Rediscovering the Resources of Religion

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INTRODUCTION

The era of independence in the South has been characterized by decades of "development." Lessons learned, especially in recent years, make it timely for the developing world to take stock of its accomplishments and mistakes. Costs of advances in science and technology (S&T) are steadily mounting, and the ideals of scientific progress are not without their flaws (Sardar 1988). The dramatic and lopsided impact of rapid change, together with the disruptions of traditional values, requires the South to reevaluate the meaning of "progress." Technology, research processes, and entire patterns of economic structuring have been transplanted and adopted from the West. The intelligentsia of the South is increasingly realizing that it has derived its definition of modernity from values implicit in S&T and that these are largely products of one civilization's worldview and historical experience. Many are beginning to see that for true development to occur, material progress must be accompanied by, and pursued in accordance with, intangible, yet essential, human and moral values (Sardar 1988).

As in other disciplines, the discourse on development has been highly compartmentalized. This results from a reductionistic frame of mind that prevents the individual from transcending narrow, often jealously guarded, boundaries of thought or academic territories and achieving comprehensive solutions. Compartmentalization characterizes

much of the modern approach to the various dimensions of life (Capra 1985); it is common to consider human activities, such as commerce, education, art, politics, and religion, as separate spheres. The result is that human beings are not thinking and perceiving, and thereby acting and living, in holistic or healthy ways. The dichotomy between scientific knowledge and religious values has also separated development from religion and spirituality. Within the development field itself, the dichotomy between theory and practice has put "people-centred" development — loudly touted of late — in danger of becoming a cliché (UNDP 1997).

One might suggest that the mind-set of this compartmentalizing and reductionistic approach to living contributes to the problems multiplying all over the world.[1] To ensure human progress, and perhaps even survival, we must integrate the various spheres of knowledge and endeavour. Intellectual investigation must be joined with a range of discourses articulating human meaning; development, then, would be the product of both science and values. Religion is a fundamental source of ancient wisdom and values; its insights, tested over generations, can galvanize large numbers of people to act on the promptings of their highest ideals and from the centre of their sense of self and community.

But from which perspective should one reflect and speak on the interrelated themes of science, religion, and development (SRD) — from that of an academician, politician, scientist, or theologian? Each viewpoint has valuable contributions to make but can only speak in a certain context and in limited ways about particular aspects of development. No one perspective presents the entire picture. Thus, despite our best intentions, as soon as we attempt to enter into the question of how the fields of SRD should be related, we immediately encounter the problem of the compartmentalization of knowledge. Among the resulting set of problems, and not the least of them, is the challenge of convincing people from various sectors to work toward a common goal; to this should be added the issue of dissimilar meanings assigned by various parties to the same concepts. To clarify my understanding of these concepts, I will start by making some general observations about SRD; in these observations, I will identify various assumptions and questions that I feel need to be addressed. I hope to show that experts working in any of the three areas must not only transcend their own boundaries to incorporate concepts and questions from the other components of the SRD triangulation but also reexamine old assumptions and try to see the precepts of their respective fields as others do. It is perhaps not too impertinent to

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[1] For example, Fritjof Capra (1985, pp. 118–119) described how the influence of the Cartesian paradigm on medical thought resulted in the "biomedical model," in which the human body is conceptualized as a machine that can be analyzed in terms of its parts: "By concentrating on smaller and smaller fragments of the body, modern medicine often loses sight of the patient as a human being, and by reducing health to mechanical functioning, it is no longer able to deal with the phenomenon of healing."

suggest that it is especially important for agents of development, particularly governments and policymakers, to integrate elements of the relevant fields into their thinking.

One must seriously ask whether the sharp separation of religion from science and development is the result of weakness and lack of clarity in efforts to apply religious awareness to real life issues. For example, mosques used to be centres of learning and venues for the discussion of politics and trade; today, they often serve only for daily obligatory prayers, for which the congregational numbers are ever dwindling. Several authors and commentators have indicated that the coming millennium will see a kind of religious revival. But as John Naisbitt and Patricia Aburdene (1990) pointed out in their book, *Megatrends 2000*, religiosity will not be the same as before. Individuals will want to be in control of their own spirituality, instead of depending on persons traditionally vested with religious authority. It is increasingly common that individuals desire to know the transcendent directly and to experience its reality personally. It is not difficult to see the connection between this orientation and another trend observed by Naisbitt and Aburdene: the ascendancy of the individual. In my initial remarks, I will be touching briefly on the need for a quiet but concrete revivalism within the institutions of religion so that the traditional authorities learn to be more democratic in their treatment of their *ummah* (or flock).

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> *The Qur' an says that God deliberately created human beings*
> *into different races and tribes so that they might*
> *get to know one another.*
> (Q 10:99 and Q 13:18, 29)

My paper begins with general comments on science, religion, and development, followed by a brief discussion of Islam and Islamic metaphysics. I will attempt to tell my own story of how religion became something real to me, despite my early training in science, with its attendant sceptical and agnostic outlook. One of my main concerns will be to share the perspective of a practicing believer. I want to persuade the secular humanist and nonbeliever to consider the rationality of my point of view, just as I am interested in, and try to empathize with, the reasons for the unbeliever's agnosticism. I feel that all the proponents of a more just, humane form of development have a great need for genuine, mutual empathy and acceptance. The fact of the matter is — and herein lies the difficulty — we exist in a sea of cultural, philosophical, and religious plurality; indeed, the need for nonviolent modes of discourse, in which our differences contribute to strength rather than fostering dissension, is extremely urgent.

It is important for nonbelievers to see how and why believers think as they do, if we are to open the door for religion to contribute to

deliberations on science and development. The "reasons for religion" must appeal to secular-humanist scientists and development practitioners. Many scientists, scholars, and philosophers — including A.N. Whitehead (1985 [1925]) and Bertrand Russell (1976) — have spoken of the need for convergence. For such a convergence to take place, religion has to speak in a "language" that is intelligible to the secular humanist, including language derived from *natural theology* (the understanding of religious beliefs in terms of empirical scientific discourse) and *the theology of nature* (the understanding of religion by the use of scientific facts obtained from nature). I have come to believe strongly that science and religion are complementary ways of looking at reality; we may often ascertain the real value of religious understanding and increase its impact by coupling it with the way science understands actual situations in life. I would like to share with others what the endeavour to understand the complementarity between religious understandings and scientific findings might mean in terms of a new cosmology.

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In the section entitled "Islam," I will turn my attention to a brief explanation of what Islam can bring to SRD discourse and the steps already taken in this direction. From the outset, I reject any claims to comprehensiveness; suffice it to say that this is a new area of discourse, even though researchers have called for the "Islamization of knowledge," especially science, since the early 1980s (see al-Faruqi and al-Faruqi 1986). Even earlier, in the 1960s, scholars such as S.H. Nasr (1968) began to consider the ramifications of the loss of spirituality in modern human beings.

In the past few decades, the Muslim world has been steadily reawakening to an S&T that thrived during the 8th to 11th centuries and was based on the worldview and ethics of Islam, and this has been in no small measure a result of exposure to Western thinkers and modes of life. People in the Muslim world are realizing that the significance of this legacy lies not merely in the recovery of the technological answers of the past but also in the fact that it offers guidelines on how to incorporate values into current human efforts toward progress and development. Muslims, especially Muslim scientists, are realizing that values shared by scientists and nonscientists must determine the direction, control, and purpose of S&T, as it is clear that no amount of technical hardware can, of and by itself, resolve dilemmas that require moral choice.

Muslim writers and scholars are recognizing that development is not a fixed package to be received in its entirety; they can draw on their own distinctive perspectives and experience in history to shape moral and ethical values to help guide the course of development. For example, publications such as *The Touch of Midas: Science, Values and the Environment in Islam and the West* (Sardar 1988) include articles on issues related to science, values, and development in Islam. Muslim

intellectuals are also entering into dialogue with others, earnestly trying to alter the perceptions of those who see the awakening of Islamic consciousness as nothing more than fundamentalist reaction and isolation. In the words of a Muslim political leader, Muslims genuinely feel that

> if they are to control their destiny in the future, then they must find a way of expressing their moral being, according to their *ethos* whilst at the same time still being able to be interdependent and interconnected with others as they live in one world with others and face dilemmas and problems that understand no boundaries.
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> <div align="right">Sardar (1988, p. iv)</div>

Muslims are acknowledging that bringing a diversity of viewpoints to the debate can help everyone discern the essentials, allowing the most basic and intransigent problems to be seen in a fresh light.

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SCIENCE

It is often unclear to the creators of science (and even more so to the consumers of S&T) that the impact of science is closely related to the way one thinks about and approaches the world; worldviews are fundamentally linked to scientific research and the application of science. "Science" as the method of obtaining data from nature through empirical observation may be neutral, but its purpose, direction, and application are value laden. Two philosophies implicit in much of today's "science" are the following:

❧ *Scientism* — the hegemony of the modern scientific worldview and modes of knowledge;[2] and

❧ *Reductionism* — the principle that complex entities and systems can be fully understood in terms of their isolated parts.

Scientism and reductionism are also linked to a mechanical picture of the world. Newton based his work on the notion of a mechanistic universe, set in motion by a "clockmaker" God, who then left it to run on its own via the operation of fixed laws instituted into the body of the universe.[3] Given the incorporation of scientism and reductionism into

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[2] Also, it represents the belief that the methods used in studying natural sciences should be employed in investigating all aspects of human behaviour and conditions, for example, in philosophy and the social sciences.

[3] This encouraged deism, or a belief in the existence of God that is based on reason rather than on revelation. Deism is still widely prevalent today and, to my mind, is one of the reasons behind religion's loss of relevance, for it suggests that God is no longer involved in the world (Brooke 1979). For a fuller treatment of this issue, see Lindberg (1986).

modern life, it should not be surprising that these philosophies also underlie the secular worldview. Willis Harman noted that this picture of the universe and the approaches it gives rise to have been undeniably useful:

> The scientific view has been, in its way, outstandingly successful — yielding both technological and predictive successes — and hence has gained tremendous prestige. It has been broadly accepted as the nearest we can come to a "true" picture of knowledge. But it is nonetheless also true that the cosmos described by modern science is devoid of meaning and largely lacks relationship to the profound spiritual insight of thousands of years of human experience.
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> Harman (1988, p. 13)

> Few would gainsay the accomplishments of reductionistic science. For the purpose toward which it evolved — prediction, manipulation and control of the physical environment — it is superb. The issue is whether it needs to be complemented by another kind of science that can deal more adequately with wholes, with living organisms, and particularly with human consciousness.
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> Harman (1988, p. 16)

The physicist David Bohm supports this view and believes that one's way of thinking of the totality, that is, one's general worldview, is crucial to the overall operation of the mind itself. If we think of the totality as comprising independent fragments, then that is how our minds will tend to operate, and the products of our minds will tend to reflect this assumption. If, however, we can see everything included in a coherent and harmonious whole, then our minds will tend to move in a similar way (Bohm 1981). Bohm disagreed with scientists who use science as a mechanism simply to predict and control phenomena. As Bertrand Russell explained, this is the attitude of those who become interested in science only insofar as it provides power, first to control nature and then other human beings (Russell 1976).

