The flow of Western goods is endless. Moreover, rate of obsolescence is accelerating. Every day, if not every hour, there are new inventions and developments in the West, which cover all aspects of public daily life and which can fulfill human beings' basic needs<sup>51</sup> as well as their desire to lead a luxurious life, whether reasonable or not. There also exist the mass media, which relegate the ordinary people in Arab/Muslim society, as well as in all Third World societies, to the position of passive receivers who admire whatever the West produces in the fields of science and technology. In this way Arab/Muslim subordination to the West deepens at the psychological level while the confidence of Arab/Muslim societies in their own strength declines. Moreover, their attempts at choice, not to mention their attempts at development and invention, are rendered useless and futile. For what is the use of inventing what has already been invented? What are the prospects of catching up with the West, not to mention surpassing it, if scientific and technological achievements in the West are accelerating at an astronomical rate? Of course, if Arabs/Muslims think in the same way as the West does (that is to say, if their dreams, aspirations, conceptions of their needs and their lifestyles are identical with those in the West), our

efforts to compete with the West by seeking other ways and means will be vain and useless. The West will always be our Makkah from which Arab/Muslim societies derive their means as well as their ends, and their subordination to the economic Western powers will be complete. Thus, in order to achieve distinctiveness from the West, Arab/Muslim societies have to choose their own way of life and patterns of consumption. These are, in fact, two facets of one and the same coin, namely, cultural independence.

Thus, it is clear that the issue of appropriate technology is not primarily a technical or economic issue, for it has a bearing on cultural, political, and social aspects as well. Much of the Western literature on appropriate technology or "intermediate technology"<sup>52</sup> suggests that technology is equivalent to the means and methods of production, i.e. it is a commodity that can be readily imported from the industrial Western countries. The essential precondition for appropriate technology as we view it is that it should be based on the society's real potentialities, be freely and independently chosen, and be potentially developed by using local resources and means.

It is argued here that no real Industrial Revolution can be achieved without the participation of all parties involved in production. For instance, the basic achievements in the textile industry during the Industrial Revolution in England<sup>53</sup> were not the result of scientific progress alone, but, more importantly, were the result of favorable economic circumstances and skilled labor. Yet there are different forms of Industrial Revolutions. The Industrial Revolution in the West witnessed the collapse of the feudal system, the decay of the countryside and the establishment of new communities around the new cities, the then evolving industrial centers in England. But within the cultural context of Arab/Muslim societies, and because of their present circumstances, it is inconceivable to imitate this kind of revolution, which was primarily motivated by economic incentives with all its socio-cultural environmental costs. Within Arab/Muslim socio-cultural contexts, technology must develop in conformity with the ultimate aims of its culture and society as well as with the environmental and socio-cultural conditions defined by these aims. This attitude towards technology is essentially different from that adopted in the West.

Thus, the Arab/Muslim Industrial Revolution must take place all over

the Arabo-Islamic world, and not be confined to cities only; industry must have a bearing on other production activities in local communities, be they rural or urban. Finally, this revolution must rely primarily on local potentialities and resources.

Local communities, whether rural or provincial, have rich resources and potentialities for developing their endogenous technological capabilities. These resources and potentialities consist of:

1. The vast majority of individuals in local communities who have wide knowledge about the environment in which they live. This knowledge has accumulated over thousands of years of creative interaction with and experience of their natural environment.<sup>54</sup>
2. A wide range of abilities and experiences in all fields of human activity (agriculture, varied handicrafts, construction of houses, methods of storing water, irrigation, popular methods of curing diseases and various ailments, prediction of climatic changes, etc.).
3. A high degree of social coherence and solidarity and well-developed structures capable of exercising social control over individuals and highly reliable in conducting the affairs of the local community in all fields of life.
4. Values specific to the local community which represent their mode of adaptation to the environment as well as to the outside world over generations. This mode of adaptation defines their way of life (patterns of production, consumption, recreation, etc.) and makes it not only acceptable in their eyes but also highly desirable,<sup>55</sup> however unacceptable it may seem to other local communities. Thanks to such values, this local community can achieve stability, psychological balance and security.

Many of the traditional technological capabilities that abound in local communities in Egypt have died an unnatural death.<sup>56</sup> This is due to the spread of Western patterns of consumption and the invasion of Egyptian local communities by the products of Western technology which such communities do not make use of in their endogenous development. The real loss arising from the decay of these technological capabilities is not a material loss, which can be made up for. Rather, it lies in the collapse of

value structures and the symbols related to them, which may lead to the eventual extinction of all potentialities for developing these structures from within and according to their inherent logic.

The view we have adopted here maintains that in order to derive the greatest benefit from the rich possibilities of building up our traditional, endogenous technological capabilities, we must achieve as much integration as possible between the cultural structures within which these technologies function and the corresponding modern structures which make use of Western technological components. Such integration can be effected through division of labor between them in the different fields of goods and services production.<sup>57</sup> Networks of various production structures would then carry out distinctive production projects according to the techniques applied and within unified production patterns. Attention should also be given to the internal transfer of technology<sup>58</sup> among the different patterns of production by virtue of which the methods of production, evaluation, quality-control, planning, scientific research, marketing and advertising are transferred from structures using modern techniques to others using conventional or modified conventional techniques. In this larger context, the traditional technological capacities of local communities allow the following:

*First:* True potentialities for fulfilling many of the basic needs of local communities (as in the fields of housing, food production, the clothes industry, or medical treatment), thus contributing to the achievement of self-reliance<sup>59</sup> on the national level. Generally, these abilities were decisive tools for the fulfillment of the basic material needs of the vast majority of individuals in all human societies until perhaps the beginning of the 19th Century. Moreover, conventional technologies which were widely used and which relied on renewable natural resources were not hostile or detrimental to the environment. The tendency of some of these technologies not to change with time is sometimes considered evidence of stagnation and backwardness; in fact, however, this feature is an indication of such technologies' having attained a high degree of perfection<sup>60</sup> in adapting themselves to the environment. Many of the conventional techniques used in building houses and making clothes or agricultural tools or equipment are good examples in this respect.

*Second:* Potentials for developing these traditional technological capabilities through the use of modern technological components (e.g., the

development of handicrafts by using modern tools and equipment). There is, in fact, a process of conversion towards automation and modern equipment in many handicrafts, while the organizational structure remains intact.<sup>61</sup> Such a process is needed in order to cope with the changes in demand for the commodities produced by these handicrafts.

*Third:* Developing many such techniques so as to choose new products that can cater to prevailing demands on local and international markets and improving product quality while keeping production methods basically manual. Such development aims at the production of goods with high cultural content, some of which may be exported.

In order to achieve a cultural revival in Arab/Muslim societies and make full use of their potentialities in building their technological capabilities, it is necessary to pave the way for wide participation on the part of producers and consumers in all fields of activities in general. The kind of knowledge prevailing in any socio-cultural context is related to socio-cultural sovereignty. Thus, many components and aspects of technological knowledge in this sense lie in a state of dormancy and captivity within socio-cultural systems which lack the capacity for prosperity or self-fulfillment. Releasing these repressed potentials can only be effected by liberating the systems containing them and providing opportunities for the positive participation of these structures in all the aspects of life. Thus, the issue of building up Arab/Muslim technological capability is closely related to the issue of the cultural, social, and political liberation of the individual.

However, a true rendering of this concept of liberation requires Arabs/Muslims "to deepen [their] vision of the citizen, not as an individual but as a member of a social entity."<sup>62</sup> Individuals' sense of belonging can be best achieved in the light of their sense of affiliation with socio-cultural structures which are open-ended and constantly expanding. They begin with the nuclear family and move on to the extended family, to one's neighbors, to the village, to the small community, to the tribe one belongs to, to the province, and on to the wider society and the nation. Each of these social systems derives its own criteria of performance from its identification with the larger and wider system which encompasses it.<sup>63</sup> The larger system must respect the privacy and independence of the relatively smaller system, providing it with circumstances favorable to its flourishing and prospering. There is essentially no contradiction between

the sense of belonging to one of these systems and the sense of belonging to a system smaller than it. On the contrary, it is the only right way to broaden one's sense of belonging to include one's whole nation. This normally starts from one's sense of belonging to the family and small community, just as universality starts from one's sense of national belonging.

The problem lies not in the diversity and multiplicity of the systems to which the individual belongs, but rather in their isolation from each other. If it is common in the Western literature on this topic to describe traditional entities such as the extended family, the village community or the tribe as inherently "backward" or "reactionary" and as obstacles to development which must be eliminated,<sup>64</sup> the criterion the Arab/Muslim society should adopt to judge these social systems should be the role they fulfill within the framework of the mother culture rather than their role within certain isolated systems. If Arab/Muslim society judges these patterns from the viewpoint of their ability to transcend themselves and adopts the values of the mother structure to which they belong, it may find that an extended family capable of participating positively in an independent cultural project is more progressive than a nuclear family less able to transcend itself. Hence it is necessary to review the theoretical framework of traditional socio-cultural systems prevalent in Egypt.