Scientism inappropriately raises science and its methods to the status of unquestionable truth, a hegemony that seems to have imposed itself on development strategy and to have helped to create its current inadequacies. Developmentalism — the belief that economic and even human progress as a whole depends on an expanding consumer society — derives from scientism. Developmentalism is the motivating force behind the traditional model of development. It is "expressed in such words as industrialisation, modernisation, consumerism, growth, etc., and measured by monetary aggregates. Developmentalism defines the principal social objectives of all countries as consumption and accumulation" (Ekins 1992, pp. 204–205).

It is impossible to create a well-working society on the basis of scientism, reductionism, and ultimately developmentalism — knowledge bases that are "fundamentally inadequate, seriously incomplete, and mistaken in basic assumptions" (Harman 1988, p. 20). Many

sectors of society have come, or are coming, to the conclusion that the global dilemmas we face stem from our modern picture of reality. Even at the practical level, it can be shown that science itself is demanding a new, holistic worldview, because the fragmentary view is fundamentally flawed and cannot adequately explain the complicated web of interconnections among, for example, biology, physics, ecology, medicine, and agriculture as manifested in the systemic problems our globe faces today (Capra 1985).

We have to acquire a holistic, ecological worldview, and from this reorientation will flow the realignment of our economic and development concepts. But the challenge is to find the means to achieve this. Scientist–philosophers, such as David Bohm, Fritjof Capra, and Muhammad Iqbal, have pointed out that one way of articulating the proper worldview is to consider a philosophy of nature or cosmology that combines the religious and scientific perspectives on the universe.

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DEVELOPMENT

In this section, I briefly examine a few issues I feel are crucial to the meaning of development. Writing from the perspective of their own countries and experiences, figures like Aung San Suu Kyi (Nobel Peace Prize laureate and head of the Burmese prodemocracy movement) have highlighted the close interdependence of peace and development. Her concerns centre around the uncertainty about the extent to which democracy is indispensable for peace and therefore essential to human development (Aung San Suu Kyi 1997).

The concept of indigenousness, or indigenous culture, is frequently raised in discussions of democracy, and outsiders sometimes give it too much credence. Culture indisputably provides fundamental guidance and security, yet there is also ample evidence that some societies use "culture" as a pretext to resist calls for human rights and democracy. Culture is normally defined as dynamic and flexible, but when it is bent on serving narrow interests it becomes static and rigid: exclusivity comes to the fore and culture assumes coercive overtones; national culture can even become a bizarre graft of selected historical facts and social norms, intended to justify the policies of those in power, who insist on seeing development in the outmoded sense of simple economic growth (Aung San Suu Kyi 1997). Aung San Suu Kyi argued that it is not unknown for some governments to use the argument that democracy is a Western concept, unacceptable in the context of indigenous values, or that democratic rights must be pushed aside for the sake

of economic development.[4] What use is development in the materialistic sense if, in the end, basic liberties have to be sacrificed at its altar?

Democracy and people's empowerment must become an integral component of any concept or strategy of development. Although every democracy needs to acquire a character of its own, it is imperative that, in each, people be sufficiently and truly empowered. National governments, Aung San Suu Kyi said, urgently need to find new ways to empower their people. Otherwise, the people's mounting aspirations may clash with those of the ruling elite. The results of this clash may ultimately serve as a setback to development (Aung San Suu Kyi 1997). In Asia, it is widely believed that rapid economic transformation is most likely to succeed in a context of peace, political stability, and public order, rather than that of upheavals and turbulence. However, a real danger is that this insight will be taken to mean that these ideals are not valuable ends in themselves but are desirable only for facilitating economic transformation. This is an example of how economic hegemony can corrupt even the most basic requirements of civil life.

In many countries of the South, the record of development has been unsatisfactory, and this has led to the search for the fuller meaning of the term. Francis Perroux (1983), in his book *A New Concept of Development: Basic Tenets*, stated that if development is taken to mean a growth in awareness, intellectual capacity, personal development, and the freedom to fulfill one's potential in accordance with one's own values, then not only has development not taken place but it has not even been clearly perceived (Aung San Suu Kyi 1997). Even though international economists and administrators, including the United Nations Development Programme itself, are focusing on people's participation, many developing countries still see the market economy as the primary way to make material progress. In such countries economic measures are deemed to be all that is needed to resolve problems. Historical developments suggest that when economics is regarded as the most important ingredient in a society's life, human worth will gradually also be gauged by nothing more than a person's "effectiveness as an economic tool" (Aung San Suu Kyi 1997, p. 2). Surely this is contrary to the idea that economic structures, as well as social and political institutions, should be the servants of humans rather than having humans serve their ideologies (Aung San Suu Kyi 1997). In indigenous societies, for example, many have lamented the breakdown of the old familiar and cohesive

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[4] We also need to consider who has the power and how much power any sector should have to determine the norms and definitions ultimately governing our lives. Bertrand Russell (1976) remarked that when those in charge can even make the people say that the sun is cold (because those who said otherwise would be liquidated), one wonders if Zeus could have done any better! Again, in such societies, I hope that religion can play the dual role of empowering the weak — for example, the negotiator and activist roles played by some Christian groups in the Philippines — and making secular political leaders more understanding and respectful of religious–spiritual sanctions.

social fabric; the decline in the spirit of voluntarism, courtesy, and manners; and the rise in divorce rates, child abuse, baby-dumping, incest, rape, and disrespect for elders and the infirm. And yet, these manifestations of dissatisfaction, alienation, and greed only reflect changes in social norms occurring in rapidly developing countries as people abandon — often without satisfactory alternatives — traditional ways of life and adopt externally generated values and goals without examining them carefully (Jeyaraj 1997a, b).

Leading development proponents must convince political leaders in the South of the need for a paradigm shift, away from the economically oriented worldview currently dominant. Not surprisingly, many leaders are unable to understand the need for this change: they have been schooled in the old mechanistic–reductionistic way of thinking. They find the need for change difficult to accept, let alone to act on. Given this resistance, we may have to have more experts like Herman Daly (1996) speak out; we require contributions from thinkers with economic–scientific insights that are synthesized with religious values into consistent and (if need be, controversial) well-thought-out theses (Ryan 1998). The need is acute, for even among leaders aware of the inadequacy of the materialist–scientific model there are many who fear the political consequences of making political and social decisions relating to, for example, control of natural resources or the equitable distribution of wealth and income (Ryan 1998).

Under these circumstances, it is in everyone's interest to reexamine the definitions of culture and development so that they are not used to thwart basic democratic institutions, basic rights, and the fulfillment of basic needs. In countries where religion is a strong actor in civil society (for example, Buddhism in Thailand, Christianity in the Philippines, and Islam in Malaysia), religious leaders and institutions should be brought into the efforts to deal with this task to lend it credibility among the people and within the government and to help ensure its success.

RELIGION

In my opinion, despite the growing interest in personal spirituality, religion has for a long time suffered from a gradual decay in its influence.[5] A.N. Whitehead observed that religion in Western civilization tends to degenerate into "a decent formula wherewith to embellish a

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[5] Many Muslims, for example, feel that it is no longer sufficient that the *imams* or *ulama* tell them what the Qur'an or God says. They want to read and, what is more important, see the meaning of scripture for themselves. "Meaning" entails seeing the relevance of the Qur'anic teachings in everyday experience — business, family and social situations, the environment, and politics. Having seen this relevance, people would then automatically "live religion out," and it would be integrated into systems such as science and development.

comfortable life" (1985 [1925], p. 233). I want to examine two reasons for this decline: the inability of religion to deal with social and, in particular, scientific change; and the perception that the symbols and roles assigned to religion are psychologically unsatisfying.

RELIGION AND CHANGE

Like science, religion must be willing to respond to new data or changes in human life. Religious ideas and interpretations can never be static (Whitehead 1985 [1925]). No generation can merely reproduce the interpretations of its ancestors; no society can live on borrowed faith. Religious ideas, A.N. Whitehead suggested, can avoid fading away into meaninglessness or outdated formulas if they are transformed by the urge of critical reason, by the vivid evidence of universal experiences of the emotions, and by the sureness of empirical — that is, scientific — perception.

> *When it is said to them: "Follow what Allah hath revealed."*
> *They say, "Nay! We shall follow the ways of our fathers."*
> *What! Even though their fathers were void of wisdom and guidance?*
>
> (Q 2:170)

I take care to point out that neither I nor any of the scholars cited here are suggesting that revelation be changed to adapt to new human knowledge. The essential message, or *shariah*,[6] of Islam does not change; what needs to be modified periodically, even as it was done in the past, is the **human interpretation** (the *fiqh*, or jurisprudence) of the *shariah*. This tradition of *tajdid* (or renewal) goes back to the earliest periods of Islam (Iqbal 1930). But the process is deemed to have stopped in the 12th or 13th century with the announcement of the closure of the doors of *ijtihad* (the independent analysis and interpretation of Islamic law in the face of new situations).

The longstanding and ongoing debate between science and religion illustrates the need for religion to be open to change. Whitehead pointed out that on each opportunity for convergence with scientific and rational mind-sets, religious thinkers have been unprepared. With each challenge from science, principles once deemed vital were, after much stress and conflict, modified or otherwise interpreted by religions. The result of a succession of such undignified retreats has been a general loss

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[6] The laws set out by God. But *law* is too rigid a term to explain the nature of the *shariah*. Epistemologically, it means "the way," which I think does better justice to the concept. In connection with it, then, Muslims have derived "ways" or "laws" for doing things. The word *law* in Arabic is *hakm*, or "good," that is, all the "things," "ways," and "laws" that God has prescribed for humans are supposed to be of maximum "good" for them because those laws correspond best to the natural state of human beings (*fitrah*). Logically, who knows creation better than the Creator?

of the intellectual credibility of religious thinkers (Whitehead 1985 [1925]). If one looks into the history of Western societies in the 16th and 17th centuries, for example, one finds that the decreasing influence of religion is not the result of deficiencies in spiritual statements about reality but of the unwillingness of religious leaders and interpreters "to disengage their spiritual message from associations with particular imageries" (Whitehead 1985 [1925], p. 233). We can take, for instance, the Roman Catholic Church's rejection for 200 years of Nicolaus Copernicus's heliocentric (sun-centred) model of the universe in favour of a geocentric (Earth-centred) one. But such a position by religious authority is hardly unique. In the Islamic world, one can see a similar struggle with science in the 18th to 21th centuries.

Thinkers suggesting ways to reconcile science and religion have, likewise, encountered objections from religious authorities: the writings of the social reformists and theologian–philosophers Sayyid Ahmad Khan (1817–98), Jamal al-Din al-Afghani (1838–97), and Muhammad Iqbal (1878–1938) met with resistance from traditional religious teachers and clerics who were unprepared to deal with the new challenges posed by the rapidly secularizing trends of modern science and colonization. Muhammad Iqbal, a poet–philosopher, never questioned the status of scripture. Instead, based on the new discoveries in science at the turn of the century and their ensuing *Weltanschauung,* Iqbal argued that religious experience is also empirical and that a rational account of it could be given. His theological and intellectual endeavours to bring science and religion into closer alignment had two objectives: to provide a new theology for the increasingly Westernized, materially and scientifically oriented Muslim of the 20th century; and to naturalize what had been considered supernatural, by arguing that religious experience is comprehensible in terms of a religious psychology accessible to all. He was also motivated by the lack of development and the political apathy of his people. The closed doors of *ijtihad* never restricted his endeavours because he thought and acted the esoteric alongside the exoteric dimensions of religion.

In reconstructing Islamic religious thought, Iqbal's efforts were not unprecedented in the history of Islam. Iqbal's own predecessor in this process of explaining religion in terms of reason and science was the renowned Sufi Shah Wali Allah (d. 1762), who visualized scientific knowledge as emanating in the form of a light reflected in the West (Halepota 1974). In his *Hujjat al-Balighah* (Matured Arguments), Wali Allah wrote "then my lord influenced me with the idea that the time has nearly arrived when the laws concerning life by the *shariah* could be given exposition via the extensive and commodious garb of reasoning and scientific method" (Halepota 1974, p. 228). In other words, modern (even secular[7]) and scientific knowledge each had a role in the

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[7] In Islam the term *secular* actually does not exist, as knowledge is always understood as the unity of both the worldly and the religious.

interpretation of Islam. Therefore, long before Iqbal and others of his generation, Wali Allah had adopted a positive attitude toward scientific knowledge. In his lecture on freedom and immortality, Iqbal (1930, p. 97) reiterated the same message, saying that "the only course open to us is to approach modern knowledge with a respectable but independent attitude and to appreciate the teachings of Islam in the light of that knowledge, even though we may be led to differ from those who had gone before us."

"Religion today requires," Iqbal said, "a method physiologically less violent and more suited to a coherent type of mind. In the absence of such a method the demand for a scientific form of religious knowledge is only natural" (Iqbal 1930, p. v). Like theologian–scientists of other faiths, Iqbal thought that the scientific and religious processes are in a sense parallel but different methods for moving toward the final aim of reaching "the most real." Through science, we try to understand the external behaviour of reality, whereas through religion we try to understand its inner nature. Both are descriptions of the same reality, with the difference being that in the scientific process the self is excluded as much as possible, whereas in the religious experience the self is fundamentally integrated into the process. For Iqbal, it was important that, just as Hume had helped to objectify science, so too the student of mystical or religious experience can help to render an objective account of it by studying and describing the common elements of such experience.[8]

In the West, Whitehead pointed out that the process of change in science could offer religion valuable models for dealing with change. When Einstein introduced theories that modified our entire perception of the universe, for example, it was considered another step in scientific insight rather than an invalidation of science, even though it proved that previous theories were inadequate (Whitehead 1985 {1925}). Whitehead felt that religion could learn from science and face change in a similar spirit. He emphatically insisted (and Muslim scholars would support him here) that if religion is a sound expression of truth, the modification of meanings attributed to statements of belief as they come into contact with scientific facts can only benefit religion; such changes serve to show ever more clearly the essence of those teachings. As science advances so too can interpretations of religious revelation become deeper and more multilayered (Whitehead 1985 {1925}).[9] Thus, the evolution

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[8] We can say that no two individuals experience spirituality or the presence and working of God in exactly the same way, but these experiences share a number of commonalities that can be documented and verified by others. Also, in Islam, inner spiritual experience is preceded and accompanied by psychological, physical, and moral purification; these processes are observed by all Muslims and, as such, are also points at which the spiritual experience can be studied "objectively."

[9] The exercise described here is an example of *natural theology* and *theology of nature*. In the Qur'an, for instance, a verse describes the development of the embryo from the point of fertilization to the time of birth. A 20th-century Muslim would understand this verse much more clearly than a 7th- or 8th-century Muslim, because of the confirmation and explanation of the processes through science (see also Baharuddin 1994).

of religious thought requires a disengagement of its foundational ideas from what Muslim writers call accretions, which have crept into doctrine by virtue of how individuals in a particular society at a particular time see the world. This process allows religion to draw from, and yet change along with, expanding human science. The principles of religion are eternal, but the expression of those principles requires a growing and continuous development, that is, a focusing, sharpening, and deepening of meanings.

Experiential processes in religion

The fading interest in religion presents another challenge, that of reconsidering the symbols and the roles assigned to religion. Consider the following, for example:

❧ Religion has exploited the fear of an all-powerful, arbitrary tyrant who is behind the unknown forces of nature. Such appeals to human fears and insecurities are losing their power because science has taught people to analyze catastrophes critically in terms of cause and effect (Whitehead 1985 [1925]).

❧ Some advocate the view that religion is valuable for ordering human life and society; this is what Goulet (1992) might call the instrumental use of religion. Religion functions as a guide to right conduct, but without true engagement with principles its rules can become hollow social conventions. Conduct is and should be a natural by-product of religion, but it is not the main point of it. Many religious teachers have spoken against the reduction of religion to a mere sanction for rules of conduct. The Qur'an denounces those who are externally pious but internally possess no heart or compassion for their fellow human beings.

What is needed is to accept the fuller meaning of religion, one that charts out the human relationship not only to the cosmos but also, and more importantly, to transcendent being. This is the relationship emphasized in Sufism (the Islamic mystical tradition), although it is not easy to explain. Iqbal was emphatic that humans should try to inquire into this relationship, saying "we have to find out an effective method of inquiry into the nature and significance of this extraordinary experience" (Iqbal 1930, p. 183). Psychology he found unsatisfactory because, instead of giving real insight into the essential nature of religion and its meaning, it provides a plethora of new theories and misunderstands the nature of religion as revealed in its higher manifestations. On the whole, the implication of these theories is that

religion does not relate the human ego to any objective reality beyond itself. [The psychological] view only saw religion as a kind of device calculated to build barriers of ethical nature around

human society in order to protect the social fabric against the otherwise unresistable instincts of the ego.

<div align="right">Baharuddin (1989, p. 328)</div>

To Iqbal, the psychological approach misses the whole point of higher religion because the ultimate purpose of religious life is to steer individuals in directions far more important to their fulfillment than can be dictated by reference solely to the moral health of the social fabric of their present environment, although one must recognize that the health of the social fabric plays an undeniably important role in such fulfillment. Higher religious experience offers the self contact with the source of life, or God. Through this contact, the ego has the opportunity and capacity for true freedom and change; this contact transforms the human being into a stronger and more creative person who has a new capacity to effect change in oneself and others. Iqbal was certain (Baharuddin 1989, p. 328) that the ultimate human religious experience "is the revelation of a new life process, original, spontaneous," and he felt that the moment the individual "reaches this revelation he recognises it as the ultimate root of his being without hesitation." Iqbal is at pains to convince his audience that such an experience has nothing mysterious about it; it is a perfectly natural phenomenon, possessing cognitive value for the recipient, as well as biological significance to the self.

Bergson (1985 [1903], p. 83) said, "even though the certitude of mystical experience cannot be simply converted into philosophical wisdom, the mystics have changed the philosophical perspective, that is, we cannot philosophise about God, love and creation without reference to their experience." Mysticism, he thought, could perhaps form the basis for a "universal religion." "Genuine mysticism," he said, "is the guiding force of dynamic religion; it appears very infrequently in the history of religion but it is able to move a real, if hidden, layer in our minds and gradually transform or ennoble conservative religion" (Bergson 1985 [1903], p. 83). He believed that "mysticism culminates in a 'contact' and therefore partial coincidence with the creative effort that life reveals. This effort is of God if not God Himself" (Bergson 1985 [1903], p. 29).

The difficulties of translating mystical experience into a philosophy that can guide practical life become immediately apparent through an examination of mystical texts. The Qur'an and other Islamic religious texts, for example, use metaphorical language to describe mystical knowledge. The Qur'an explains,

God is the Beginning and the End, the Invisible and the Manifest, the Internal and the External; He is closer to man than his jugular vein is to his neck. … His closeness is without distance; There is not a single atom, nor a leaf that falls that He does not know about.

<div align="right">(Q 50:16)</div>

And from the sayings of the Sufi prophet (Hadith) (Stoddart 1976, pp. 78–80), one reads

> My Heaven cannot contain Me, nor can My earth, but the heart of the believers … can contain Me.

> Whoso seeketh to approach me one cubit, I approach him two fathoms; and whoso walketh towards Me, I run towards Him.

> Whoso knoweth himself, knoweth His Lord.

Whitehead has similar difficulties in precisely describing the amorphous, all-encompassing, and paradoxical nature of mystical experience:

> The vision of something which stands beyond, behind, and within, the passing flux of immediate things; something which is real and yet waiting to be realised, something which is a remote possibility and yet the greatest of present facts; something that gives meaning to all that passes and yet eludes apprehensions; something whose possession is the final good, and yet is beyond all reach; something which is the ultimate ideal … the fact of the religious vision and its history of persistent expansion is our ground for optimism. Apart from it, human life is a flash of occasional enjoyments lighting up as a mass of pains and misery, a bagatelle of transient experience. The vision claims nothing but worship and worship is a surrender to the claim for assimilation, urged with the motive force of mutual love. The vision … is always there, and it has the power of love presenting the one purpose whose fulfilment is eternal harmony. … Evil is the brute motive force of fragmentary purpose, disregarding the eternal vision. Evil is overruling, retarding, hurting. The worship of God … is an adventure of the spirit.
>
> <div align="right">Whitehead (1985 [1925], p. 237)</div>

For Iqbal, this difficulty of language is part of the problem of understanding mystical experience, that is, we lack the necessary psychological language to explain the observations of reality couched in visions, revelations, and illuminations — genuine mystical experience reported in every religious tradition. Iqbal's challenge to psychology is to develop an independent method calculated to discover a new technique better suited to the temper of our times (Baharuddin 1989). Fortunately, as writers such as Iqbal, Bergson, Whitehead and, more recently, Fritjof Capra (1983) have pointed out, experience traditionally termed "mystical" can now be imagined and articulated through the understanding and analogies provided by atomic reality.

My point is that despite the attendant difficulties of translation, we must take religious experiences of a "mystical" nature seriously and find ways to appreciate the knowledge they offer. They can provide windows onto transcendence that humankind seems to be demanding and, I believe, a convergence of inner and outer experience that humankind can no longer afford to defer. Within this view, a whole realm of

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experience — one of the cardinal principles of which seems to be that the nature of reality is unity and wholeness rather than fragmentation and separation — awaits articulation and integration into philosophical and, finally, social and political systems and processes. In fact, a number of scientists and philosophers are trying to express the nature of such an integrated reality: see David Bohm's (1981) *Wholeness and the Implicate Order*, Fritjof Capra's (1983) *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism*, and Stanislav Grof's (1996) *Beyond the Brain: Birth, Death, and Transcendence Psychotherapy*. Although not engaged in the praxis of psychology, these thinkers are working from within their own legitimate fields of science to create a more comprehensive and holistic worldview.

ISLAM

Among Westerners and those involved in the development community there is a great deal of misunderstanding about Islam and its message. This lack of clarity might be said to begin with Muslims themselves, especially those educated in the secular humanistic mode, either at home or abroad, without exposure to traditional Islamic culture and community. Lack of understanding, coupled with the militant activism fostered in certain groups, not surprisingly gives rise to the common stereotypical view among non-Muslims that Islam is a fatalistic religion with an antidevelopment posture or, at best, with little to say on the subject of development.

As mentioned earlier, there is a strong belief that the Western model of development provides the only legitimate path. To a certain degree, this belief arises in the developing world from a feeling of inferiority, which becomes especially pronounced when outsiders call into question original and indigenous perspectives on development issues. Yet, even though the West still exerts a powerful political and economic influence, forums and opportunities are available for non-Westerners to become seriously engaged in fruitful dialogue with the West and to intellectually confront problems commonly faced by diverse peoples and by all religions. Muslim intellectuals have yet to share with others their belief that the Qur'an has great wisdom to offer the whole of humanity.