#### ATTITUDES TOWARDS WESTERN SCIENCE AND TECHNOLOGY

The prevalent practice of transferring technological components to Arab/Muslim societies is accompanied by the transfer of their technocratic frame of reference<sup>65, 66</sup>. This reduces all problems facing contemporary societies to one problem, namely, a shortage in resources; similarly, it reduces politics to economic policy and economics to science. It introduces science as the panacea, the miraculous cure to all the problems of society. It further claims that science can lead, through its technological application, to more accumulation of wealth; in other words, it can solve the resource shortage. Within this framework, politics, in its broad sense, becomes meaningless and purposeless, and it appears that the truly happy country is, by definition, "apolitical." Morals likewise become unnecessary, since science – which has been surrounded with a false halo of objectivity, justice and infallibility – concerns itself with the problem of right and wrong (the forbidden and the virtuous). The danger of adopting such a tech-

nocratic attitude<sup>67</sup> in the Arabo-Islamic world lies in the consequent, unquestioning adoption of the Western value system, which is inimical to the cultural structure of Arab/Muslim societies.

The true challenge facing Arab/Muslim societies, whose contribution in the fields of science and technology has been absent for centuries, is to benefit from Western technological and scientific achievements within the framework of their own independent cultural vision. The challenge is, in other words, to transfer and assimilate technological and scientific knowledge to the exclusion of Western values. The Arabo-Islamic world might actually need to borrow certain tools of scientific research and production, as well as technological and scientific knowledge pertaining to specific fields based on the priorities it has set for itself. However, it does not necessarily need to borrow the language of scientific research, its contents (i.e., Western priorities), or its products (which should be defined according to the social needs of Arabs/Muslims). Nor does the Arabo-Islamic world need to transfer the structures and organizational frameworks related to Western scientific research, development and production or the motives and values underlying these activities. The Arabization, or Islamization of science and technology thus means the ability to make use of foreign cultural elements in the fields of science and technology as the basis for an Arabo-Islamic structure with its own unique values and organizational principles. What the Arabo-Islamic world must reject is not all foreign elements and structures, but rather, the transformation of these elements and structures into “islands”—foreign bodies within Arab/Muslim culture, as it were, which reproduce their mother culture in the Arab/Muslim cultural environment.

A highly significant model in this respect is presented by Japan, which has achieved an industrial transformation relying on Western technological and scientific input by assimilating such input into purely Japanese organizational structures. Thus Japan has succeeded in achieving what most Third World countries, including India and Egypt, have failed to achieve. It has managed to introduce modern, capital intensive production techniques without detriment to its traditional production sector. These modern production methods have led to the slow but continual mechanization of the local industrial sector<sup>68</sup> through the establishment of cooperation, rather than competition, between large and small scale enterprises (primarily via subcontracting). In this way, Japan has been

able to effect its industrial revolution while continuing to depend primarily on labor-intensive production structures.<sup>69</sup>

If we wish to benefit from the Western model, we must bear in mind that the West achieved its own scientific progress by borrowing profusely from Arabic Islamic science as well as the technological achievements of other cultures (printing techniques and gunpowder production from China, for example) within the framework of an independent cultural project.<sup>70</sup> Thus, the Renaissance witnessed the reconstruction of Western science, which changed according to the requirements of each period and in conformity with the other axes of activity in Western culture.<sup>71</sup>

The Arabo-Islamic world is in need of no less than a cultural revolution in the field of education, where current methods of instruction lead most often to cultural alienation on both the national and local levels. There needs to be a reconsideration of the educational process as a whole, and particularly its cultural content, the principles and values it conveys and the character-forming pattern it adopts such that in order to establish a system of education which conforms to our cultural structure. Such a system must, in essence, uphold a model of social work. Its motto should be “learning through dialog with the living socio-cultural fabric of society and the local environment.” It is also necessary to abandon the mass production approach to public education. There must be complete decentralization of education at the school level, and to a lesser degree at the university or higher-institute level (e.g., by establishing technical schools for handicrafts and small-scale industries in Damietta, and agricultural schools on the Northern Coast). The needs of local communities must be taken into consideration in defining syllabi and building schools, higher institutes and universities. This would mean the adaptation of syllabi to meet the needs of each local community within the general framework of the public interest. In this way, school programs can serve to help pupils choose, affirm and apply the vast knowledge they acquire as members of their local community.<sup>72</sup>