Understanding Islam and the reality of the Muslim faith

The discussion of what Islam can bring to the discourse on SRD requires a brief overview of some basic features of Islam, Islamic metaphysics, and the Islamic worldview. Muslims believe that Islam is a religion that was divinely revealed more than 1400 years ago; its essence is contained in the Qur'an, as well as in the traditions (sayings and habits) of the

Prophet Muhammad. It has an orthodox dimension, generally associated with the *shariah*, as well as an esoteric dimension, usually referred to as Sufism (Nasr 1993a). The fundamental message of Islam is the acceptance of, and submission to, the one true God. The word *Islam* means to surrender to the will of God (Nasr 1993b). Muslims believe in all the prophets sent before Muhammad, as well as the religious texts revealed before the Qur'an.

In addition to providing ethical and moral norms, Islam encompasses schools of law, theology, philosophy, and a variety of arts and sciences, as well as a distinctive educational system and political, economic, social, and family structures. It is not meant to be a monolithic system but one in which believers can continue to adhere to its precepts while performing *ijtihad* (fresh interpretations); these interpretations are not supposed to stray from the essence of the law. *Ijtihad*, however, remains more an ideal than a reality in many situations.

The spread of Islam around the world (for example, into Africa, Europe, the Middle East, and Southeast Asia) and into vastly different cultures has resulted, to cite Nasr, in various modes of development. Similarly, the Muslim encounter with Westernism, modernism, secularism, and colonialism has produced a wide range of responses within Islam. Nasr (1993a) described the various modes and degrees of Muslim religiosity within the following categories (which are likely to have parallels in other religions):

&- Those who never miss their daily prayers and live as much as they can by the *shariah* (these people consider their manner of following Islam to be the only way);

&- Those who do not follow all the injunctions of the *shariah* and do not perform the obligatory daily prayers yet definitely consider themselves Muslims;

&- Those who do nothing specifically Islamic except to follow a vaguely Islamic, humanistic ethic, who nonetheless identify themselves as Muslims and would protest vehemently if called anything else; and

&- Those who perform the Islamic rituals meticulously and claim to be devout even while they break many of the moral injunctions of the *shariah*, including the obligation to be honest in business.

These distinctions show that the portrayal of Islam as a stagnant religion or a "uniform wave of fundamentalism" is stereotypical and unrealistic (Nasr 1993a).

Despite the varying degrees of fidelity to their religion on the part of Muslims, scholars such as Nasr believe that Islam remains intact in the Islamic world today. For most Muslims, religion informs all their relationships — among themselves, with others, and with God. This is

a reality they live with and strive to make manifest in their day-to-day affairs. They make use of religious precepts not only in solving family problems and achieving economic goals but also in exercising political power (Nasr 1993a). Of course, it is equally true that the fears and desires of Muslim communities (*ummah*) have been used by those whose motives were anything but Islamic — a misuse that has served to discredit the religion.

Apart from the modernists, the traditionalists, and the fundamentalists — and this Nasr is correct to point out — there is another group in the contemporary Islamic world that is often ignored by Western analyses. This group would like to revive the Islamic tradition from within. It comprises those who have fully encountered the modern world and are completely aware of its complexities and problems. With the philosophical, scientific, and social issues clear in their minds, they have chosen to return to the heart of the Islamic tradition to find answers and to revive the *ummah*. They long to enliven the spiritual reality of religion and to prove that it has a place in today's world. Their numbers are seldom large, and their "theatres of action" are not mass meetings or political gatherings. They are minds and souls that usually interact with each other in small circles. They do not reject traditional Islam, not even its esoteric dimension, which they consider "the heart of the whole body" of the religion; the *shariah* governs the limbs of this body, and the blood from the heart animates the body entire (Nasr 1993a).

This group seeks answers in Islamic metaphysics to problems raised by such ideologies as rationalism and materialism. People in this group see the revival of Islam as a revival within believers themselves; thus, they disagree with the modern dictum that emphasizes the reform of the world but not the individual human being. They believe in and, beginning with themselves, strive to manifest inner revival (*tajdid*) and to avoid mere external reform (*islah*) (Nasr 1993a). The attitude of this group stems from its awareness of a transcendental presence. It is not an attitude of passive acceptance in the face of the myriad problems afflicting society, both Muslim and non-Muslim, but one of realistic application of religious precepts as guiding principles for action. This approach has engendered some of the most meaningful Islamic responses to the modern world, in terms of both religion and development. Examples of these efforts are more fully described in Annex 1.

Personal experiences with religion

I was brought up as a Muslim, with substantial Sufi influence early in my life. My father is a Sufi, who teaches his *murid* (students), and the subject he most emphasizes in his theological discussions with his audiences is *Tauhid*, or the oneness of Allah (God). In this understanding of reality, God is the beginning and the end, the seen (*zahir*) and the

unseen (*batin*), the *raison d'être* of one's being. From a very early age, I also had instilled in me the belief that the constant remembrance (*dhikr*) of God would be the only true source of strength for me to rely on in my spiritual life and, by implication, in my physical, social, emotional, and intellectual life.

When I was an undergraduate training as a biologist in the West (Australia), the methods of science enabled me to see the workings of nature in all its complexity and to feel the tremendous sense of awe that nature can invoke. The philosophy of that science, however, was secular and reductionistic, and one who adhered to it might, at best, claim to be an agnostic. So convincing was the logic of the science I was studying at that time that I underwent my first spiritual crisis in my second undergraduate year. Was God real? How does one know? In the face of so much evidence to the contrary, how can one believe? Is there a universally verifiable "method," like the scientific method, to use to answer these questions? It was at this point that I decided to find out whether science and religion were truly alien to one another.

In Islam, the heart (or *Qalbu*) is a valid source of knowledge, as well as of reason; the heart is the medium through which we discover the reality of God. My assumption, then, was that God, being omnipotent, omniscient, and omnipresent, should know my questions and the confusion I was experiencing. If God was real — as my religion had taught to me — then God would be the best teacher to demonstrate that existence. All I needed to do was to allow God to enter my heart. Thus began an earnest period of communication with God through prayer and invocation, whereby I gained insight into religious truth in my own work and experience. I have since had the opportunity to confirm the validity of this process with religious teachers. In a more formal sense, the "method" of acquiring faith involves consciously cleansing "evil" from one's heart and mind, doing good, and being in a state of constant remembrance of, and communication with, God. For example, one can invoke God through the names that express his attributes. Later, in the works of authors like William James, Muhammad Iqbal, and A.F. Schumacher, who explain religious experience in naturalistic terms commensurate with human experience, I found a language to articulate my thoughts.

Before undertaking my experiment with this method, the problem for me, as I am sure it is for many other Muslims, was that God is portrayed as outside and totally other than oneself. In fact, God is very close to humans, although this does not mean that God is human or that humans are God. According to Islam, humans do not possess anything by or of themselves. When one divorces oneself from God, one does not have anything substantial — either integrated knowledge or a solid sense of purpose, for example. I would say that before my experiment, this was the situation in which I found myself.

After a time, I became aware that the process I had been going through is universally accessible, as it involves only the capacities all humans possess. The method and the experiment reminded me of those in science, and I understood Iqbal's comparison of the state of the scientist in the contemplation of nature with the state of prayer. It was important to me to see the universal applicability, or truthfulness if you like, of the principles of my religion; without this conviction, it would be difficult for me to be true to what I profess.

How has this changed what I do? These understandings did not change my desire to be a biologist, but they made me see my work in a new light. My studies of microscopic organisms in Tasmanian lakes, for instance, provided me with numerous examples of God's design in nature. A certain kind of plankton found in these lakes displays striking patterns — intricate, geometrical, symmetrical, and beautiful. In their form, I also saw the intricacy of God's design and the wisdom of the 99 names attributed to God, for example, "the Alive," "the Maker," "the Creator." Another life form in these lakes is a tiny insect. I must have discovered 10 species and had to describe the peculiarities of each. I found that the distinguishing characteristic of each species was the shape and size of the left posterior leg of the male, which played an important role in reproduction. These creatures measure only about 1 mm. Most people would think that they are just dots in the water, but, in fact, they are beautiful and unique. Their intricacy, despite their size, convinced me of the value and purpose of all living beings. Simply put, God's reality showed itself to me through my work, even though my work concerned only a tiny speck of the whole of creation. For me, that tiny speck held an entire world of its own.

> *The heaven and the earth and all beings therein declare His glory:*
> *There is not a thing but celebrates His praise: And yet*
> *ye understand not how they declare His glory.*
>
> (Q 16:48–49)

I suppose that these realizations have made me aware of the role that assumptions and worldviews, whether acknowledged or not, play in everything human beings do. We all operate on the basis of certain assumptions about ourselves and the way the world works. For example, Western worldviews often come with the assumption that the maximization of profit is an unchallengeable good. Islam offered me another set of assumptions and goals, based on the *shariah*; these are the principles I tested in my experiments, and I found that they are, in fact, a true representation of the way the world works. Moreover, they have given me real happiness, peace, and acceptance of life. Thus, I now do things with motives and intentions (*niat* in Islam) connected with God's "will" as explained in the Qur'an and the *shariah*. But this does not

mean that I act without foundation in fact or without reason. I have found that the principles set out in the Qur'an and *shariah* provide a true picture of the world; this picture can be described equally in terms of the socioanthropological principles of social science or the natural laws of physical science. I have been able to understand the Qur'an and appreciate its relevance to all aspects of my life and in what I perceive to be the whole of life; I can now see the "scientific" nature or reasonableness of what the *shariah* asks of humans. Later in this paper, for example, I explain the concept of *zakat*, or tithe, as a means of redistributing the imbalances of wealth and preventing social inequities. I have also come to see that being religious is not merely a matter of thought or remembrance of God; these must be accompanied by action. Acting from these motivations gives me the courage to face misunderstandings and setbacks, even denigration and hatred, because I feel confident that I am acting from a valid picture of reality — one that integrates and ensures justice for all humans and the environment.

I understand that real tranquility and peace can be achieved through the remembrance of God, for even though one has an obligation to act and to act with the best of motivations, ultimately reality is far too complex for any one human being to be in complete understanding or control of it. Rather than attempting the impossible — trying to manage all the consequences of my actions and controlling all contingencies — I now accept that only God alone, in his infinite wisdom and knowledge, can possibly know everything. I have also come to see what Iqbal and Bergson meant when they talked about the "discovery" stage of religion, when one adheres to religious principles willingly and without feelings of compulsion because one understands the reasons for the tenets of one's religion and how they contribute to a just society. What, however, are the rewards of this approach, other than those I have already mentioned — personal peace, well-being, and a sense of doing good in your community and society? If one believes in the afterlife, the reward will be an ongoing life in the presence of God. In the here and now, this approach offers an opportunity to become, in Iqbal's words, "co-partners with God in creation itself" (Sheikh 1971, p. 75).

Before closing this section on my personal reflections about my religion, I would like to share some reflections on the often controversial issue of women in Islam. From the "right practices" and "right interpretations" concerning women that I have studied and observed, I am convinced that neither Islam nor God discriminates against women. Allah expects the same from men and women, as seen from the following Qur'anic verse:

> For believing men and women
> For devout men and women
> For true men and women
> For men and women who are
> Patient and constant, for men

And women who humble themselves
For men and women who guard their chastity
And for men and women who engage
Much in Allah's praise
For them has Allah prepared
Forgiveness and great reward.

<div align="right">(Q 33:55)</div>

Muhammad, the Prophet,[10] introduced Qur'anic laws to elevate the status of women, including

- A ban on the practice of burying daughters alive;

- The maintenance of women's property rights and their right to keep their names after marriage;

- Women's right to choose their own husbands;

- Women's access to education and careers outside the home;

- Women's access to positions of leadership; and,

- Women's right to buy and sell.

Cultural practices and influences existing before or concurrently with Islam have had a negative influence on men's treatment of women. Such attitudes and practices persist, despite the Qur'anic injunctions.

METAPHYSICS AND ITS ROLE

Nasr (1993b, p. 506) pointed out that metaphysics in Islam is not a branch of philosophy but the "supreme science of the Real." He considered metaphysics a science, acting as the centre of human existence, found at the heart of all orthodox and authentic religions, and attainable through human intellect. Metaphysics deals with both the domains of nature and the realms of the human psyche — art, thought, and community. The establishment of a metaphysical tradition tied to appropriate spiritual methods within the fold of religion could help to rejuvenate theology; Nasr suggested that, combined with philosophy, a theology of nature would provide the criteria for regulating the sciences. Metaphysics gives fundamental unity to any Muslim perspective on issues of science and development and provides the conceptual tools

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[10] It is interesting to note that a rich widow, Siti Khadijah, proposed to Muhammad when he was 25 and she was 40 years old. He was working as a trader of her goods to places outside of Mecca. They were together for 25 years, and the Prophet only took other wives after the age of 55. These later marriages have been attributed to missionary and political purposes. Although polygamy is technically sanctioned by the Qur'an, in fact, it is very difficult, if not impossible, to meet the conditions set out, because they require a man to be absolutely equal to his wives in every sense — financially, emotionally, and socially.

needed to understand why, historically, Muslim societies were able to wed religion and development. In view of the current intellectual climate, Nasr has emphasized the need to create the space for such a science while critically analyzing the "totalitarian claims of modern science or at least of positivism and scientism that today claim a monopoly over knowledge" (Nasr 1993a, p. 11).

Scholars such as Syed Muhammad Naquib Al-Attas referred to Islam, not merely as a religion, but as (to use the Qur'anic term) *din*, which involves the totality of life, if not reality itself. The difference that this perspective makes in one's understanding is hard to over-emphasize. Nasr also commented on the all-encompassing nature of Islam:

> In the Islamic perspective, religion is not seen as a part of life or a special kind of activity along with art, thought, commerce, social discourse, politics, and the like. Rather, it is the matrix and world-view within which these and all other human activities, efforts, creations, and thoughts take place or should take place. … Islam does not even accept the validity of a domain outside of the realm of religion and refuses to accord any reality to the dichotomy between the sacred and … secular or the spiritual and temporal.
>
> Nasr (1993b, pp. 439–440)

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> According to Islam, religion is not only a matter of private conscience, although it certainly includes this dimension, but it also is concerned with the public domain, with humans' social, economic, and even political lives. There is no division between the Kingdom of God and the kingdom of Caesar in the Islamic perspective.
>
> Nasr (1993b, p. 442)

I use the concept of *zakat* (or tithe) to illustrate this integrated perspective. Muslims believe that all forms of income, benefits, and harvests are gifts from God. The Qur'an teaches that the poor have a right to the resources of the Earth, which God created for all humans. Accordingly, a portion of the property of the rich belongs to the poor. Many Muslims give 2.5% of the value of their property to various groups specified in the *shariah*, such as the economically disenfranchised and orphans. Thus, on the one hand, *zakat* is a religious duty, but, on the other, it helps to ensure justice in the distribution of resources in a community, thereby preventing a huge gap between rich and poor and maintaining social stability. Also, the principle of interconnectedness suggests that very rarely, if ever, is any process of change uniquely positive or neutral. The structures of society allow negative effects to visit themselves on the poor and other marginalized groups disproportionately, and, for this reason, *zakat* is not merely charity but a means to ensure justice.

In his book, *Islam: The Concept of Religion and Foundations of Ethics and Morality*, Al-Attas (1992), a renowned Sufi, analyzed the concept of *din* to provide an understanding of human submission to God, a foundational precept in Islam that constitutes the basis for its idea of

development. Al-Attas explained the connections between *din* and such concepts as submissiveness, judicious power, and natural inclination. He showed how these concepts are all connected to the basic tenet of humankind's creation and sustenance by God and its indebtedness for these gifts.

> *Verily God has purchased of the Believers their selves.*
> (Q 9:111)

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Din is derived from the verb *dana*, according to Al-Attas, which means to be indebted. Finding oneself in debt — that is, *a da'in* — one is under the obligation (*dayn*) to yield to the laws and ordinances governing debts. Being in debt and under obligation also involves reckoning and judgment, *daynuyah*. In Islamic metaphysics, even before individuals exist as human beings, they realize that they have to acknowledge God as their Creator, cherisher, and sustainer of their very selves, their souls. The nature of the debt of creation is so tremendous that the moment humans are called into existence, they are in a state of utter loss; they possess nothing themselves, as they see that everything about them, in them, and from them comes from the Creator.

> *Verily man is in loss.*
> (Q 103:2)

According to Al-Attas, as humans own absolutely nothing to repay the debt, except their consciousness of themselves as the very substance of the debt, they must repay it with themselves, by returning themselves to God. Returning the debt means to give themselves in service (*khidmah*), sincerely and consciously, by living out the dictates of God's law, or way. Thus, the concept of *din* also alludes to a "return" to the spiritual and physical nature inherent in being human, and this return is therefore beneficial to the individuals themselves.

> *He who enslaves himself gains.*
> (Q 13:18, 29)

Muslims believe that the love and service they give other humans is given to God. The act of service to God is called *ibadah*, and the service itself is called *ibadat*. *Ibadat* refers to all conscious and willing acts of service for the sake of God alone, including prescribed worship. This

service feels normal to humans because it is a natural inclination. Muslims also refer to the tendency to serve and worship God as *din*, which has connotations of custom, habit, and disposition. The natural state of being is *fitrah*, the pattern according to which God has created all things (for example, it is the *fitrah* of the moon to move around the Earth). Everything is best suited to the pattern created for it and is set in its proper place. This is the *shariah* of God: submission to it brings harmony, as it means the realization of one's true nature. Opposition to it brings discord because it means the realization of something alien that causes suffering to one's true nature. *Shariah* is cosmos, as opposed to chaos; justice, as opposed to injustice. Submission in this sense does not entail the loss of freedom but the achievement of freedom, the freedom to fulfill one's true nature. Humans who submit to God in this way are living out the *din.*

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Al-Attas suggested that the concept of *din* also reflects the idea of a kingdom, or a cosmopolis, for it is only in organized societies, in towns or cities (*mudun* or *mada'in*) involved in commercial life, that the implications of *din* are realized. Towns and cities have judges, rulers, or governors (*adayyan*), and thus the picture of societal life that emerges is one of law, order, justice, and authority. *Din* is conceptually connected with another verb, *maddana*, which means to refine, to build (as in the founding of cities), and to civilize, and these processes fit well in a vision of development. At least in theory, then, the civilizing inspiration or "developmental push" for Muslims is commerce and trade and its various implications as inherent in the concept of *din*. It is not surprising that the Qur'an so persistently depicts worldly life through the metaphors and analogies of commerce. It describes the cosmopolis as bustling with commercial activity and "the traffic of trade." From a spiritual perspective, humans are metaphorically engaged in a form of trade (*al-tijarah*) in which their selves are both subject and object, the trader and the traded: "He is his own capital and his loss and gain depends upon his own sense of responsibility and exercise of freedom. Depending on how he exercises his will and deeds his trade will either prosper or suffer loss" (Qur'an). Human beings realize that they are not just animals that eat, drink, and gain sensual pleasure; they must transcend themselves so as to redeem themselves from the obligation of their very existence.

The concept of *din* presupposes in humans the emergence of higher beings "capable of lofty aspirations towards self-improvement" (Qur'an); this is the actualization of the desire and latent capacity to become perfect (*insan kamil*). In Islam, believers are conscious that they are microcosms of the macrocosm — that is, they are the kingdom in miniature. Each human manifests the attributes of the Creator, because God created human beings in his own image. Muslims believe that humans, being both physical and spiritual, have two souls: the lower, animal soul and the higher, rational soul. In the context of submission,

it is the animal soul that has to return itself to the rational soul. The statement of the Prophet Muhammad, "Die before ye die," refers to the submission of this lower soul to the higher soul, or the subjugation of one's self to one's true self. This process of knowing the self leads ultimately to God.

> *He who knoweth his self knowest his Lord.*
> Hadith (quoted in Waly 1991, p. 6)

In Al-Attas's analysis, the ideal human being lives a civilized life in a community with clearly defined foundations of social order and codes of conduct. Human obedience to the Divine Way is the means to "realising true justice and striving after right knowledge and cardinal virtues" (Qur'an). From this conduct, humans may hope to experience a state of supreme peace, even in this world, and eternal blessedness. One's ultimate bliss would be to behold the countenance of God in his kingdom. Thus, although the ultimate goal of the Muslim is in the afterlife, the journey toward that life begins here, that is, Muslims must start by development in the here and now.

These concepts provide the very foundation and motivation for the Islamic approach to science and development.

What is Islamic science and development?

With these thoughts in mind, I will now turn to the question of how Islam interacts with science and development. I will approach this question in the following way. First, I address a fundamental challenge faced by all religions: Does the promise of an otherworldly salvation thwart attempts to achieve justice in the here and now? I then identify four themes arising from the discussion throughout my paper that might be called the "value perspectives" that Islam brings to science and development and attempt to show how they apply in practice.

Denis Goulet, the economist and development theorist, noted that Marx handed a fundamental challenge to religion when he decried that it places human destiny outside history and thereby turns humans away from the task of working for justice on Earth. This otherworldly orientation, he argued, negates true humanism and perpetuates injustice. On this basis, Goulet asked whether any religion can supply men and women with a convincing rationale for building this world while striving to bear witness to transcendence. His answer was that the "coefficient of secular commitment" contained to some degree in all religions (that is, religious commitment to worldly affairs) needed to be analyzed, awakened, and maximized (Goulet 1996, p. 226). The ability of believers to "see" religion in real life and to apply its values and tenets in solving

worldly problems can be strengthened only if they have a fluidity or dynamism in their thinking and practice; they should not see religion as a monolithic, isolated entity, but as a flexible, practical system of knowledge, well integrated into every facet of their lives.

> *People should work as if they will live forever and worship as if they will die the next day.*
> Hadith 40 (quoted in Rahman 1998, pp. 343, 345)

Yet, this runs contrary to the generally accepted approach. In the Islamic world, many secular leaders have confined the role of religion to the personal lives of individuals, relevant only to the afterlife. The religious sector, for its part, has tried not to become involved in "worldly affairs." The administrative structures and governance systems inherited from colonialization have reduced the areas in which religion is allowed to exercise authority to those of family and personal law. Many governments of modern Muslim countries are only now beginning to incorporate religion into their systems. A first step in this process would be to develop an adequate system of education that combines religious and secular knowledge. As yet, the *ulama* (clergy), ruling groups (politicians), and intelligentsia (academics) have not been able to organize themselves to work together and produce this type of synthesis, even though they are all practicing Muslims. There are exceptions, of course: nongovernmental organizations (NGOs), working in concert with, and receiving support from, all three groups, have often managed to produce practical results.

> *Part of the meaning of Islam is that we worship God as if we "see" Him or, if we do not "see" Him, to know that He sees us.*
> Razak and Lathief (1980, p. 48)

In tackling the issue of how to rejuvenate religion, one may find it useful to distinguish three phases of religious practice — faith,[11] thought, and discovery — as recognized in the work of both Iqbal and Bergson. In the faith phase, one unconditionally accepts religious commands, without understanding them. In the second phase, thought, there is perfect submission to discipline based on a rational understanding of that discipline. In this phase, religious life seeks its foundation in

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[11] For example, at least much of the Muslim community assumes that *taqlid*, or blind acceptance, is sufficient and workable. But I would argue that this type of faith is the most susceptible to doubt, confusion, and disillusionment, especially when one confronts information from science, technology, and secular education that is seemingly contradictory to religion. It is not surprising that many Muslims now find themselves quite at a loss to know how to be loyal to their religion, given the prevalence of a totally secular and reductionistic outlook.

a kind of metaphysics, that is, a logically consistent view of the world, with God as part of that view. In the third phase, discovery, metaphysics is displaced by what might be termed a psychological state of being in which the one living a religious life develops a desire or ambition to come into direct contact with God. Individuals in this phase achieve a "free" personality, not because they are released from the dictates of the law or dogma but because they discover the ultimate source of the law within the depths of their consciousness (Iqbal 1930; Baharuddin 1989). Does this mean that ordinary dogmatic religion is not important? Perhaps this is not the right question. As Iqbal explained, no religion is without dogma, but religions often fail to emphasize that it is the third phase that makes the dogma understandable and practicable.

> *A Muslim mystic asserted that no understanding of the Holy Book is possible until it is actually revealed to the believer, just as it was revealed to the Prophet.*
>
> Baharuddin (1989, p. 324)

In maximizing the coefficient of secular commitment, what is important, according to Goulet (1996), are the precise links postulated between religiously inspired commitment to human tasks (this-worldly existence) and the transcendent reality that is the object of religious faith. He suggested that where there is a high coefficient, these links are intrinsic and essential, rather than extrinsic or accidental. Iqbal and others in the Muslim world would agree with Teilhard de Chardin, who argued that those who believe in transcendence see a world that is open and infinite; they love the world no less than secular humanists, but they work in the here and now to make this reality purer and finally to escape from it. This escape is not an alienating flight from reality, but a means to reach a more complete reality, one providing this world and human efforts within it full and final meaning (Goulet 1996). For those equipped for it, the esoteric path[12] allows the "window" to transcendence to be clarified and even traversed. But the intimate connection between this world and the next demands human effort in the here and now; de Chardin would also argue that no spiritual excuse can justify

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[12] But in Islam, as in Christianity and other religions, esoterism can be and has been abused: its insights, for example, are not susceptible to objective verification; they can be validated but frequently only through personal practice and implementation — hence some people's suspicion of, and attacks on, esoteric practices. But true esoterism, or mysticism, in Islam (as well as in other religions) is the **internal** component or content of the unity that is Islam, as the meaning of *esoterism* indicates. Any internal aspect must be accompanied by an external one, or an outer covering; this is the law, or *shariah*, from which Islamic esoterism is never divorced. Everything a Muslim does embraces both the esoteric and the exoteric realms. In giving *zakat*, for example, the exoteric meaning is that you assist marginalized people in your society; the esoteric meaning is that it expands the quality of the giver's heart.

inertia in religious believers confronted with "an array of pressing secular tasks to accomplish, knowledge and wisdom to be gained, greater justice to be forged, creativity and creation to be unleashed, political fraternity to be instituted, and comprehensive human development to be progressively achieved" (Goulet 1996, p. 227).

Even for people not inclined to esoteric lines of thinking, Islam's coefficient of secular commitment is still clearly present in a number of arenas. As described above, the very metaphysics of Islam dictates that progress toward the afterlife is contingent on development of the self and on actions performed in the here and now. According to the renowned theologian and philosopher–scholar Imam al-Ghazali (d. 111 AD), the knowledge–belief–action (*ilm–iman–amal*) triad of being in Islam requires of Muslims two types of knowledge:

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    ❧ *'lm fardhu 'ain*, or knowledge related to individual obligations — Individuals must be taught and learn the knowledge of God (that is, God's attributes and the human relationship to God); the angels (that is, what they are, their role and function in relation to God and humans); the afterlife and creation; human duties to themselves, to society, and to God; *solat*, or prayers (meant to provide strength, growth, and a means of tapping energy from the Creator); and the significance of giving alms and tithes, fasting (the physical, psychological, and spiritual reasons behind it), pilgrimage (a physical, intellectual, social, and emotional journey toward purification and universal brotherhood), and several other principles by which life takes on meaning. Such knowledge provides a purpose, a code of ethics, a basis for ritual, and the courage to live with oneself, society, nature, and God. Without this type of knowledge, individuals are in danger of being in a state of error and injustice in regard to both themselves and others.

    ❧ *Ilm fardhu kifayah*, or knowledge related to social and collective obligations — This type of knowledge deals with matters such as the establishment of Islamic society, politics, economics, business, trade, law, medicine, and development (Salleh 1998). Each community must have at least a certain number of individuals with the knowledge to enable the community to cope with life's exigencies and flourish. This type of knowledge applies in various areas according to the needs of the given community: fishing, sailing, agriculture, building and engineering, medicine, economics, and science. The list continues to grow as human endeavours expand. To the extent that the community lacks the knowledge and know-how it requires to live properly it remains in a state of injustice and "backwardness."

Am I guilty of some form of caste systemization when I emphasize the significance of esoterism? It is not my intention to make a value

judgment on the different approaches to faith. Teamwork is of the utmost importance in endeavours to develop society. The concept of *ilm–iman–amal* (knowledge–belief–action) shows us that each group and individual in society functions with different inclinations, knowledge, and strengths. Society is the product of their teamwork. That is why in Islam the societal factor, or the *ummah* (community), is important, as the community provides the environment for the "blooming" or development of individuals into their complete selfhood. But even though development falls into the category of social knowledge, we cannot forget the importance of the individual realm; society and the individual are inseparable and must evolve together (Salleh 1998). Ideally, the *ummah* not only is nurturing but also acts to rectify mistakes and sins in a spirit of love and mutual acceptance. In fact, the ideal product of development would be *masyarakat madani*, a God-centred civil society, one in which the ruler and the ruled are equally and mutually accountable to one another before God, who dwells both outside the community (transcendent) and within it (immanent).[13]

In Islam, human beings are seen as God's servants and the *khalifah* (or vicegerents) of God on Earth; development, by fulfilling these functions, is a means to worship God. "In this sense, development is just a means to another end, not an end in itself. It is a means to worship and seek the pleasure of [God], so that humans beings attain happiness in this world and the hereafter" (Salleh 1998, p. 18). In Islam and in other faiths, religion has as its primary goal the attainment of salvation, no matter how this may be envisaged. In this Earthly life, salvation **is** development. In religion, doctrine–theory and practice–method are inseparable. Doctrine concerns the mind, whereas practice concerns the will; religion must therefore engage both the mind and the will of believers. Thus, the mechanisms for, and of, development can ideally be seen as manifestations of religious theories and methods. Believers act as channels for the Spirit to manifest itself through matter, that is, for God to act through humans.

Islam exhorts Muslims to be firmly of this world and act in it, even while they recognize the transcendent. It puts a subtle but definite emphasis on worldly development and intertwines it with the "inner" personality of the individuals who embody the individually required knowledge ('*lm fardhu 'ain*). They are to do all this in the constant awareness of God. As Goulet suggested, a system of transcendent

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[13] In 1996–97, the Malaysian Institute for Development Studies (MINDS), a local NGO, organized a series of conferences at the national and state levels (Malaysia has 14 states). These conferences were intended to promote the idea of a spiritually based civil society, or *masyarakat madani* (in Malay). A series of working papers describing the possibilities for various aspects of this civil society were prepared by a group of local NGO activists and academicians. I prepared a paper on city development and the environment and helped to edit the volume of papers that subsequently emerged. This volume, *Masyarakat Madani*, was published by MINDS in 1998. Its target audience comprised policymakers, NGOs, and the public at large.

meaning (such as Islam) can be a powerful developmental force; the human tasks required in development can draw from a transcendent orientation a "new dignity, urgency, and depth" (Goulet 1996, p. 229).

Islamic value perspectives on science and development

Here, I identify four main Islamic value perspectives that, if creatively and thoroughly applied, could change the direction, goals, and processes of science and development:

1.   All human activity is "religious," even and especially economics, development, and science, and therefore cannot be pursued in isolation from the goals and values inherent in the religious worldview, such as justice, unity, vicegerency, and recognition of God. For example, Islam pays particular attention to economics and the market — we have seen how Islam expresses itself in market metaphors; it has developed its own guidelines and rules to limit human greed, selfishness, and avarice. It has injunctions relating to "how transactions should be carried out, the hoarding of wealth as well as its distribution, religious taxation, endowment … economic treatment of the poor, the prohibition of usury" (Nasr 1993b, p. 443). Islam consigns many resources, such as forests and certain types of water supplies, to the public sector but also emphasizes the right to own private property, as long as moral and ethical guidelines are followed (Nasr 1993b). (An example of how these ideas might be extended to development paradigms is provided in the comments on Chapra in Annex 1.)

You will find me with Me.
Hadith Qudsi (quoted in al-Palembangi 1953, p. 105)

2.   Islam has always preserved the nexus between rational thought, mystical intuition, and revelation and offered models for integrating these interrelated processes of the mind, which have long suffered the effects of separation. Willis Harman, for example, described a "participatory" research method[14] in which the researcher gains knowledge by identifying with what he or she observes:

> [The] intuitive approach is not antithetical to that of objective science; rather, it is complementary to it. The rational/analytical

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[14] Harman's approach to "participation" must be distinguished from the meaning of "participatory" research in international development discourse. Harman uses the term to refer to research in which the researcher gains knowledge by identifying with the observed, thus engaging the subject–object of research through "compassionate consciousness" (Harman 1988, p. 15).

> and the intuitive/compassionate are, in a sense, aspects of each
> other. Morris Berman … makes a strong case that an adequate
> science cannot be based on attempting to know nature from the
> outside through controlled experiments in which phenomena
> are examined in abstraction from their context. With participa-
> tory research we understand that nature is revealed only in our
> relations with it, and phenomena can be known only in context
> (that is, through participant observation).
>
> Harman (1988, p. 16)

A particularly Islamic example of this integration is offered by the
Islamic perspective on nature (see point 4 below).

3. Islam emphasizes humility before God and responsibility. This
    important perspective should stand alongside traditions stressing
    the individual and envisaging a more anthropocentric universe.
    Remembrance of humility and responsibility would be helpful in
    refocusing our goals and processes in economics, science, and devel-
    opment toward human well-being and sustainability and balancing
    the assumptions of scientism, reductionism, and materialism
    embedded in the current processes and goals of these disciplines.

4. Islam offers a particular vision of the relationship between the
    environment, humans, and God:

    > It emphasizes that all natural phenomena are signs (*ayat*) of
    > God, that nature shares in the Qur'ánic revelation, and that
    > humans, as God's vicegerents (*khalifahs*) on earth, are responsi-
    > ble before God for not only themselves but all creatures with
    > which they come into contact.
    >
    > Nasr (1993b, p. 529)

As an example of the integration of diverse modes of thought, the
Islamic approach to nature, as set out in the Qur'an, upholds the
view that nature provides lessons and signs for humans so that
through observation they may know themselves and thence God.
Such signs include the water cycle, the habits and characteristics
of flora and fauna, and the movements of the planets. Each of these
phenomena discloses God's will and attributes to humans. Schol-
ars such as Ismail Al-Faruqi (1986) even go as far as to see every
Muslim as having been "born a scientist," because understanding
the content of scripture requires the serious contemplation of
nature. Muslims who do not use their faculties to penetrate the
truths disclosed by nature are deemed to have missed a fundamen-
tal point of their existence.

> *I was a hidden Treasure. I desired to be known.*
> *I created creation, that I might be known.*
> Hadith (quoted in al-Palembangi 1953, p. 105)

A theology of nature is an attempt to comprehend nature in the context of a religious interpretation obtained from revelation and religious experience. But most theology does not discuss nature or its relation to humanity directly, and thus science can help perfect the understanding of scripture and religious experience in terms of the environment. For example, a scientific understanding of the world points to continuous creation, as well as the effects of God's action in the here and now. Other thinkers, notably Nobel laureate and biologist George Wald, have come to similar conclusions about the nature of matter and consciousness:

> Our growing scientific knowledge … points unmistakably to the idea of a pervasive mind intertwined with and inseparable from the material universe. This thought may sound pretty crazy, but such thinking is not only millennia old in the Eastern philosophies but arose again and again among the monumental generation of physicists [Eddington, Schrödinger, and Pauli, among others] in the first half of this century.
>
> Wald (cited in Harman 1988, p. 18)

I would take these ideas further by recalling that religion encompasses all aspects of life. I think these value perspectives suggest the need to articulate a universal philosophy of nature. By this, I mean an attempt to draw a coherent, logical, necessary system of general ideas for interpreting all elements of our experience; a philosophy of nature would provide us with a holistic basis of thought and action for societal and resource problem-solving, and these are, in a sense, the goals of development. This philosophy would attempt to provide us with a coherent view of reality based on the exploration and interpretation of all types of experience so that we may know and love ourselves, others, nature, and God. Such a philosophy would, by necessity, take into account and render coherent both the scientific and the theological understandings of reality, a reality that includes the environment, not merely human beings (Baharuddin 1994).

CONCLUSION

Earlier in the paper, I referred to a definition of development put forward by Francis Perroux (1983). Its essential features are a growth in awareness and intellectual capacity, personal development, and the freedom to fulfill one's potential in accordance with one's own values. If these features are part, or are becoming part, of the goals of development, my observations in this paper can bring me to but one conclusion: our present course will fail to achieve the desired goals. In other words, we will not achieve these goals without processes that recognize and thus work toward them. The aims we wish to attain have always

belonged to the arena of religious experience and spiritual existence, and therefore I feel that this ancient realm of experience must become an explicit part of the objects of scientific study.

Of course, incorporating religion into every human endeavour calls for "checks and balances" to prevent the misuse of authority and guarantee the preservation of individual self-determination. The approach one takes to religion, I believe, acts as a major balancing influence. Without a doubt, people in positions of authority have often used the doctrines and precepts of religion to consolidate their power. But, clearly, this is an instrumental use of religion, using it as a means to an end. As an end in and of itself, religion involves an internalization of its precepts — a process that includes evaluation and comparison with experience — and then a manifestation of these ideals in thought and action. Such an approach demands commitment, sacrifice, humility and, above all, an openness to change.[15] The mystical aspects of religion enable the individual to maintain a connection with God and rely on the internal guidance that is characteristic of this connection.

Other checks and balances include a strong commitment to education — nationally, locally, and personally — and a deep sense of responsibility toward democracy, peace, and equality for all. Islam places great emphasis on knowledge and education and regards knowledge as crucial to faith. Its orientation to education supports a commitment to democracy, peace, and equality. People must be in a position to know their rights, that is, what is due to them from those in power, and to understand their responsibilities to others and society. And they must live in a context that allows them to exercise those rights and discharge those responsibilities. In an environment that strives toward these balancing influences, religion and spirituality could be indispensable partners with science in its search for a better understanding of the physical and social reality; and with development in its search for a better understanding of human well-being.

ANNEX 1:
ISLAMIC SCHOLARS AND ORGANIZATIONS
INVOLVED IN SCIENCE, RELIGION, AND DEVELOPMENT

In this annex, I briefly describe the projects and efforts of several Muslim academicians and NGOs to effect changes that integrate SRD.

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[15] Consider the difference between the person who says "this is what I think my tradition and my self-development demand of me and what I feel I can do to act in accordance with those beliefs" and the person who says "this is what the tradition says and this is how you should think and act."

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Seyyed Hossein Nasr

S.H. Nasr and his works are well known, and I have cited some of his views in this paper. Originally from Iran, Nasr received his early training in the United States in geology and the history of science. In the 1960s, he began to write about the relationship between science, religion, and the environment and about the problems pertaining to them. As we have seen earlier in the document, his main thesis is that modern humans need to rediscover the lost science of metaphysics, which, together with an extended and rejuvenated form of theology and philosophy, could serve to make science and its use a more balanced affair. Like George Sarton (1927), Nasr has been instrumental in reminding Muslims of the accomplishments of Islamic civilization during the Middle Ages, triggering, among the intelligentsia, a new set of debates and discussions on SRD issues in general. Nasr still writes prolifically regarding the contributions that Muslims can make in contemporary society. Although not everyone would agree with his well-known traditionalist stance, he stands out among Muslim writers for his vast knowledge of Islamic theology, history, and philosophy.

Ziauddin Sardar

Ziauddin Sardar is another figure whose works are popular among Muslim scientists and intelligentsia in the areas of development and the future of the *ummah* (flock). Trained in Manchester, United Kingdom, and currently based in London, Sardar has a background in science, including the history and philosophy of science. A prolific writer,[16] he works closely with Western scholars and Muslim leaders in various parts of the world on projects to enable scientists and policymakers in Muslim societies to more fully understand Islamic philosophy of science, especially its ethical dimension.

Policymakers in the Muslim world are increasingly showing an interest in Islamic science, both its history and its contemporary application. Sardar's (1988) *The Touch of Midas: Science, Values and the Environment in Islam and the West* is the fruit of symposiums he organized in Stockholm (1981) and Granada (1982) that brought together Muslim and non-Muslim scholars to discuss the range of issues suggested by the book's title. The meetings resulted in a rapprochement between the Muslim and non-Muslim participants; they agreed that the symposiums had provided an opportunity for genuine dialogue and had succeeded in identifying a system of values of use in understanding the crisis of science and in shaping S&T policies to reflect Islamic cultural and

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[16] His works include *The Future of Muslim Civilization* (Sardar 1979a), *Islam, Outline of a Classification Scheme* (Sardar 1979b), *Arguments for Islamic Science* (Sardar 1985a), and *Islamic Futures: The Shape of Ideas to Come* (Sardar 1985b).

religious imperatives. These value concepts derive from a set of principles forming a paradigm for development and progress within an ideal Islamic society: *tauhid* (unity); *khalifah* (trusteeship); *ibadah* (worship); *ilm* (knowledge); *halal* (praiseworthy) and *haram* (blameworthy); *adl* (social justice) and *zulm* (tyranny); *istislah* (public interest); and *dhiya* (waste) (Sardar 1988).[17] Researchers frequently cite Sardar's 10-point value system, indicating the need felt by researchers for a framework of action.

MUHAMMAD UMER CHAPRA

Chapra is an economic adviser to the Saudi Arabian Monetary Agency. He has written extensively on Islamic economics and finance, and his most important work is *Towards a Just Monetary System: A Discussion of Money, Banking, and Monetary Policy in the Light of Islamic Teachings* (1985). He received the Islamic Development Bank Award in Islamic Economics for his contributions in this area. Unlike the others we have seen so far, Chapra is one of the few Muslim economists who seems confident enough in what Islam has to offer to explain at length how economics, development, and religion might interact. Chapra's ideas are set out in a work of some 400 pages, *Islam and the Economic Challenge*[18] (Chapra 1992). In the context of today's economic uncertainties, Chapra earnestly appeals to Muslim countries to try out what he calls the goals of the *shariah* (*Maqasid-al-shariah*) as a means of avoiding disintegration (by this he means social upheavals and recolonization by multinational corporations). A recent example is offered by events in Indonesia, sparked by the currency and debt crisis that hit all the economies of Asia. Through mass demonstrations, the people — many poor and jobless — demanded the removal of the incumbent leaders. Observing the huge disparities in wealth between the various sectors of Indonesian

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[17] *Tauhid* — usually understood to mean the unity of God — is extended here to refer to an all-embracing value that includes the unity of humankind, human beings and nature, and knowledge and spiritual principles. *Khalifah* (vicegerency, trusteeship) means that humans are responsible to God for their scientific and technological activities. The vision of humans conquering and having dominion over nature has no place in this framework; nor are they passive observers. Nature is a trust. It is also the medium through which humans perform their *ibadah*. Although contemplation is an *ibadah* (good deed) in itself, it also leads to an awareness of unity with nature and of human vicegerency. The pursuit of knowledge (*ilm*), as in science, is another way to perform *ibadah* (worship). Islam recognizes many categories of knowledge: a particular scientific knowledge or specific technology could be *haram* if it is destructive (physically or otherwise) for humans or the environment. If, on the other hand, it is of benefit to humans or the environment then it is *halal*. *Halal* finds parallels in *adl* (justice), as *haram* does in *zulm* (tyranny). One knows *zulm* science and technology if it destroys human, environmental, or spiritual resources or generates waste. Such a science is often called *dhiya*, or wasteful. Scientific and technological activity that ensures justice (*adl*) also promotes the public interest (*istislah*) (Sardar 1988).

[18] See also his *Towards a Just Monetary System* (Chapra 1985).

society, they understandably felt that their leaders were corrupt and thinking only of themselves. The leaders forgot their duties as vicegerents (*khalifah*) of God, because they neglected the people.

The goals of the *shariah* are, first and foremost, human well-being (*falah*) and a good life (*hayat tayyibah*). To Chapra, the *shariah* is the basis of development because, in its emphasis on socioeconomic justice, it aims to satisfy both the spiritual and the material needs of human beings. Chapra derives inspiration from al-Ghazali, whom he quotes as saying "the very objective of the *shariah* is to promote the welfare of the people, which lies in safeguarding their faith, their life, their intellect, their posterity and their wealth. Whatever ensures the safeguarding of these five, serves public interest and is desirable" (Chapra 1992, p. 1).

Chapra also agrees with al-Ghazali in putting faith at the top of the list of the *Maqasid* because it is the most crucial ingredient in human well-being. Faith places human relations on a proper foundation, enabling human beings to interact in a balanced and mutually caring manner for the well-being of all (Chapra 1992). Faith also acts as a moral filter to keep the allocation and distribution of resources in line with requirements for unity and socioeconomic justice. Without the element of faith in human economic decisions — in the household, the corporate boardroom, and the market — we cannot possibly realize efficiency and equity in the distribution of resources; efficiency and equity are prerequisites for avoiding macroeconomic imbalances, economic instability, crime, conflict, and the many symptoms of anomie (Chapra 1992).

Chapra emphasizes that, if we are to achieve equilibrium between scarce resources and the various claims on those resources, we need to focus on human beings, rather than on the market or the state. It is imperative, therefore, to reinstate the human being as the foundation of the economic system. Humans must be motivated to pursue self-interest within the constraints facing the world (Chapra 1992). Truly believing in the possibility of a just and sane economic system, Chapra sets out the various stages for achieving such a system.

Like others, Chapra begins with a critique of the present situation, followed by a reevaluation of principles embedded in the religious metaphysics of Islam. Choosing the three well-known principles of *tauhid* (unity), *khalifah* (vicegerency, trusteeship), and *adl* or *adalah* (justice), he delineates a strategy for a more enlightened economic system. In his treatment, he deals with all the details and complexities of the modern economic system and integrates religious principles and economics throughout.

Chapra (1992) speaks of *tawhid*, *khalifah*, and *adalah* as being connected with, and translatable into, ideas about universal fellowship, resources as a trust, humble lifestyles, human freedom, needs fulfillment, equitable distribution of income and wealth, growth, and stability. He suggests reviving systems laid out in the Qur'an, such as the *zakat* (or

tithe) system, and other principles pertaining to wealth. He deals clearly with an entire complex of ideas, starting with the role of the *ulama* (clergy), the restructuring of policies, land and labour reforms, education and training, access to finance, and the size of land holdings, and he moves then to the restructuring of the financial and investment systems, just and efficient taxation, tariffs and import substitution, and priorities in spending. To do justice to Chapra's ideas, however, I urge readers knowledgeable in economics to read his writings and engage with his ideas more directly.

Chapra (1992) concludes his treatise by reiterating that imbuing economics with religious values would imply a serious effort to raise (along Islamic lines) the spiritual and material well-being of all people. On the spiritual side, inner happiness can be achieved only by drawing nearer to God; on the material side, Islamization requires the just and efficient allocation of resources so that the good life can be achieved (*hayat tayyibah*). Islamization is not against liberalization; rather, Islamic liberalization involves passing public- and private-sector economic decisions through the filter of moral values before they affect the market. Without the Islamization of Muslim societies (including a fundamental sector like the economy), that is, without integrating SRD, it will be virtually impossible for Muslim countries to achieve development. Chapra observes, however, that there seems to be little evidence that Muslim policymakers have been inspired to translate Islam's economic ideals into development policies. Chapra predicts that, even if attitudes change, the task will be arduous and time consuming; he urges policymakers to read the signs of the times quickly.

INTERNATIONAL INSTITUTE OF ISLAMIC THOUGHT

The International Institute of Islamic Thought (IIIT) was founded in 1981. Its main aims are to revive and encourage Islamic thought and promote the Islamization of knowledge in contemporary disciplines. It also explores the potential for packaging knowledge so that it integrates *tauhid* (the concept of oneness) and the *shariah*. It addresses problems relevant to the development of the Muslim community and economic development in general through the values and principles of the Islamic religious paradigm.

IIIT's primary appeal has thus far been to academicians. To achieve its goals it promotes research in the social sciences, especially in the methodology and philosophy of science. Moreover, it organizes seminars and conferences and sponsors the publication of specialized works. It awards scholarships and offers guidance to research students. Currently, it is planning to establish special programs of higher studies to strengthen Islamic culture. Although based in the United States, it receives technical and monetary support from countries such as Malaysia. More information about IIIT is available on the Internet (www.iiit.org).

MALAYSIAN ACADEMY OF ISLAMIC SCIENCE

In 1977, Muslim scientists in Malaysia got together to revive the tradition of an Islamic science. This group, which includes many top scientists and engineers working in key sectors, aims to Islamicize attitudes and practices in S&T in ways that follow the ideas explored in this paper. They are also interested in promoting S&T among Malaysians. What may be of particular interest from the viewpoint of SRD, however, is how they focused their efforts on the issues of science, Islam, and development in the recent National Science Policy Seminar. Like a number of other countries, Malaysia has been trying to telescope a few centuries of development into a few decades. Its current statement of general policy — called Vision 2020 — states that Malaysia should strive to be, among other things, a producer of its own S&T and not merely a user of technologies imported from abroad. Despite the honourable and bold intentions expressed in this document, not much thought has been given to implementing its goals. Thus, even though Malaysia has a national science policy, there is no widespread, substantial awareness of it, let alone a healthy critique. Nor is there an ongoing debate about the role and character of science in the country's development in general. Anxious to prove that an Islamic ideal could be universal, however, the Malaysian Academy of Islamic Science (MAIS) has undertaken to explore a developmental model based on science and religion. Its work is promising, as it has thus far managed to garner the support and participation of some Malaysian policymakers.

The two most active proponents of MAIS ideas are Shaharir Mohamad Zain (a professor of mathematics) and Wan Daud (a professor of chemistry). Zain and Daud looked at the approaches and ideas of other Muslims on SRD before establishing their own perspectives. Below I have briefly summarized the main tenets of their approach to defining a Malaysian model for the integration of SRD. They presented these at a seminar in September 1998 (Daud and Zain 1998):

1. Development in Islam is the holistic development of humans themselves; material development is merely a by-product or effect of human development. Humans develop on the basis of *ta'dib* (a civilizing factor), the cleansing of the heart and mind (*tazkiyah*), and education (*tarbiyah*). The goal of human development is the good human, of which the highest form is the perfect individual, or *insan kamil*. Such individuals are in a state of total acceptance of God; and God, of them.

2. Capital should be gained and increased through labour and not merely through investment. In the secular model, the accumulation of capital through investment requires savings. In Islam, savings alone cannot give rise to profit because usury (*riba*) in the form of charging interest is prohibited. Instead, Islam encourages

people to save through a medium or simple lifestyle and the avoidance of waste. To avoid usury, the banks neither pay interest to depositors nor charge it to borrowers. Because they need to operate as sustainable economic enterprises, however, the banks receive a share of the borrower's profits and distribute a portion of these profits to depositors; this spreads the risk out across borrowers and depositors. Accumulated capital is taxed through the "alms tax" and tithe so that wealth flows back and can be distributed to the poor.

3.   Under this proposed system, economics in Islam would not be as liberal as in the current *laissez-faire* system, because the institution of *hisbah* would watch and regulate the market; *hisbah* is an institution akin to a district governorship, possessing judicial and policing power and having access to all government records. The *hisbah* was once a living institution in the Islamic civilization (al-Faruqi and al-Faruqi 1986). The *muhtasib* (a person in charge of the *hisbah*) deals with cheating and usury, as well as other *haram* acts.

4.   Proposed development models must be based on the good (*maslahah*) of society and not only on the motive of gain for the investor.

5.   In economic terms, science helps to increase profits through the use of labour- and resource-saving technologies. MAIS is inspired by Ibn Khaldun (d. 1404), the famous Muslim sociologist from Tunis. In his treatise *Muqadimah* (literally, The Introduction), Khaldun not only wrote on the importance of S&T in human life but also suggested a model of Islamic development for the achievement of a high civilization (*umran*); from a concrete historical perspective, this goal began with the Prophet and the city of Madinah. The first believers were strong in their faith because their *ta'dib* and *tazkiyah* took place in the hands of the Prophet himself. Thus, they possessed a genuine feeling of unity (ideally faith is incomplete unless believers love the next person as they love themselves); this is called *'asabiyyah*. Khaldun observed that the downfall or disintegration of a nation occurs, not so much because of a breakdown in its economic system, but more because of the breakdown of the political power of the ruling elite, beginning with the loss of *'asabiyyah*.

6.   In the modern view, economic development involves industrialization, basically using resources, labour, and technology to produce an assortment of products and services in large quantities so as to be cost-effective. This process is, in principle, acceptable because the Qur'an mentions the use of resources (*tashkir*). Human dominion over nature is not an absolute fact, however; it is based on the condition that humans use nature only in accordance with the limits, purposes, and ethics prescribed by the Qur'an.

7. Technology as a means of controlling nature or gaining political power is rejected. In the religious perspective, technology is a branch of the practical sciences used to achieve a practical end. Both the means and the purpose of the technology, however, must conform to principles such as those outlined by Sardar so that the effect is harmonious and balanced with humans and nature.

8. Local people must have the freedom to innovate or improvise on imported technologies. Such indigenization is required at every level of technological development (that is, conception, form and design, production, and application). Usually, however, developing countries are only passive receivers and users of technologies imported from developed countries. Giant corporations own these technologies and exercise their right of ownership to maximize their profits; the motive of assisting developing nations is not part of the scenario. The Southern users of technology have little opportunity to innovate or indigenize the technology to make it truly theirs. Technology transfers often involve patent and copyright conditions preventing any indigenous innovation. This framework serves to ensure the continuous dependency of the South on the North, which some characterize as an ongoing form of colonialism.

9. An ironic situation exists in some developing countries, where the local population may be proud of the tallest buildings, the latest sophisticated transport systems, television satellites, and cybertechnologies, but the truth is that these are almost completely imported technologies. Some see globalization as a pretext for ensuring the dependency of Southern countries. Efforts should be made to strengthen local knowledge and capacity in S&T.

10. The negative effects of current development interventions on both humans and the environment are lamentable. Many developing nations prefer to hasten their development projects by imposing laws, for instance. But development is not a transparent process; the context of land acquisition for project implementation provides us with an example of the unintended consequences of legal measures. In some cases, they include no requirement to inform landowners, let alone consult them, regarding the project to be implemented; planners and politicians make the decisions. In addition, people are rarely provided with cost–benefit and risk–benefit analyses so that they can participate in the decision-making that will affect their lives so acutely. Compensation hardly removes the suffering caused by the loss of land, nor can it provide the security of livelihood provided by land ownership.[19]

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[19] Personally, I feel that problems such as this can be linked to the lack of empowerment in general among people in developing countries. This question, in turn, is linked to a poor grasp of the meaning of religious principles such as *khalifah*, *amanah*, and humans' being accountable to God for all their actions.

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Farzam Arbab's doctorate in theoretical particle physics led him to Colombia to work with the University Development Program of the Rockefeller Foundation to strengthen the Department of Physics at the Universidad del Valle. While there he began to study the relationship between science, technology, and educational policy and their effects on development, which led him and a group of colleagues to form the Fundación para la Aplicación y Enseñanza de las Ciencias (Foundation for the Application and Teaching of Science). This organization still functions as a successful development program in Colombia and has earned an international reputation for its application of spiritual principles in education and development. In 1993, Dr Arbab was elected to the international governing body of the Bahá'í Faith, on which he currently serves.

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Acronyms and Abbreviations

CSWR	Center for the Study of World Religions
DAV	Dayanand Anglo Vedic
FUNDAEC	Fundación para la Aplicación y Enseñanza de las Ciencias (Foundation for the Application and Teaching of the Sciences) [Colombia]
IDRC	International Development Research Centre
IIIT	International Institute of Islamic Thought
IMF	International Monetary Fund
MAIS	Malaysian Academy of Islamic Science
MINDS	Malaysian Institute for Development Studies
NGO	nongovernmental organization
S&T	science and technology
SAP	structural-adjustment policy
SRD	science, religion, and development
TNC	transnational corporation
UNDP	United Nations Development Programme